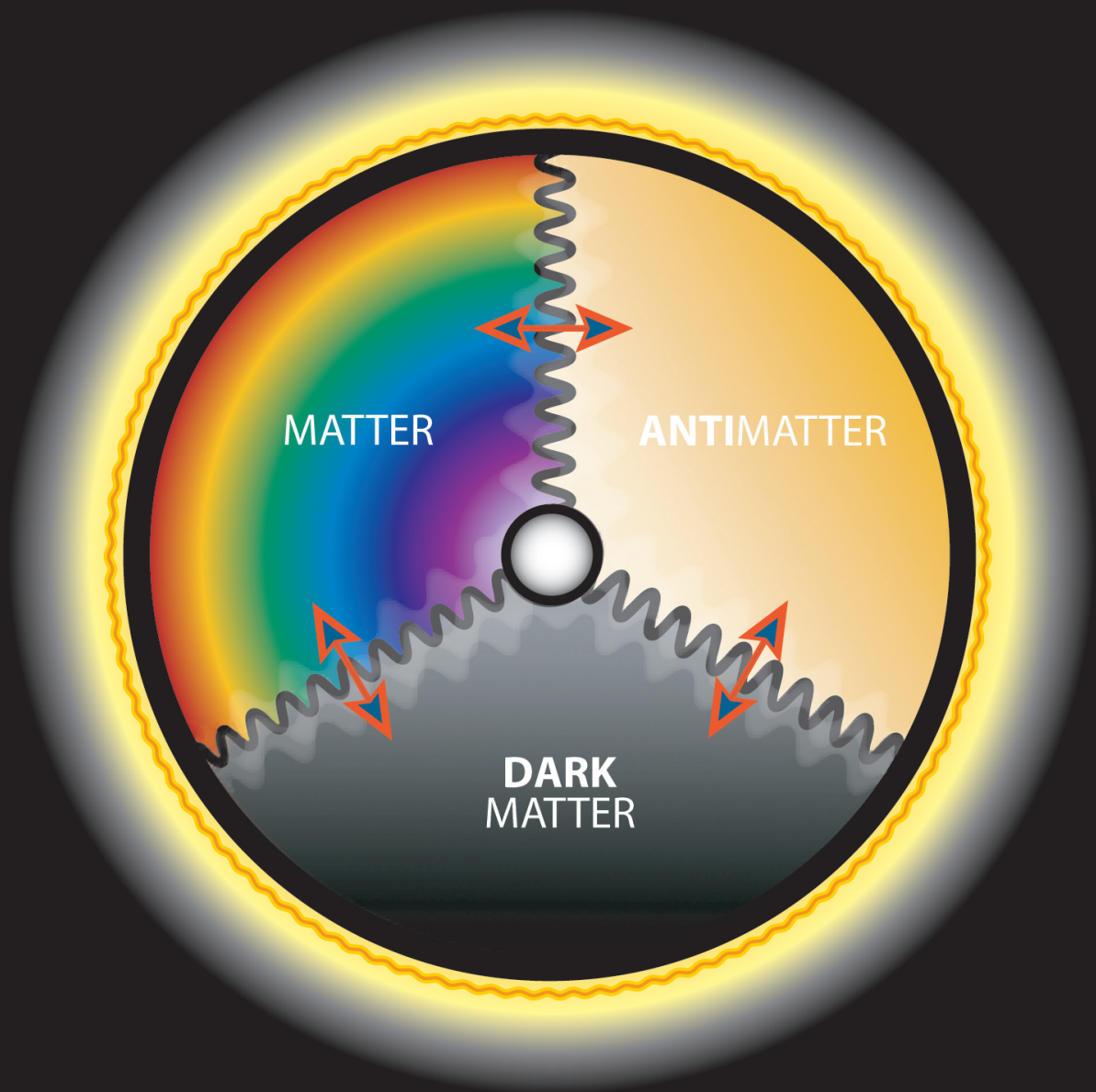


The Universal Order of Creation of **M**MATTERS



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The Universal Order Of Creation Of Matters

ITNOTGOG

... a Reflection

Mans intelligence has reached levels that through the use of modern technologies that anyone can peer the knowledge he reads to verify its logic and validity.

I firmly believe that this work has to be understood by all Men and not judged by a few whose self-interest might, and has been, obstructing the release of such a knowledge as disclosed in this book.

This book is written in such a way that anyone from any background field of science, and interest in the workings of all Matters of the universe, can understand the full new knowledge and be their own peers in receiving such a disclosure, which is at the edge of science and technology.

In this book a synthesis is given of the *understanding of new first principles in physics* that are gathered for over more than thirty years of independent research and development, where several working prototypes and numerous tests with different loadings have confirmed their correctness and operativeness.

Mehran Tavakoli Keshe
2009

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Forewords

In Mans technological and scientific evolution over thousands of years, conversion of the Earthly state of matters and energies from one state to another has been the key to his progressive success.

For man to progress further in the path of this evolution, man has to learn, understand, and unravel the powers of the initial fundamental particles of the Matters.

In the following pages, simple new theoretical principles and results of tests done to unleash the powers of the initial fundamental particles forces will be released and discussed.

In my writings, the simplest form of language is used so that every man, from all corners of the world, can read and will be able to comprehend the fundamental orders of their physical creation.

Therefore, every man on Earth will have the same groundwork knowledge and opportunity to build his own environment and so be in control of his future and destiny.

This simple transfer of knowledge gives every man, by understanding the principles of his world of creation, the possibility to utilise and enhance the fundamental powers of creation for his advancement in his path of evolution.

Through appropriate use of this new knowledge, one can generate as much clean power as one needs for survival at any location in the universe.

This is energy production capability, without the production of any further new wastes to damage the environment and to endanger the future generations' chances' of survival.

This new knowledge allows man to produce food and medicine through the natural process of the construction of his cells' initial fundamental plasmas.

Therefore, no child, woman or man should go hungry and rely-upon others for his survival.

This new knowledge gives man the opportunity to produce all his materials' needs, without him being tied-up to the Earthly resources, or environmental conditions, or the place or a position in the universe, wherever that might be.

This new knowledge brings about the capability for man to be able to move and travel in his environment and in the universe with universal magnetic fields protection, in any atmospheric or space conditions.

This new knowledge, gives man the freedom of motion irrespective of the medium whatever his medium, and wherever he might be in the universe. For man to be able to use systems for travel that is at all time in protected magnetic fields levels and gravitational field levels as on the Earth. As his physical body has become accustomed to the atmospheric condition around his home planet.

Which up to now, this has been a dream and unattainable in all dimensions, with his present level of scientific development and knowledge.

Men will build on this new knowledge, and they will add their own scientific and technological flavours and unique additions and discoveries to overcome their present natural problems and limitations.

Our hope is that, Men, irrespective of their race, colour of skin, creed or religion, will use this new knowledge collectively and in unity, for advancement of the human race. We pray that, Man uses' these new knowledge and information's for creation of peace and justice among their fellow men and other of Gods' creations and creatures, whom they will come to be in touch with, irrespective of their appearance, technological progress and intelligence.

Mehran Tavakoli Keshe

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Introduction

In the progressive path of mans' technological achievement, it has been proven that the human race has not been able to create and produce fundamental energy systems similar to the ones which are operating in the spans' of the universe.

Nevertheless, he has managed simply to convert one form of energy to another and he has made use of the small surplus energies released by these methods to his advantage.

In the universe, the structure, operation, appearance and existence of the plasma and an atom, does not so much differ from the relationships and interactions of their larger counter parts as the molecules, solar systems and galaxies.

Where, as in the *present* science and state-of-the-art technology, the lower orders of particles of construction of an atom in its nucleus are considered to be made of quarks and gluons.

The world of science has never looked at and into the *progressive construction of a plasma* (Chapter 3) on the same basis and principles' as other larger matters and fields in universal orders of creation and motion.

What this simply means, is that scientists over centuries have made some limited and un-necessary self-imposed conditions in looking at the physical realities of Matters and matters in their surrounding environment, for them to be able to compare and draw parallels from these phenomena and principles to understand the criterions by which the initial seeds of plasmas are set in the universe and to understand the methods by which different forces operate within them.

From the basic knowledge of what is in hand in the world of science at the present, it is not too hard to discover what are the real elementary particles in the universe, and find an *alternative and realistic way* of how these fundamental particles of plasma come together to create *the initial seed of plasma*.

It is important to note that the existence of dynamic and different strengths, speed, velocity and densities of *magnetic fields*, and their interactions, are the **cause** and the **foundation** of the existence of different **Matters** within the universe. In the universe, *collections of loose and weak magnetic fields* have initiated the creation of, and finally become the initial components of the Matters of plasma.

Rays and plasmatic magnetic fields

At the same time, we consider "rays" as individual and directional magnetic forces. We consider "fields" as the same ray's magnetic force as it is influenced by other rays and magnetic field forces, which the ray makes a dynamic zone of influence in its path.

We consider the same phenomena in principle with respect to plasma and *plasmatic*

magnetic fields, where, a plasma of magnetic fields is considered to be a collection of such rays and fields of rays.

The collective interactions of weak plasmatic magnetic fields in the universe are considered to become the foundation and the cornerstone of the creation of initial fundamental particles.

In the universe, the same and regular specific sequential and consequential interactions of lower orders of magnitude plasmatic magnetic fields strength are always considered to lead to the formation of the plasma and its sub-Matters' components.

Throughout this book a clear distinction has been tried and been made between the magnetic field and plasmatic magnetic fields.

The **Plasmatic magnetic fields** are considered to be of *collection* of near *similar dynamic rays* of magnetic fields *strength*. We refer to the Plasmatic Magnetic Fields as "**pmtics**", as *Magnetic fields, which were detached from their source of creation*, hence, the use of the term "plasmatic" for these magnetic fields. For clarity: In this book the term "**plasmatic**" refers to a "collection" of dynamic magnetic fields, and **NOT** to the *state of a plasma* in its common term use that refers to a *state of dynamic protons*.

At the same time, pmtics interactions with other pmtics are considered to create effects the likes of gravitational fields and Magnetic fields of Matters, plasmas, planets and so on.

These magnetic rays or fields and their collection as plasmatic magnetic fields, become known as the **Initial Fundamental Particles**. Therefore we consider that magnetic fields to be the "**real**" **fundamental particles**.

The present science considers that the 'elementary particles' to be of 'quarks' and others. With the new understanding of creation of Matters and forces within the universal order of creation, in this book when the term '**elementary particles**' is used, this means that the '**magnetic fields**' are considered to be the **new** '*elementary particles*' and their forces. The existence and interaction of these magnetic fields leads to and creates all other effects that one sees and observes in the universe, like creation of Magnetic and gravitational fields which leads to creation of what I call different **Matters** (*Matter, Antimatter and Dark Matter*) of the plasma, or what presently is known as quarks and so on of the plasma. Where, we consider the Dark Matter as an integral and part of the same normal Matters of existence and as an important part of the construction of the initial fundamental plasma in the universe, and we do not consider the Dark Matter as an exotic and distant hidden Matter.

From this point on in this book, we refer to 'magnetic fields' as the '**elementary particles**' and *not consider quarks and others as elementary particles any further*, I consider that these quarks of different colour, with up and down notation and spin are all created as the outcome and consequences of different interactions and attraction of these 'magnetic fields' or 'plasmatic magnetic fields'. As quarks themselves are now known to be made of simpler particles of 'magnetic fields', then quarks cannot be

considered to be the elementary particles.

In this book will be explained how ‘magnetic fields’ become to be the creators of quarks and other effects and forces within the plasma of proton, then the ‘**magnetic fields**’ become the ‘**new elementary particles**’ in the science of physics.

Further in this book it is explained how *different strength of these fields* leads to the creation of different **Matters and their forces** as has been observed by world of science.

Furthermore, these weak collections of particles and their interactions with magnetic fields and turbulent magnetic fields forces in different parts of galaxies manifest themselves as the seeds of atoms, stars, galaxies and so on.

Magnetic and gravitational fields (Magravs)

When we write **M**agnetic field (with capital M), we considered that these fields refer to the Magnetic field of celestial objects, like a Star, planet, etc. Where this Magnetic field is always accompanied with gravitational fields of the object.

Where we consider that ***gravitational fields and Magnetic fields*** cannot exist in the universe without each other, and that they are produced simultaneously. Through the same dynamic materials and Matters in the same region. Due to the construction of other Matters in their catchments area, these entities could have a different value than the other. As the Matter/matter content of the object dictates which will be stronger in strength and value than the other in that given position. The only known and possible objects that its gravitational and Magnetic fields could be equal in value strength, in majority of the cases in the universe, are objects of mono-material (like some stars), with pure hydrogen content. There are cases in the universe(s) that mono-matter of objects can be like uranium or heavier elements. These objects of heavier mono-matters are usually the producers of stronger gravitational fields and Magnetic fields, by several orders of magnitudes than the hydrogen mono-matter objects. It is assumed that each universe cannot possess more than one heavy material mono-magnetic star.

It has to be noted that the co-existence of these two fields always in interaction with any other magnetic fields or plasma of fields always lead to the creation of a ***magnetosphere***, which the boundary of the magnetosphere is the maximum point of balance or equality between the two field forces. Any variation in strength of one of the two fields in respect to the other will create different effects, for example such unbalance field between the two fields can be seen in Mercury, which has no atmosphere, and such a misbalance can also be observed in most moons of planetary systems.

In this book, as one field cannot exist without the other, for representation of the **M**agnetic and **GRA**Vitational fieldS we use the term: “**MAGRAVS**”.

Plasmas

We consider that “ The **Plasma** in its **collective existence** is a combination of different initial fundamental Matters, which these Matters are created through the interaction of at least two or more of the same strength plasmatic magnetic fields (the initial fundamental particles)”.

Plasmas (Chapter 3) are considered to be collection of combination of interaction of pmtics forces of Matters’, Antimatters’ and Dark Matters’ and other magnetic fields forces, all at the same time and within an overall sphere of the confines of the plasma.

Further, in the process of interactions and collections of these initial pmtics with each other, in specific combinations, these leads to creation of atoms, molecules, matters and so on.

In this disclosure, simple connections between *Initial Fundamental **Particles*** and *initial Fundamental **Plasmas*** are explained and discussed.

These specific collections and interaction of initial fundamental *particles* and initial fundamental *plasmas* and their interaction with other magnetic fields manifest themselves as **states of matters**, these are purely magnetic fields densities and compactness environment dependent, and they present themselves as different states of matter (gases, liquids and solids).

Matter and matter

In the following sections, we clearly distinguish between *states of matter* (gases, liquids and solids), denoted as “**matter**”, and *state of the Matters* (Matter, Antimatter and Dark Matter) denoted as “**Matter**” or “**Matters**”.

Initial Gravitational Fields

The interaction of different magnetic fields of different strengths, upon each other, is considered to be the creator of initial gravitational fields for the start of the creation of the initial seeds of the Matters of the plasma (Fig. 8 B).

We consider that pmtics interact to create the attraction field or gravitational field.

Reactor technology

With the new knowledge and new first principles which are disclosed in this book about the creation of Matters’ and plasmas’, techniques acquired and reactor systems have been designed, developed and tested, it has become possible to replicate the pmtics of plasmas’ environment that allows different Matters of plasma to be released from their interlocking magnetic fields forces within the confines of a reactor.

Further on, it has become possible within the structure of these reactors, to manage and control, these unlocked fields and Matters of the plasma, for specific predetermined functions and applications.

In these new reactors, in being able to weaken the Magravs of the plasmas (Coulomb magnetic or energy barrier) and by allowing the Matters of the plasma to be more free to move within the environment of the reactor. Where, these reactors were designed to facilitate the reduction in plasma magnetic fields forces and eventually to create an environment that Matters of the plasma can freely move in a soup of Matters, pmtics and rays. Where, through the operation of these types of reactors the famous Coulomb barrier becomes irrelevant in the overall structure of the soups of Matters binding magnetic fields of the plasma.

With these new methods of the manipulation of the structure of the Matters' of the plasma it has become possible for the pmtics forces of the plasma within these reactors to be unleashed, and with plasmas' constituent substructure loosen, it has become possible to manage to attain new powerful effects and properties from these rather weak initial fundamental magnetic fields of the plasma. Where up to the present time, these have been the unknown knowledge and methods in the world of science.

Within the structure of simple nuclear-based systems that have been developed, *conditions are created in which simple weak ambient dynamic pmtics, similar to the internal construction of plasmas, are generated.* The technology for creation of conditions similar to the internal structure of the plasma and methods which have been specially developed, that allows the loosening of the magnetic fields structure of the plasma, this will change the course of present nuclear fusion, and allows scientists in this field to achieve their goals *rapidly* and *at the fraction of cost* of present systems.

In the new state-of-the-art technology much simpler, softer and more practical ways, very similar to conditions as in the universe, are employed to attain fission and fusion of different Matters and plasmas.

During the reading of this book the reader will discover various future applications of this technology, so it will not surprise the reader that we have applied for several international patents to cover all aspects of the topics, principles, methods and systems mentioned in this book and the ones to follow.

Fission and Fusion by Plasma Dilution

The present methods of fusion and the Antimatter production technologies apply strong magnetic fields forces or high-speed rotation of the plasma, with low or limited success. As the real principle of the construction and structure of these sub-plasma Matters have never been understood correctly.

In our new state-of-the-art science and technology, one creates a control-conditioned environment within the confines of a multi-core reactor, which facilitates and allows the plasmas' Matters to *disentangle* themselves into their sub-Matters and pmtics

components.

In these reactors the effects of the newly freed principal Matters of plasma's interactions with each other are utilised to create new and more powerful internal and external Magravs' forces, within and in respect to other plasmas and Matters in multi-core reactors system environments'.

In the new state-of-the-art technology reactors, after achieving desired goals, the system parameters can be changed so that the system can allow the same separated parts of plasmas' Matters to return to their original properties and regroup as the original plasmas.

This new method of loosening and the use of plasmas' Matters within the confines of a reactor is to be called the *Keshe Theory* of the “**Plasma Dilution**” and the art to achieve this “Plasma Dilution Technology”(Chapter 21).

This technology means that it is now possible to create an environment of weak magnetic fields within the cores' of a reactor, where the plasma is allowed to be opened-up and be released of the interlocking magnetic fields forces between its different constituent Matters.

The new dilution method in opening-up the plasma is a more practical and gentler methods for fission or fusion of the plasmas and/or its sub-Matters' components, for utilisation of their effects and properties.

In the present state-of-the-art technology in physics, scientists have chosen harsh method systems in fission industry. For fusion, they have chosen high speed and by compression of plasma, utilising giant magnetic fields induced technology to achieve their goals.

They use accelerators to slam the plasma on to a surface, to extract the sub-plasmatic components like the Antimatter component of the plasma (6, 7, and 8).

In the new state-of-the-art plasma dilution technology, within the confines of the reactors, environments and conditions are created, which are like a soup of weak pmtics, similar to the internal structure of plasma's own environment.

In this new approach, any new introduced plasma into the reactor, new **plasma's binding magnetic fields forces** come into an environment and *interact with fields similar to their own plasmatic magnetic fields strength* to allow their more condensed fields of interlocking Matter, Antimatter and others, to loosen and operate more freely in the environment of the pmtics soup of the reactor cores.

Using this new state-of-the-art science and technology, achievements of astonishing effects has been reported over the past few years. Where, with the current state-of-the-art technology, to achieve these effects, is considered to be nearly impossible and literally a dream and against the present known laws' of physics.

These effects reported, like being able to lift a reactor system weighing several kilograms by the use of a few grams of gasses, utilises the properties of the Antimatter components of the plasma's interactions with each other within the cores of these reactors.

This new technology makes it possible to produce in a very fast and easy manner nanomaterials and their constituent pmtics, like nano atomic layers known as graphene (sp2), diamond atomic structure (sp3) and nano-oxides, at room temperatures and atmospheric conditions, as has been independently confirmed by reputable organisation in the west.

In fact, all that has been achieved is the application of the understanding of how to use the soup principle to undo the tangles of magnetic fields of the plasma, and release of its substructure Matters, like Antimatter, in a reactor.

Lift and Motion by Magravs positioning

By utilising the properties of the interaction of forces of the collection of pmtics, interlocking between the Matters of the plasma and/or their sub-magnetic fields, which are part of the structure of the Antimatter and the Dark Matter, it has become possible to create stronger Magnetic fields, or gravitational fields' forces within the confines of and in respect to the surrounding environment of multiple-core reactors'.

These Magravs, if strong enough to interact with similar fields in their environment and with other fields of the same components of plasma in other parts of the same reactors, these Magravs interactions' of the system and the planet can cause lift and motion of the mass of the system, which the reactor is attached to.

Scientists at the Fermilab (6) in the USA state that small amounts of Antimatter, as little as a spoon-full, can release enough energy equivalent for the launch of several shuttle flights. This laboratory has confirmed that they have managed to collect some of this Antimatter in the past forty years, using special plasma separation and containment methods.

Utilising the new plasma dilution simple methods', not only are the Antimatter components of the plasma separated but, at the same time the interaction of the magnetic fields of these Matters are used within the system for the creation of strong Magravs within and in respect to their environment, for creation of lift and motion.

The newly created Magravs in these reactor cores, in interacting with the surrounding planetary Magravs and in trying to find a new Magravs balance, for example, in respect to the Earth fields, causes the system to move.

This method of achieving system motion due to interaction of Magravs forces is to be known as the ***Keshe principle of Magravs positioning*** (Chapter 19). This position is, the point where the combined gravitational and Magnetic fields strength of the reactor

system and the Earth, find a new position, where they are in balance strength in respect to each other.

After achieving the required Magravs positioning, this being the new height and/or distance, in respect to another Magravs force like that of the Earths Magravs, the systems' internal parameters can be changed again to create a new Magravs strength within the reactor. At this point, a new Magravs positioning balance needs to be attained by the system in respect to the planet. This, forces the system to find a new Magravs balance in respect to the planet Magravs' strength, and consequently for the need for the system to achieve the new Magravs positioning in respect to Magravs of the planet.

In attaining a new Magravs positioning balance, this leads to the movement of one system, in respect to another.

Thus through this new Magravs positioning method, motion of crafts, cars and systems for energy production can be attained *without burning* any fuel or using the present propulsion technology for lift of relatively small payload into space.

*Through Magravs positioning principles, this is how **motions** of atoms, planets, and stars and so on, are created and achieved in the universe (Chapter 19).*

Through tests, we can confirm that, the motion of any mass for any Magravs positioning system is not size dependent, but mass dependent, where the smaller mass always tends to move in respect of the larger mass in the universe. There are some exceptions in respect to this rule of the thumb. As in Magravs positioning reactor systems, where gravitational field strength control within the cores of the reactors plays a major roll to achieve lift, motion and Magnetic field protection of the system.

As I have said before “no one has ever seen a rocket in the back of the Earth that has been causing its motion for billions of years”.

Subsequently, if necessary, through the same changes in internal parameters of these new reactors, the components of the Matters' of the plasma are and can be allowed and be facilitated to regroup and return back to their original structural state of pmtics levels of Matters and composition, once the desired affects are achieved.

Through new understanding and new state-of-the-art technology and by simply following the methods and universal orders of creation of Matters, the components of plasmas' Matter, Antimatter and Dark Matter can be manipulated and utilised for effective lift and motion of objects, creation of energy, production of new Matters and so on.

By the release of this new knowledge, this does not mean that the paths chosen up to now by other scientists have been wrong; this is by no means so. Nevertheless, their achievements have been and are limited because of the focus on the use of the **matter**; it's state of gases, liquids and solids, and even a limited view on plasma (as the fourth state-of matter) rather than our approach in use of the **Matters**; it's state of Matters, Antimatters, Dark Matters with their different pmtics strength components of the

plasma.

With the use of the matter, one has to burn fuel to overcome gravitational field forces to attain a new position in respect to the planet. However, “with *Magravs positioning systems* one uses the pmtics of the Matters of plasma (Matmags) to create Magravs forces within the reactor, for the reactor system to *move within* the Magravs forces of another object, like the Earth, for the system to attain a position in respect to the Earth Magravs forces.”

We consider that as much as there are Magravs forces between Matters, the same is true for the existence of Magravs forces between the Antimatter and the Dark Matter components of the plasmas too. This principle applies the same in respect to the inertia of Matter as much as to inertia of the Antimatter and the Dark Matter components of the plasma.

That is to say, in the universe there are Antimatter Magravs forces and Dark Matter Magravs forces as well as inertia for all three Matters.

All Matters and their effects can be used for the creation of motion and energy production in conjunction with other matters and Matters of the plasma.

Our newly released knowledge is for achieving and reaching the same target as other scientists and institutes, but with new knowledge about the construction of Matters of the plasma, we are achieving more profound and stronger effects, in simpler and less complicated ways than have been chosen in the past.

We see this release of new knowledge and technologies as an addition to the rest of the past and present scientific works, and a breakaway from the complicated ways and harsher methods.

In this disclosure, one comes to understand how Matters and matters are made from the start of time (Chapter 3). Where, the method of creation of plasma and atoms in the universe is explained in a simple form.

Then one can see how to use the inner construction of Matters’ pmtics to generate vast amounts of energy and learn to use magnetic fields principles of interaction that are the fundamental principles’ in the universal method for creation of motion.

We have tested the Magravs positioning systems for motion, and the results confirm the correctness of the theoretical aspects of the approach. The future of space technology will be based on simple safe portable Magravs positioning nuclear-based reactors, which have been developed and tested.

CHAPTER 1

Historically unexplained principles

The main reason for the lack of understanding of simple processes of creation and control of Matters of the plasma is not so much the lack of knowledge in the scientific world in the past or present. Rather the lack of progress is by large due to, the peer review obstruction mechanism, which has been put-up, for some scientists, to protect their individual financial interests and titles, in their schools of thoughts in their field of science.

For example, despite having huge research budgets and human resources, the world of science in respect to understanding of the simple structure of the plasma and its fusion, has not reached substantial results in the past sixty years. Where, nuclear physicists and industry have been trying to cause fusion of plasmas of hydrogen atoms, in fusion reactors, which have been built, and are being built at costs of billions of dollars.

The structure and working of these state-of-the-art fusion reactors are built against the natural laws of physics and opposite to the way, that fusion of plasmas takes place in the universe. Where, these reactors operate with near zero-gravitational field forces within their structure in trying to achieve fusion. Where in these systems, the natural internal gravitational field forces needed for a simple fusion is missing.

What they miss as the natural gravitational field forces needed for fusion, they try to replace this with the use of strong external electro-magnetic fields, by the use of large massive coils and huge amount of energy to operate these systems, and then they try to achieve fusion. This is like as they are trying to bake bread with only water, salt and heat, without having its main ingredient, the flour. The question to ask from these scientists, is simply that, where are the gravitational fields essential for fusion in these reactors, and where is it suppose to come from, if there is going to be a successful fusion chain process as in the middle of the Sun, which, these forces are in thousands of G's.

In fact, with the use of giant external magnetic coils, they squeeze plasmas into tighter balls and then they try to fuse two hard balls of plasmas together. This is the reason why, they have and will achieve very little, if the present misguided path of fusion technology is to continue.

Another point is that the present twenty-first century advanced world of science is lead to believe and to accept the outdated 19th century principles of creation of Magnetic fields through convection principles in the centre of the Earth. Even, when scientific seismological data's (1, 2, 3, 42A, 42B) indicate that another explanation is needed.

For example, some peers consider that man in the 21st century is not intelligent enough to discover how gravitational fields of planets are created. According to these peers, the principle of creation of gravitational field forces and their control at present is beyond

comprehension of other scientists.

Where, as new Magnetic and gravitational fields positioning systems, which have been developed and tested, confirms the ability to create lift and motion by just using the effects of Matters magnetic fields (Matmags), without burning any fuel or use of propulsion technology.

Within the present 21st century knowledge and proven science, there are a number of unacceptable points from these earlier centuries accepted principles like the creation of the magnetic fields of planet through convection principles.

New theories and principles for these misassumptions, unexplained and out-of-the-hat principles are explained and discussed in the following sections and chapters.

In the following four sections in this chapter, it is important to note that:

Information that have been obtained through the earth-quakes seismological data over past thirty years from around the world, these data points to the fact, that what has been assumed to be the ***solid inner core of the planet*** and to be made of one piece solid metallic matter (Fig. 1), this core in fact has a ***cavity in its centre*** (Fig. 1) (1, 2, 3, 4, 5, 41A, 41B). This newly discovered cavity in the solid core of the planet has been called by geologists the ‘inner-inner’ core of the planet and is assumed to be about at least over 500 km in radius in the centre of the inner solid core of the planet.

I have called this new core, “***The Caroline Core***” (Fig. 1, 2 and 3), to distinguish it from other presently known cores’ of the planet (12).

1. The creation of Magnetic Fields of the Earth

The assumption of the creation of the Magnetic fields of the Earth by scientific world has been based on the understanding of the working of the dynamo principle of earlier centuries. Where, the process of the production of the current was accepted to start-off with the motion of high temperature fluid of matters in the outer core (Fig. 1), in the centre of the Earth by heating and liquidity of matters in this core.

Where electrons of atoms of matters are considered to be released or loosened from their atoms to be free to vibrate or float in this region, and as the rotation of the solid metal inner core (Fig. 1) of the planet interacts with these free electrons in the outer core of the planet, this leading to the creation of Magnetic field of the planet (Fig. 1 Field M).

If this assumption is totally correct, then how do other planets and stars create their Magnetic fields?

Stars like the Sun, possess Magnetic fields and yet do not have solid inner cores as the Earth does. The Sun definitely generates Magnetic fields, which does span beyond the

Earth and the Saturn.

The first flaw with this convection theory of electrons motion is that, we know now **that plasma of an atom** is a charged entity **and possesses much stronger charges** by several orders of magnitude *than its smaller counterpart electron*.

Thus, the main Magnetic field force of the planet is more feasible to be created by the plasma charges rather than electrons charges. With the knowledge we now know, that even the electron is a plasma condition similar to the proton construction (Chapter 3, 17, 18 and 19).

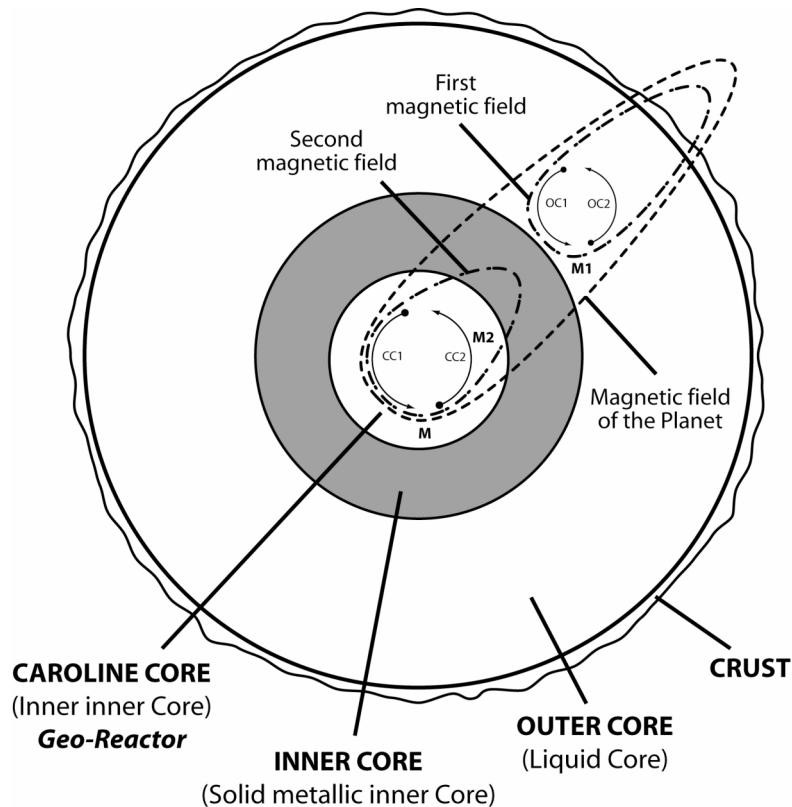


Fig. 1: Two interacting plasmatic magnetic fields in the inner cores of the Earth lead to the creation of the Magnetic field of the planet.

Note: The Caroline Core, can contain plasmas, atoms (nanomaterial), molecules, different matters, hydrogen, potassium, uranium and plutonium due to nuclear decay, fission, possible fusion, ionisation of matters, leading to the creation of heat in this core, which is transferred through the solid inner core to keep the materials content of outer core in fluid state.

Through current knowledge in plasma physics and studies in the nuclear fusion industry, it is a known fact that dynamic protons (plasmas) of atoms are positively charged entities and do generate their own currents, through what is known as the Birkeland current principle. It is through this principle of creation of current and the dynamism of plasma in the centre of stars that main solar Magnetic and gravitational fields forces of stars are created, and not the convection principle.

Secondly, if we have plasma in the centre of the planet, which is possible, then the convection theory for the production of Earth's Magnetic field has limited validity, and it is possible that some of the Magnetic fields of the planet are partially created by the convection principles method too.

2. Creation of the Gravitational Fields of the Earth

The other major concept, which is an obstacle to the development of new knowledge, is to understand how gravitational fields of planets are created. This is a concept that has not been understood until now. Where, the creation and maintenance of gravitational field's forces in stars and planets have unnecessarily made been by the scientific world into the holy grail of science.

In fact, the creation of the gravitational fields of planets and stars in the universe is as simple as the creation of their Magnetic fields.

The hypocrisy with this is that the scientific world and an infant child (at school age) agree on one principle, that, two dissimilar poles of solid magnets, gets attracted to each other and pulls one magnet to the other, or they have gravitation in respect to each other. It is an accepted fact that, opposite poles of magnetic fields forces can interact to create attraction field forces or the gravitational fields forces in respect to each other and other matters around them.

Thus, it is correct, to assume that, to have a gravitational field in a planetary system, the gravitational field forces must be made similarly by the same principles of attraction and interaction of at least two magnetic fields, in the centre of the planet in respect to each other. Therefore, the gravitational fields of the planet must have been made by interaction of two or more sources of magnetic fields in respect to each other in the centre of planets or stars that can span beyond the physical boundaries of these objects.

By the reality of the existence of the Magnetic and Gravitational field forces around the Earth, this leads to the confirmation and understanding of a need for two independent regions that can create magnetic fields forces within the structure of the planet inner cores, that, their interaction leads to the existence of the gravitational field forces of the planet.

Consequently the Earth, being in possession of gravitational fields, this confirms and indicates to the existence and operation of at least two independent magnetic fields forces regions in the centre cores of the planet (Fig. 2, fields G1 and G2).

Where, the interaction of the two magnetic fields (Fig. 2, fields G1 and G2), which are generated in the centre cores of the planet, upon each other, leads to the creation of attraction or gravitational field forces of the planet, similar to the attraction fields of opposing poles with solid magnets.

It is a known fact that, planets and stars are made of different layers of different

materials. Similarly stars are made of the same material (Hydrogen), which, due to variation in the compression and temperatures, layers are created in these objects, where the same matters in different layers create and behaves and show slightly different properties and effects; These different layers produce their own slightly different in strength magnetic fields force, compared to their adjacent layer magnetic fields strength. Thus, the layers of plasmatic or fluid materials in different depth of stars and planets, each layer create their own independent magnetic fields in the centre of planets or stars.

The magnetic fields created in each dynamic layer in the cores of these celestial bodies, due to the proximity have no alternative, but to interact with the magnetic fields generated in ascending or descending layers from them. The interactions between these magnetic fields in different layers are considered to be as or similar to a solid magnets state magnetic fields interactions.

In the case of stars and planets' inner cores, magnetic fields are created by and in plasmatic states or fluid states of Matters. Where, these flowing dynamic materials in the inner layers of celestial objects cannot physically lock to each other through the magnetic fields generated by each layer, as it happens with solid-state magnets. This being due to fact that atoms and molecules in these layers are continuously in motion and are pushed around by other forces and the rest of the Matters in their given layers or by other layers effects and forces.

Nevertheless, the magnetic fields created by each dynamic layer interact with the magnetic fields of the adjacent dynamic layer or layers. These interactions of magnetic fields in different layers creates attraction magnetic fields, as much as, repulsion Magnetic fields forces, in between the materials in the different layers.

Therefore in the same regions and by the same matters, **similar magnetic fields polarities** in different layers interact and two similar polarities magnetic fields forces (Fig. 1 field M1 and M2) repel each other. This repulsion magnetic fields forces (Fig. 1 field M1 and M2) becomes' the ***outwards field force pushing*** and what is known as the ***Magnetic field force*** of the planet (Fig. 1 field M).

Further, the *opposite polarities magnetic fields* in these layers at the same time, interact simultaneously and in a similar way, and the interaction of **opposite magnetic fields** polarities of matters in these layers (Fig. 2 field G1 and G2), leads to the creation of the different layers magnetic fields pulling or attraction in respect to each other. This attraction magnetic fields force (Fig. 2 field G1 and G2) becomes the ***inward field forces pulling*** field force and what is known as the ***Gravitational field force*** of the planet (Fig. 2 field G)(18).

Through tests done over several years with the construction of similar set-ups as in the inner cores of the planet, the ***Keshe Theory of creation of gravitational field*** of dynamic objects in possession of dynamic cores states that:

“The dynamic outward’ Magnetic fields forces of planets and stars are created by interaction of the same materials and in the same layers, as their dynamic

gravitational fields forces”.

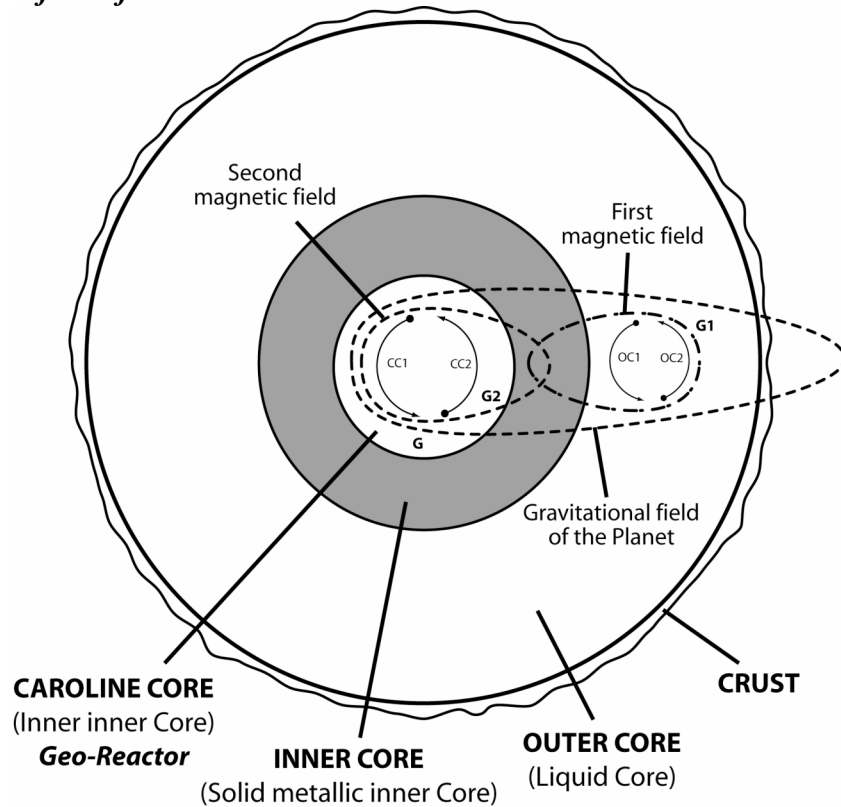


Fig. 2: Two interacting plasmatic magnetic fields in the inner cores of the Earth lead to the creation of the Gravitational field's forces of the planet.

The **Magnetic fields forces** of the planets are made from the interaction of similar polarities of plasmatic magnetic fields of Matters in the dynamic layers of its inner cores (Fig. 1 field M) and these radiate themselves **outward**. The **Gravitational fields forces** (Fig. 2 field G) are created by the interaction of the opposite plasmatic magnetic fields polarities of the same Matters in the same layers in the cores of planet, creating the pull or **inward** attraction in these celestial objects”.

This new understanding of interaction of multi-magnetic fields in the planets inner cores brings about a new definition, new understanding and new explanation of how gravitational field forces are created in centrally dynamic multi-inner-cores celestial objects in the universe the like of the Earth and the Sun.

Gravity can now be defined on the real basis and what leads to its manifestation, strength, existence and control.

Therefore, Gravitational field forces are magnetically based fields, and thus according to **the Keshe Theory of Gravity**, Gravity is defined as:

“The Gravity is, the measure of the interaction and attraction of two or more, magnetic fields forces or dynamic plasmatic strength created within the second system”(18).

This is the same as Newton's definition of gravity, with the extension however, that two Matters or matters cannot possess pulling forces nor have gravitation in respect to each other position, without the existence of magnetism.

Certainly, the attraction and interaction of pmtics forces changes with respect to position of two objects and they are distance and fields' strength dependent.

If the celestial objects do not possess magnetic fields strength that can interact with each other, then, how could they be attracted to each other?

Thus, gravitational field now can be understood and explained in its real terms of what creates it, and this is due to interaction and attraction of pmtics created within dynamic cores of celestial objects in respect to each other.

Secondly, as the gravitational fields of these planets or stars are magnetic fields strength dependent, one can now understand why their attraction is position dependent.

Therefore, gravity in a simple form can be defined as; that gravity or gravitational fields forces are the measure of the interaction and attraction of two or more magnetic rays or magnetic fields systems of two or more entities in respect to each other's strength and position at any point in the Matter, plasma, matters, planets, solar systems, galaxies and universe.

This new definition of gravitational fields is an extension to the present knowledge and due to new understanding of the plasmatic magnetic fields interactions between components of Matters (see Chapter 3).

Another proposition can be that: We further can assume that the cell of a human or matters of other objects, which all are made of atoms and plasmas and of magnetic fields can/are/or behave as the possessor of the second magnetic field in respect to any other plasmatic magnetic fields in their environment. Therefore, it is possible that pmtics of these cells and matters in their interaction with the dynamic pmtics of the planet can behave and replace the interacting double magnetic fields system principles necessary for the creation of gravitational phenomenon principle to operate.

Further it can be said, that any substance in possession of plasma or nuclei has gravitational attraction in respect to the planet.

If this is correct and applicable, then, this can be another reason why, a singular Magnetic field of a planet can be enough to create the gravitational field pull in respect to any object within the catchments zone of the Magnetic field of the planet's. That is to say, a single Magnetic field would be sufficient for the gravitation of plasma to the planet to be created and exist.

Nevertheless, there could be a flaw with this concept, as one need the gravitational and magnetic fields (Magravs) together to be able to have a constant free motion and position option of the two objects too.

In this book, we try to make a distinction between *magnetic fields of matters* and *Magnetic fields created by dynamic interaction of two magnetic rays, two magnetic fields or two pmtics*. Where, in the case of like **plasmas** and planets *Magnetic field* and *gravitational fields*, which they always accompany each other we use **capital M** as **Magnetic field**. In these references instead of writing **Magnetic** and **gravitational** fields we write in short as “**Magravs**” *magnetic fields forces in respect to each others position*”.

“Where, the Gravitational field force of one celestial body in respect to the other is a measure of the attraction and of the interaction of one plasmatic magnetic fields strength created within one system in respect to another plasmatic magnetic fields.

3. The source of the Heat in the Earth Cores

Another unanswered question in geophysics is that, where does exactly the heating of the inner solid core of the planet Earth comes’ from that can keep the outer core materials in their fluid state? Secondly, how and through what method is heat generated in the inner cores of the planet?

These questions have not been addressed fully with clarity up to the present time in the science of the planet.

In general, it is an accepted fact that the Earth maintains heating of its inner cores. I consider that the Caroline core is a Geo-nuclear reactor (Fig. 1, 2 and 3) to be known as the **Geo-Reactor** (Fig. 2). It is not hard to assume that there are radioactive matters (41C) in this new central core of the planet (12), which leads to the heating of the inner cores of the planet. In general, nuclear geophysicists and myself agree upon this, up to certain degree, with difference in the content of the matter types and the process by which this heating is generated.

Where, geophysicists mainly consider that the heat in the Caroline core is generated through the nuclear decay of heavy elements, which have sunk into the centre of the planet due to their weight.

As a nuclear engineer having built several simple nuclear reactors replicating the structure of the inner cores of the planet Earth and achieving the same effects of creating Magravs similar to of the Earth, I believe, Matters, plasmas, hydrogen atoms, carbon atoms, radioactive matters and other matters collectively are parts of the mixture of the matters content of the Caroline’s core (12).

One can now clearly explain that the major contributor to the generation of heat in the inner cores of the planet are, or can be due to nuclear decays, operation of plasmas, nuclear fission (41C) and possible nuclear fusion of materials in the Caroline core of the planet.

Materials in this region of such a high temperature are, and can be, considered to be in the fluid state (12) as has been considered by present geophysics scientists in respect to

the condition in the outer core materials of the planet.

Matters in this region, due to their fluidity, can be considered to be able to produce their own dynamic magnetic fields (Fig. 1 field M2 and Fig. 2 field G2), due to the *dynamic motion of fluid matters* in this section of the planet and these fields can/and interact with the dynamic solid inner core of the planet (Fig. 2). This being in principle similar to what has been assumed by geophysicists, that to be happening in between the **inner core** and the **outer core** regions of the planet matters leading to production of Magnetic field forces of the planet at the present time. Secondly due to the *charged plasmas and charged electrons and their motion in this core, these could be partially responsible for the creation of the second magnetic field force of the planet.*

By the discovery of the second cavity, the Caroline core, in the inner cores of the planet, it becomes clear that the **second magnetic fields** (Fig. 1 field M2 and G2) can be, and are created in the very centre of the planet. Where, the solid core of the planet will act as a separating partition wall, between the two dynamic matter regions in the centre of the planet, namely the fluid matters in the Caroline core and the fluid matters in the outer core.

So, the holy grail of the gravity (18) can be explained by the principle of interaction of two dynamic magnetic fields sources in the centre of the planet as was discussed in the above section. Therefore, the interaction between two pmtics on either side of the solid core is the source of the plasmatic Magravs of the planet.

4. What causes the Rotation of the planet Earth?

Another unexplained and daily-accepted phenomenon is the rotation of the planet Earth. How is the rotation of the planet Earth created and maintained? What causes and dictates its constant speed of rotation of the planet, irrespective of where the planet is in its solar system?

The way and how the rotation of a planet is created, has never been explained in the past by world of science.

The existence of two independent pmtics forces (Fig. 1 field forces of M1 and M2, and Fig. 2 field forces of G1 and G2) on either side of the inner solid core of the planet (Fig. 3) can help to explain the next mystery in the world of geophysics, through the ***Keshe Theory of “The principle of the rotation of the planet”.***

Magnetic fields are known to possess *field forces* that can exert pressure on an object, and are capable of causing its motion.

The existence of, and the continuously maintaining and interplay of the two dynamic pmtics forces (Fig. 1 fields M1 and M2 and Fig. 2 fields G1 and G2) on either side of the inner solid core of the planet, partially goes to answer the sources of the fields that exert forces on the inner solid core of the planet that causes the motion of the inner solid core.

It has been explained that the interaction of two dynamic magnetic fields on either side of the inner solid core, leads to the creation of Magravs forces of the planet. At the same time the interaction and exertion of the same magnetic fields forces on the inner solid core of the planet put magnetic pressure on the inner solid core of the planet, causing the motion of the inner solid core of the planet (Fig. 3 fields G1 and G2). In the figure 3 the total and overall effect of Magnetic field and Gravitational field forces of each core on the inner solid core are denoted as G1 and G2.

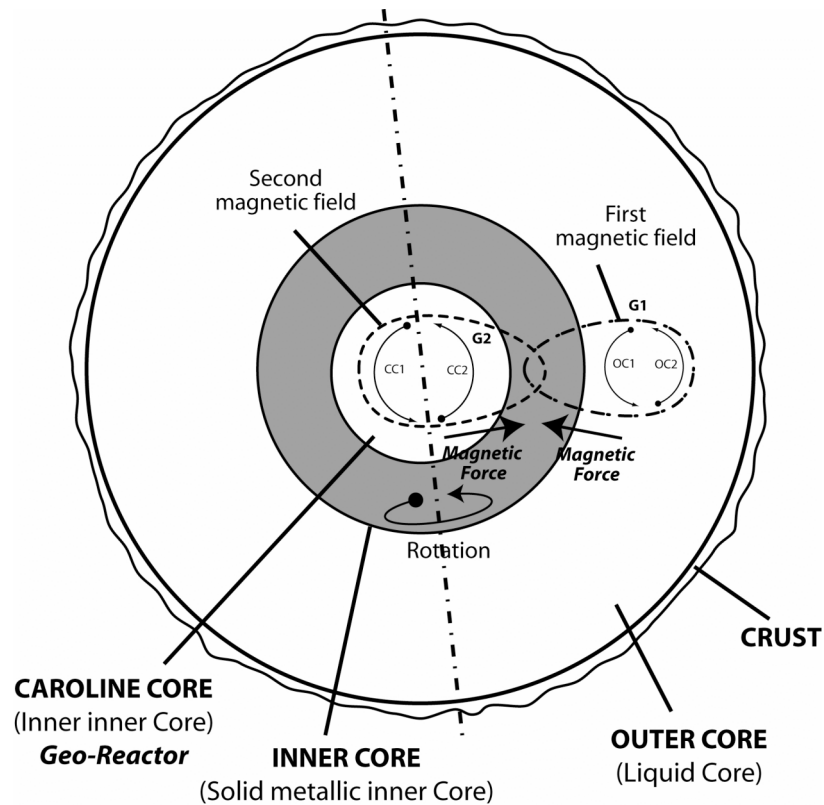


Fig. 3: Interacting plasmatic magnetic fields in the inner cores of the Earth leads to the creation of the rotation of the planet.

As the solid inner core confines' the materials in the Caroline core (Fig. 3) and the outer cores materials are confined by other matters at the outer boundaries of this core (Fig. 3), these two cores are considered to be holding a constant volume and weight of matters. Thus, it is possible to assume that the magnetic fields forces created by each core will be constant and these magnetic fields forces will be maintained on either side of the inner solid core of the planet for a long period of time (billions of years).

Hence, the *balance of magnetic fields forces* exerted on the metallic inner solid core, by both magnetic fields on either side of the inner solid core, will determine the speed of rotation of the solid core of the planet.

Consequently, through the principle of viscosity and friction of the matters inside the planet, the final speed of the rotation of the whole planet is considered to be set and be due to the motion of the inner solid core of the planet. Which is carried out to the outer

layers of the planet and becomes the final rotational speed of the planet.

Therefore, the speed of the rotational motion of the planet is determined by the planet's internal cores magnetic interactions upon the inner solid core of the planet and by large, this speed of rotation is **irrespective** of the position of the planet in its solar system and overall effect of the external Magravs forces, which are exerted by other planets, and the star of the solar system, on the planet.

So the twenty-four hour speed of rotation of the Earth is totally dictated by the exertion of the magnetic fields of the other cores on the solid inner cores of the planet as has just been explained, and not necessarily by any other factors.

This principle of constant speed of rotation of celestial object should hold true for the all-dynamic celestial objects that are in possession of dynamic thermal central materials cores and this rotation is irrespective of the temperature of the inner cores or temperature of the outer layers and surrounding environment of these objects.

Through tests in laboratory of similar reactors as the construction of Earth inner cores, we have concluded that the **speed of rotation of celestial objects and Matters** and the **creation of Magravs strength** are **temperature independent**.

The motional rotation of a planet is created through the same principle as the linear motion that is attained in the present Maglev magnetic railway system of Japan, with the difference that, due to *spherical shape* of the inner solid core of the planet (Fig. 3), the motion created in this case will be a rotational one (12) rather than linear. We can consider that this principle is universal.

5. The difference between Matter and matter

Another unexplained phenomenon in the world of physics has been the understanding and the difference between the Matter and the matter, one in respect to the other.

In this book we make a clear distinction between **the Matters** and **the matters** in all levels of universal orders of materials, where;

The **Matters** are understood to be as the like of the Matter, the Antimatter and the Dark Matter. These three Matters are all made of ***different plasmatic magnetic fields strength*** and are ***field strength*** dependent in respect to each other. The three Matters are the three major components of a plasma. Each of the three Matters have pmtics of another strength, where the constituent strength of the pmtics creates different Magravs, different magnetosphere field strength and different mass for each Matter, and these independent of the other two Matters within the plasma, and independent of the environment that surrounds the plasma.

Whereas:

The **matter** refers to the Matter component of the plasma. Matter becomes matter, when the Matter comes to levels that **plasmatic magnetic fields forces** and the *motion of these forces* in their environment can determine the compactness of the components of the Matter pmtics appearance in the plasma that make the matter appears as a gas, a liquid or a solid **state-of-matter**. These forces being created due to interactions of Magravs, dynamism of the environment, and so on.

At the same time, Matters are pmtics strength, contact friction dependent. Where, the friction of pmtics in matter usually leads to the change of the state of the matter through the change of plasmatic magnetic fields forces to the likes of light, heat and other's.

It is the **external field forces** and *not the field strength* of the environment that dictate the compactness of any of the plasmas' Matters so that the pmtics becomes matter and visible or tangible to human senses, like odours or appearance of Matter as solid, gas or liquid, it is then that the **Matter** comes to be called the **matter**.

The principle of **strength** of the magnetic fields of Matters is very different than the strength of magnetic fields in matters.

When we consider to work with Matter(s) for space technology, the term "**fuel**" is not applicable, therefore the use of the term "**MATter MAGnetic Supply**", abbreviated to "**MATMAGS**". This is a Matter (Matter, Dark Matter, Antimatter) *source of pmtics* used in reactors for the production of Magravs for the operation of gravitational positioning reactors, where one can state the Matter needed and the strength of the Magnetic fields of the Matter needed to achieve desired effects from the reactor.

Since "fuels" only refer to the *matter level*, where fuels are usually *burned through ignition of matters*, whereas **magnetic fields of Matters**, in the form of Magravs, are manipulated to create a preferred effect, and where the magnetic fields can be reversed back to any other state of Matter, and they are never lost. The only difference would be that with the Matter supply the magnetic fields strength can differ after processing, but in reality one would be left still having magnetic fields of varying degrees in strength.

6. How motion of matters and Matters are created?

The question to be asked first is, that, how the Matter, the Antimatter, and the Dark Matter are created in the universe.

Secondly, how are the regular independent motion of **Matters** (Matter, Dark Matter and Antimatter) and **matters** (electrons, atoms, matters, planets, stars and galaxies) in the universe without burning of any fuel created and maintained?

No explanation has been put forward by the scientific world that is realistic, fundamental and applicable in all levels and to all sizes of objects and in any position in the universe.

In the following chapters of this book, I will disclose how **matters** (gasses, liquids and

solids) and **Matters** (Matter, Antimatter and Dark Matter) as part of fundamental elements of creation, move in the universe. In addition, it will be explained, how the plasmas, electrons, planets and stars attain and maintain their motion in the span of the universe. (Chapters 19)

Motion in the universe is achieved by understanding in full that how the construction of Matters happens at their simplest form, from the inception of the initial fundamental particles how they come together, and how they respond to each other's magnetic fields forces, that the interactions of all constituents Magnetic field forces in Matter and plasma of Matters, leads to the creation of motion of plasmas, electrons, planets, stars, and so on.

7. How Light is created?

The present science of physics accepts that the light is created through the drop in energy of an electron from one energy level to a lower, or its ground energy level.

Further, in this book we will explain how light is created in the universe, where actually there are *no electrons present* in the plasma-saturated environment.

The other unanswered question is whether the speed of light (C) is the ultimate speed in the world of Matters.

The speed of light is in the world of science thought to be the ultimate speed that any Matter can travel.

I consider this assumption to be **incorrect** for all states of Matters (Matter, Dark Matter and Antimatter).

The assumption that the speed of light is the ultimate speed can be correct **only** for *interactions between matter and Matter component* of the three basic Matters (Matter, Antimatter, and Dark Matter).

I consider that the **plasma** is to be in **possession of all three states of Matters**, these being **the Matter, the Dark Matter and the Antimatter**. (See the cover image of the book)

Secondly, the assumption that the speed of light to be the ultimate speed, can at the same time be partially correct and applicable, only for a limited fraction of time for specific conditions of **matter** (and not necessarily only in vacuum conditions). Where **matter** itself is only a small part of bigger components of Matters of plasma in the universe.

There are too many physical facts that are present in the mechanism of the universe's daily operation that rejects that the speed of the light being the ultimate speed. These new theories will be discussed further in Chapter 7, titled "Speed of light". A large numbers of physicists around the world do not accept such a limitation on the speed of

matters in the universe.

CHAPTER 2

Interaction of Plasmatic Magnetic Fields (pmtics)

In the Matters the strength of the magnetic fields goes back to the origin of the creation of magnetic fields. Where, the strength of the magnetic fields is in terms of reference, the power of the magnetic fields. Where magnetic fields in essence are created out of the potential difference in position from their source and the rate of the flow of the magnetic fields from their source becomes the current of the magnetic fields. Thus, as the position is closer and the rate of the flow is higher, the stronger the strength of the fields. This principle of creation of magnetic fields and magnetic fields strength are explained in full in the paper titled “The creation of magnetic fields”.

In understanding the ways and the simplicity with which the gravitational field force of plasmatic conditions are generated and maintained in planetary and stars systems, we can now state that the method of creation and production of the Magnetic fields and gravitational field forces of galaxies, stars, planets, molecules, atoms and plasma are all considered to be through the same method, irrespective of their physical size.

At the same time, it is important to appreciate that this applies to all scales of the universal order of creation. That is to say, stars are made of the denser, larger and stronger by order magnitudes of plasmatic magnetic fields strength forces in the universe. Compared to the plasmas and the electrons, which are made of a weaker order of magnitude of plasmatic magnetic fields strength forces.

Nevertheless, the same principle of structural formation applies to the Magravs structure of stars as to the structure of an atom, the plasma and the electron.

In the physically big state order of matter, large scale, stronger and denser magnetic fields can be easily observed and detected, like the magnetic fields of the Earth, the Sun or the Galaxies.

By the same measure and the same order of the scale and magnitude, plasmas and electrons possess and are made of and follow the same principles of Magravs interaction and attraction, and hold on to their different Matters and forces, as a star or a galaxy does.

Whereas, the existence of the lower order of the magnitude pmtics that make the physical structure of plasma due to their very weak magnetic fields strength, can mainly be confirmed through the physical existence of the plasma itself, its behaviour, and its properties.

Through our own tests, which have been done over several years, it is apparent that the plasmas possess their own Magravs forces, which are made from the interactions of combinations of different pmtics forces within their structure.

The fact is that, if the plasma did not create and maintained Magravs forces internally, it would not have been able to hold on to its fundamental particles, for the plasma to exist. By the ***Keshe Theory of the Gravity***, the existence of Magravs forces as the existence of a magnetosphere of the plasma confirms the existence and interaction of at least two plasmatic magnetic fields forces within this structure.

Secondly, if the plasma did not possess Magnetic field, it would get stock to other plasmas in its environment, these environments being for example the like of the other plasmas in the nucleus of heavier atoms. Then as the plasma is a free motion entity, which keeps distance from other plasmas in its environment, this confirms the existence of Magnetic as well as gravitational field's, which is internally maintained and emanated from the plasma itself.

Unless it can be proven to the contrary, we can assume that all plasmas are made of the same types of pmtics, and the same structural Matters and the same structural configuration. Then, we can say with confidence that all plasmas are made of identical Matters and create the identical Magravs forces within their structure.

We consider neutrons, protons and *especially* electrons as being of plasma structure with only difference in their pmtics content level. Thus, different atoms of different matters have different energy and physical pmtics properties from other atoms purely due to the level of total pmtics of their total plasmas that they can hold onto.

From this point on, in this book, it is considered that all **hydrogen atoms** have and will always be in ***possession of the same properties***, be of ***the same construction*** and be made of ***the same similar internal pmtics and Matters***.

Therefore, it is assumed from this point in this book that what we call initial fundamental plasmas, or what is called neutron, must always be made of the same composition and of the same specific pmtics at all times, for all such plasmas of all atoms.

Furthermore, it can be said that all initial fundamental plasmas create the same and similar plasmatic Magravs forces.

Until contrary to this fact is proven, then it is correct to assume that majority of plasmas have the same characteristics, the same properties, and have the same dimensions, and the same measurement of Magravs density and field strength.

Therefore, it is right to assume that the *majority of plasmas* in the universe are all made of the same collection of pmtics interactions.

Hence, it is correct to assume that to have plasma of specific characteristics and specific Magravs strengths; the plasma is made of and must be able to attain a Specific Magnetic Configurations for all initial fundamental plasmas.

From observation of motion of plasmas in the universe, it is clear that not all packs of pmtics are connected to a specific source. They are mainly free floating in space and are

made of different magnetic fields strength.

Where, some of these pmtics interact with others of the *same strength*. Which, these interactions lead to the creation of the plasmatic Magravs, in their space and in respect to other floating pmtics in their given environments.

Initially, when pmtics of similar strength get close to each other, the interacting fields get entangled with each other and set-off a new cycle of Magravs in respect to other pmtics and magnetic fields in their given environment.

Further on as more pmtics of different field strength are gathered together due to their initial magnetic fields strength the new seeds for creation of new and different Matters are set to start. Where, the collection of these different Matters and fields and their interactions leads to the creation of initial fundamental plasma, in a specific given position in space.

Plasmas are always considered to be made in the same manner, by the same process, by the collection of the same pmtics force strength and the same interaction procedure of the fields within their structure.

Hence, plasmas are said to be made of *Specific Entangled Plasmatic MAgnetic Fields* (SEPMAF) and this is considered to be the same for composition of all plasmas in general.

CHAPTER 3

The Initial Fundamental Particles of the plasma

The **initial fundamental particles** components of plasma are considered to be a *collection* of **weak plasmatic magnetic fields** (in short: pmtics) originally existing in the spans of galaxies.

These are **residuals** of different plasmatic magnetic fields activities of matters and Matters, which are released by the interaction of different magnetic fields by/and through for example processes like fission and fusion within stars and so on. It is considered that some of these **weaker** plasmatic magnetic fields are *released into the environment* by the nuclear decay of atoms themselves.

Where some of the pmtics (Fig. 4) are *continuously created in the denser environments* by the **interaction and friction** of two or denser **or stronger pmtics** and some **weaker pmtics** are generated through the **collision or friction** of *matters and Matters* in the universe.

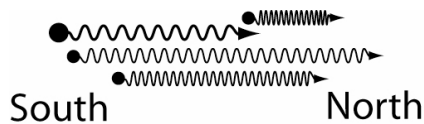


Fig. A

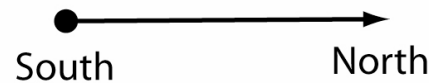


Fig. B

Fig. 4: Graphic presentation of plasmatic magnetic fields.

Note: The figure 4 A: represents the collection of plasmatic magnetic fields of different strength. The figure 4 B: represents a graphical representation of dynamic pmtics in motion.

The pmtics due to their very weak strength are usually considered to exist and be in motion in **packs** within the different parts of universe (Fig. 5). Where, each pack can be made of number of different orders of magnitude of pmtics strength.

For ease of understanding in trying to explain that how plasmas are created initially, we will consider three packs of pmtics. Where, for our purposes, each pack of plasmatic magnetic fields is denoted by one capital letter. Then each strength sub-constituent magnetic fields forces is number denoted. The different strength fields denoted with different numbers (Fig. 5).

For simplicity of explanation, we will consider three packs of A, B and C with constituents of different dynamic pmtics (considering that fields are in motion in their environment).

Furthermore we consider that each pack of magnetic fields contains five different sets

of fields strength called (**Pack A**) as A1, A2, A3, A4 and A5, (**Pack B**) as B1, B2, B3, B4 and B5 and (**Pack C**) as C1, C2, C3, C4 and C5 respectively (Fig. 5).

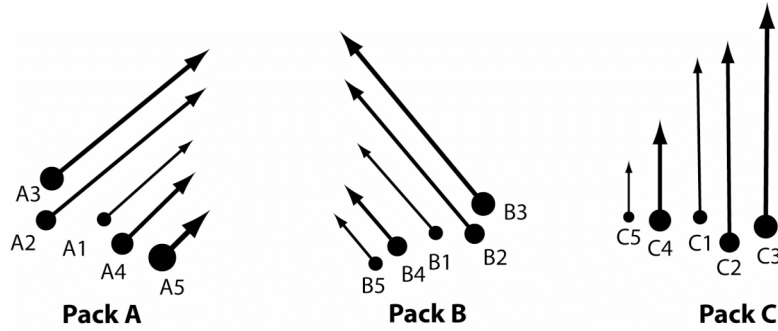


Fig. 5: Initial fundamental particles of plastic magnetic fields.

It is important to remember in this section, that when we talk about the *gravitational field forces (Magravs)*, this means the **gravitational fields** and the **Magnetic fields** of any entity in possession of these magnetic fields, which are generated simultaneously by the interaction of the same two or more plasmatic magnetic fields.

It is crucial to remember that there cannot be a situation where, there are gravitational fields and no Magnetic fields within a system and vice-versa. Even where, the Magnetic field comes to be placed in the boundary of the gravitational field zone.

In principle, the gravitational fields and the Magnetic fields of the plasma are represented in the same region in our diagram(s), and for simplicity, these are shown with the dotted line and this single line is representing both the Magravs zone of a Matter.

Creation of Matter of plasma through interaction of pmtics.

Initially considering interactions between, the pack A and the pack B and ***at least one pmtics of each pack***, which are to match with each other strength ***of the other pack***, where these two pmtics are allowed to interact and interlock into each other.

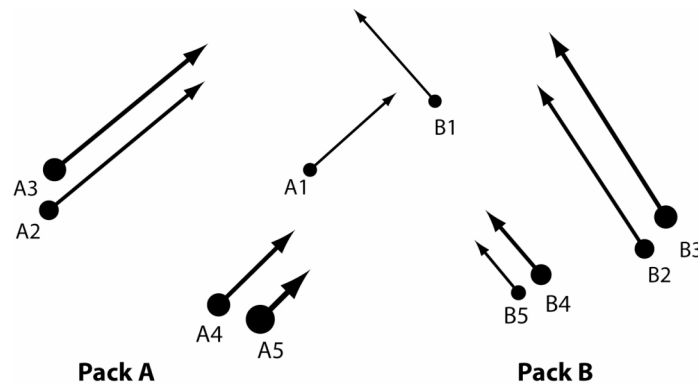


Fig. 6: Dynamic plasmatic magnetic fields A1 and B1 making the initial magnetic interaction of two packs.

Note: Only pmtics of similar or near similar pmtics strength can interlock into each other, where pmtics of different strength are attracted to each other but cannot interlock in the majority of the cases.

For the pmtics of packs A and B, which are similar or equal in magnetic fields strength, and they are in motion, and able to interact with each other or to interlock into each other (Fig. 6 and Fig. 7 a), it is considered that the North Pole of pmtics A1 and the South Pole of the pmtics B1, (Fig. 7 b) start the **attraction** of the two pmtics to each other.

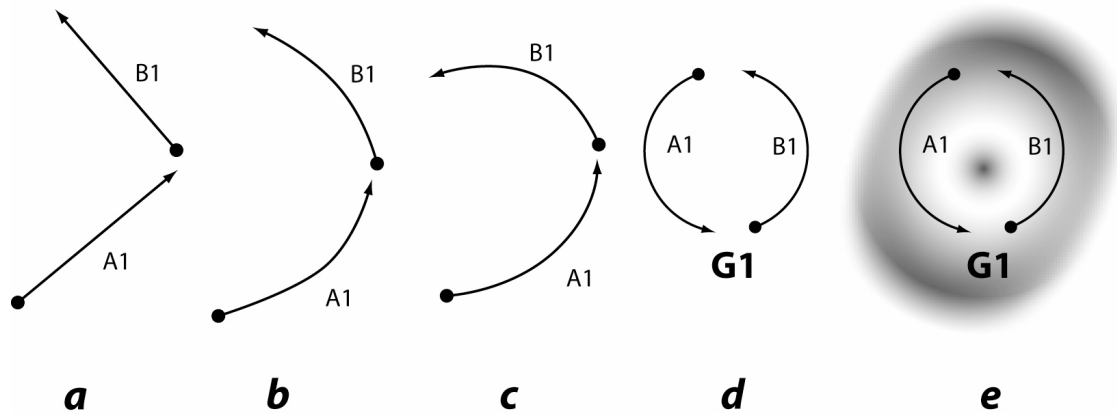


Fig. 7: Interacting plasmatic magnetic fields making pmtics of Matter.

Note: It is considered at all times in the universe all magnetic fields and plasmatic magnetic fields are in dynamic and in the state of motion, as magnetic fields in essence are always attracted or interacting with other magnetic entities, thus they are always on the move towards or repulsing from one magnetic field to another. This is how the motion of Matters and fields are maintained in the universe. This continuous dynamic mixture of different magnetic fields strength become part of a localized or universal pmtic soup(s).

This interaction and interlocking of these pmtics initiates and creates the **first step** of interactions between two packs A and B plasmatic magnetic fields (Fig. 7 c). This **interlocking**, leads to the creation of the very first *initial fundamental magnetic fields set*, or the first initial Magravs, what is called the initial configuration of pmtics needed for initial seed of the plasma (Fig. 7 d and e).

The interaction of at least one plasmatic magnetic fields of each pack that is initiating, and starting the initial weak Magravs forces of a Matter of a plasma, this is the **first step for the interlocking of the two packs** of A and B, of pmtics forces in respect to each other.

From this point on, the first plasmatic Magravs force, essential for the seed of the first Matter of the plasma, is set to start and operate (Fig. 7 e). That is to say, the first gravitational field (G1 in Fig. 8 B) and the Magnetic field (M1 in Fig. 8 B) forces can be considered to be created in between these weak pmtics packs.

It is appropriate to consider that the interlocking of the two dynamic fields, due to their

interaction and attraction, are bent inward or become overall to be *spherical* in shape (Fig. 7e and Fig. 8 A).

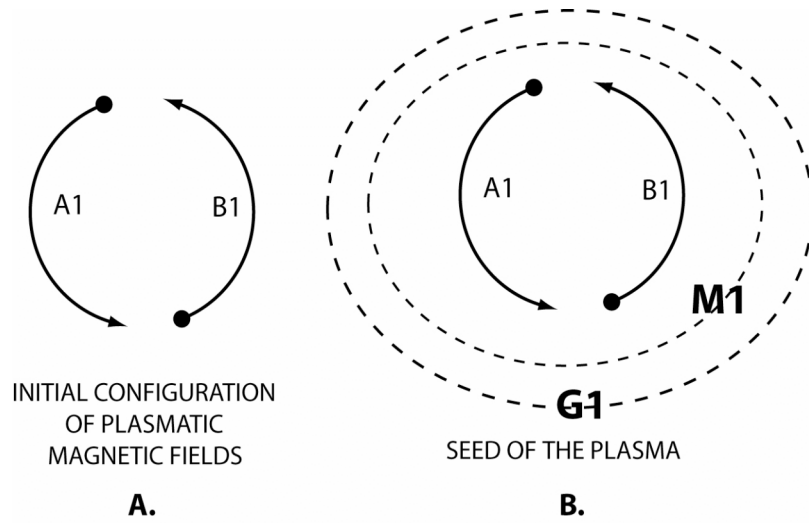


Fig. 8: The creation of the seed of the plasma.

For ease of explanation, all the initial plasmatic gravitational fields (Fig. 9 field G1), and all the plasmatic Magnetic fields (Fig. 9 field M1) from now on in this disclosure are denoted as G1 fields (Fig. 10), or what we call **Magnetic and gravitational fields** or **Magravs** and considered these to be the seed of the pmtics of the **Matter** components' of the plasma.

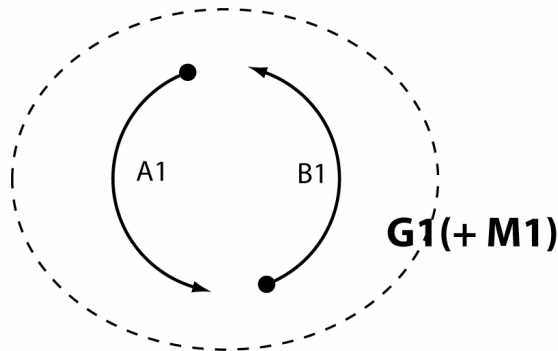


Fig. 9: Initial gravitational fields and Magnetic fields (Magravs) of the Matter components of the plasma.

At the same time, the *remaining* pmtics in each pack of A and B, due to the dynamism and Magravs in the vicinity of this seed, these will be kept around the seed G1 as one dynamic pack SET P1.

The collective Magravs force of the seed of Matter will be known as G1 (Fig. 10) and the remaining pmtics magnetic fields of Pack A and B as initial set of the Matter component of the plasma is denote as **SET P1** (Fig. 10).

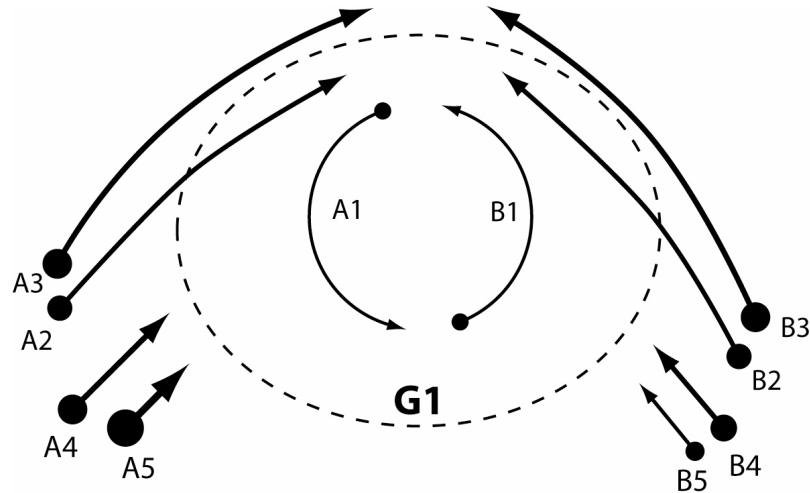


Fig. 10: **Set P1**, the initial pmtics of the Matters Magravs' components of the plasma.

*Note: It has to be remembered that the pmtics in G1 are not produced and connected to a source of a solid magnet, but these **forces** were made by magnetic fields and were detached from their source of creation, some times before, hence, the use of the term “plasmatic” for these magnetic fields. The term “plasmatic” refers in this book to a “collection” of dynamic magnetic fields, and **not** to the state of a plasma in its common term use, which for example refers to a state of dynamic protons.*

Nevertheless, the remaining plasmatic magnetic fields of the two packs A and B are **not matching in strength** and hence they cannot lock into each other, *these being* pmtics A2, A3, A4, A5, and pmtics B2, B3, B4, B5.

Therefore, the initial dynamic pmtics interaction of the two packs making up the G1, possessing dynamic Magravs force, become the **Matter** component's of the *upcoming plasma*.

In the open spaces of the universe, the SET P1 due to its dynamism and motion, naturally and eventually will come across another pack of pmtics, like the **pack C**.

The interaction between magnetic fields of the SET P1 and pmtics of the pack C will be different in respect to the initial interaction of the packs A and B.

In this set of interactions between all the fields and initial Magravs force of the SET P1 and the pack C, several steps can take place instantaneously, simultaneously or over a length of time.

The first step is that, some of the magnetic fields strength in the pack C (C1, C2, C3, C4 or C5) could be **similar** to certain magnetic fields strength as in the G1 of the SET P1.

The *addition of new plasmatic magnetic fields* does not necessarily increase the strength of the fields of the G1, but it just adds to the density of the compact pmtics in the G1, and hence **increases of the mass** of the G1 only.

Creation of the Antimatter of plasma

The **second step** is that the stronger field of the SET P1 interacts with similar fields as

in the pack C and as they are **stronger**, they would create a much stronger Magravs strength set. This, leading to the creation of a new Magravs zone, **near** the initial Magravs forces of the G1.

Due to its **higher pmtics strength**, this new Magravs system denoted as the G2 (Fig. 11) and it would have a separate distinctive characteristic. The new Magravs set possesses a **much stronger field** due to its stronger pmtics, which initiated its creation. This new and stronger Magravs will **exert forces on the G1** (Fig. 10), this making the pmtics constituent of the G1 a denser environment as the seat of the Matter (solid, liquid, gas) components of the plasma.

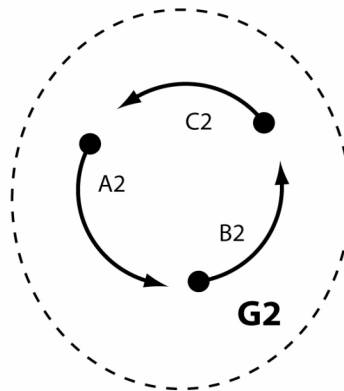


Fig. 11: The pmtics of the second Magravs.

Hence, this new interaction of fields creates a separate and stronger Magravs zone G2 (Fig. 13) adjacent to the G1 (Fig. 13) and in the same environmental plasma condition as G1. This new Magravs G2 (Fig. 11) is independent and interlocked to the initial Magravs of Matters of G1 but it will not interfere with the operation of the G1.

In fact, the Magravs forces within the G2 (Fig. 12) and its surroundings become the seed of another Matter in the same environment.

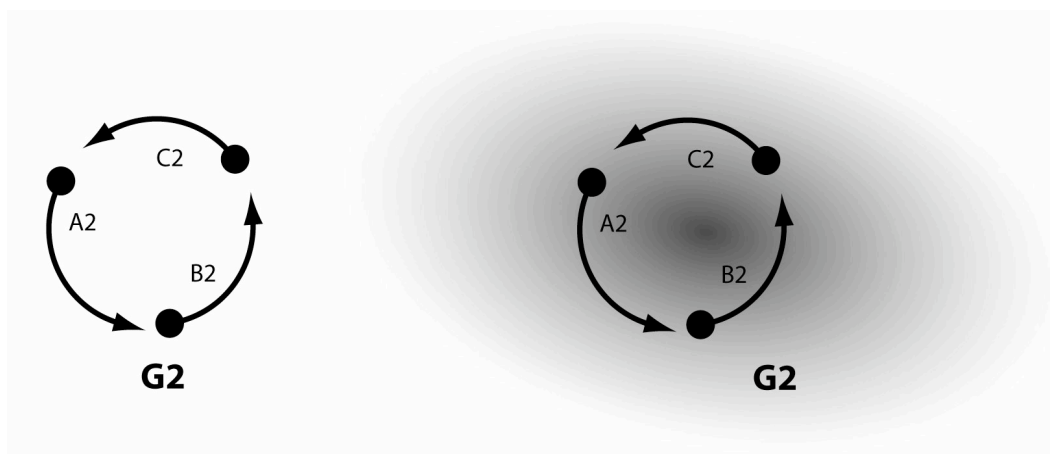


Fig. 12: The Antimatter Pmtics and Antimatter pmtics Magravs.

This new and stronger Magravs force, due to its stronger plasmatic Magravs interactions and its transparency, become what is known as the Antimatter part of the

plasma (Fig. 12 G2).

For clarity, the new stronger magnetic fields interaction between the SET P1 and the pack C, and creation of the Magravs force of G2 (Fig. 11), becomes part of the **SET P2** (Fig. 13).

Where, now this new set includes the G1 the Matter and the G2 the Antimatter and the remaining pmtics of the three original packs. Where, the weaker Magravs of the G1 and the stronger Magravs of the G2 co-exist next to each other, and are interlocked to each other by the original three pmtics fields in the original packs, which they originally shared (Fig. 13). Through overall Magravs of the two Matters in respect to each other, these two Matters' Magravs keep the rest of pmtics of the original three packs together and around them.

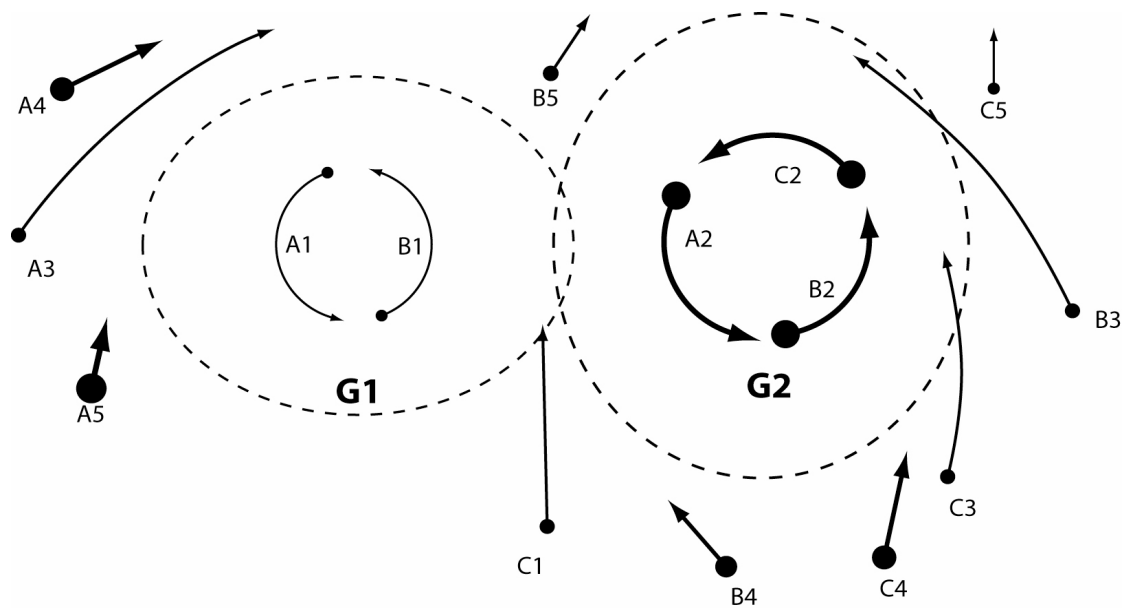


Fig. 13: Set P 2. This set includes pmtics and the Magravs of the Matter, the Antimatter and residual pmtics of 3 original packs.

This interaction of two different plasmatic Magravs sets of different strengths is similar to the plasmatic Magravs set forces operating in independent celestial bodies of the solar systems the like of the Earth and the Sun, where, the Earth can be considered to be the G1 pmtics Magravs and the Sun the G2 pmtics Magravs of the set.

Creation of the Dark Matter of plasma

The **third step** of the same interaction of the pack A, B and C pmtics, is from the other residual fields of these packs. Where some of the *residual* magnetic fields will generate a new Magravs force environment, the like of the G3 (Fig. 14). The G3 gravitational field force is a part of the same set of the same plasma environment as the G1 and the G2.

This new Magravs force zone of the G3 is created through the same process as the other

two Magravs, with a difference that the outward Magravs strength created by G3 are in magnetic fields strength balance with the overall pmtics strength created by the G1 and the G2 and other pmtics within the environment of the original three packs of pmtics.

This G3 is independent from the magnetic fields of other two Matters of the plasma. But these sets overall Magravs are *near equal* or are *in balance*, in respect to the pmtics of the overall enclosure of the plasma and of all the three original packs and the two gravitational sets of G1 and G2.

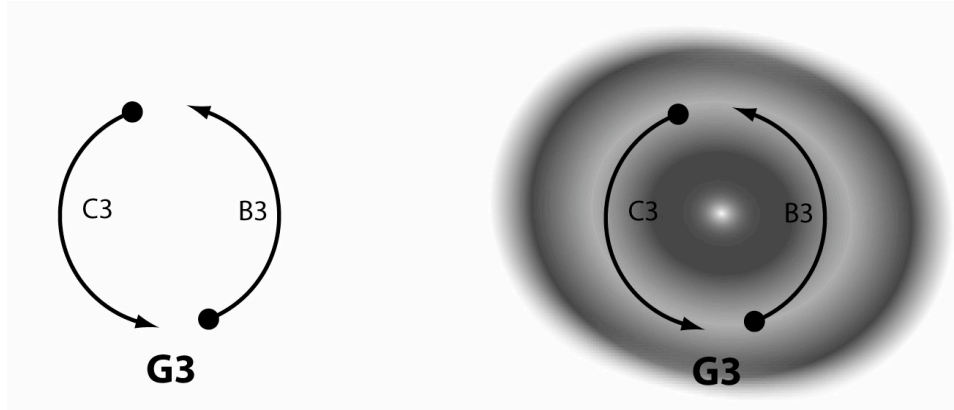


Fig. 14: The schematic and pmtics representation of Dark Matter.

Hence, even though this region of the plasma possesses Magravs forces, but it appears to be void of external magnetic fields, or this region appears to be void of a magnetosphere. Where, in the interaction of the G3 Magnetic fields with its surrounding magnetic and Magravs of the G1 and the G2 of the same environment, these fields of the G3 fail to create a visible and distinguishable magnetosphere for the G3 set with other magnetic fields in its surrounding environment. Therefore, as there are no interaction between the overall balance of the Magravs of the G3 with its surrounding pmtics, thus no visible or may be very little detectable light due to the interaction magnetic fields of the G3 with its surrounding pmtics are produced, that these could create light that could make this new gravitational centre to be detectable. Which this light can confirm the existence of another internal gravitational fields of another Matter in this region of the plasma.

Even though there would be a gravitational field force in this region of the plasma, which confirms the existence of another Matter in this region of plasma. However, the G3, due to the balance external Magravs interaction with other fields around this region with the lack of stronger external magnetic fields to create more profound detectable light in comparison to the G1 and the G2 magnetospheres within the plasma, makes this region around the G3 darker in respect to the rest of the plasma environment (Chapter 7).

Nevertheless, this region possesses pulling field forces or gravitational field forces but will not be as visible or detectable as the rest of the plasma, or will be darker in comparison, due to a lack of the stronger magnetospheric interface (Fig. 15 SET P3).

The G3 gravitational field force region, due to its dark appearance, becomes the Dark Matter component of the plasma (Chapter 14).

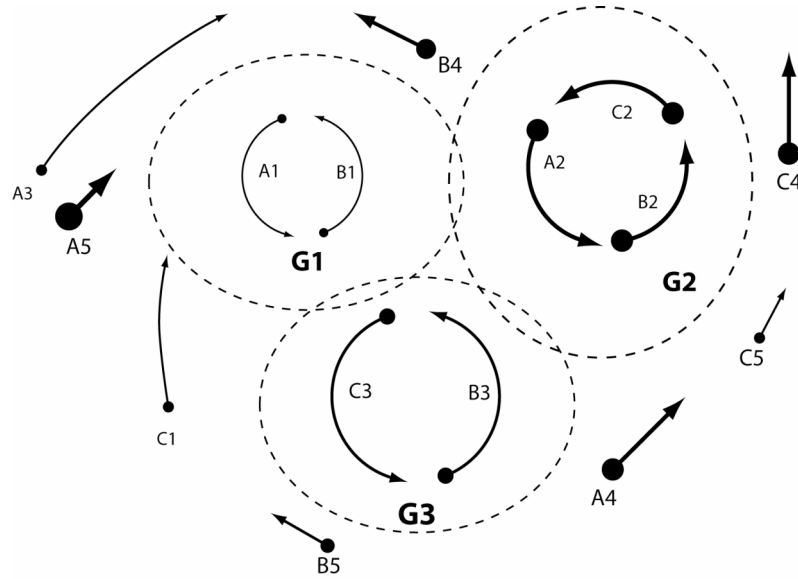


Fig. 15: Set P3 interactive gravitational fields of a Matter, Antimatter and Dark Matter.

In the past papers (36) and the Dark Matter chapter, *Keshe Theory of creation of Dark Matter* considers' and explains' that "Matter which possesses both Magravs, but where the overall Magravs strength are *in balance or near balance* in respect to its environments pmtics strength, so much so, that these regions do not create any or create only a very little magnetospheric visible light zone through the interaction of their pmtics (Chapter 7), that the Matter cannot become detectable or become visible in respect to its surrounding environment at specific given time and position, hence the Matter Magravs magnetosphere appears to be darker in that part of given environment, hence the term **Dark Matter**" is used.

These interactions and principles of how Dark Matters are generated have been explained and discussed in detail in the paper titled "The creation of Black Hole" (13), "Creation of Dark Matter" (36), "The rings of Saturn" (39) and further in different following chapters in this book.

We consider the creation and appearance of the Dark Matters, Black Holes, Dark Spots on the surface of the Sun and Dark sections of the rings of the Saturn, are all to be due to and through the same fundamental principle of the interaction of equal plasmatic Magravs strength forces in their given specific environment at a specific duration of time as in the G3 (13, 14, 17, 18, 24, 36).

Nevertheless, the Magravs forces of the G3 will be interacting with the rest of the plasma Matter's field's forces. The G3 pmtics released partially will feed the plasma's of other components of Matters for their motional energy and in keeping the gravitational field forces of the G1 and the G2 intact and overall to keep the plasma as one integrated system (Fig. 15).

Creation of the torus field force

The **fourth step**: Further on in this process of interaction of three original packs of

pmtics, and due to the dynamic characteristics of the other three Matters Magravs, soon *some of free pmtics* left in the overall initial three packs will come to be positioned in the centre of three Magravs forces of the G1, the G2 and the G3, and becomes the **interlocking force** between the three. The free pmtics become a dynamic swirling compact of residual of *un-matching pmtics* field strength and behave as a partial sphere of rotating magnetic fields forces to be known as the **F1** (Fig. 16) part of the plasma.



Fig. 16: The spherical torus field force.

These free F1 pmtics, due to not being able to find equal magnetic fields strength partners to establish themselves as a Matter condition phenomenon, this portion of the interacting fields become void of central gravitational field forces.

As the G1, the G2 and the G3 are in continuous motion, and as these three Matters lose their energies and momentums, due to their long-term dynamic activities, they come close to this inner field force region of the F1 and in contact with its pmtics forces. This is the point where, the three Matters of plasma gain momentum from their interactions and encounter with the dynamic magnetic fields forces of the F1 (Fig. 17).

This dynamic pmtics region in between three dynamic Matters can be compared to an empty spherical torus shaped field force effect (F1) (Fig. 17), as the field forces turn inwards, without any central gravitational field forces strength, and without any matching pmtics to generate any viable internal gravitational field force for the creation of any Magravs to lead to the creation of any Matter types.

In practice, the conversion of the pmtics of the F1 into energy, partially allows the balanced dynamism of the whole plasma to be maintained.

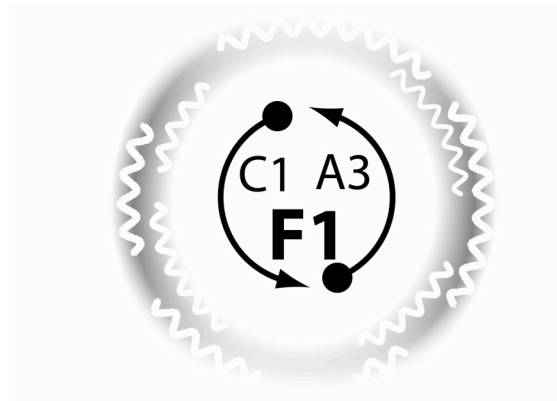


Fig. 17: Spherical torus shaped pmtics made by interaction of different strength residual pmtics of the three original packs.

F1's are considered as a natural process and phenomenon in the plasma and in the

universe, with the content of larger order of magnitude difference in pmtics strength in their constituents.

This dynamic spherical magnetic fields force region of the F1 in plasma or in space, void of central gravitational field forces, is commonly called a ***Wormhole***, and its operation of its field's forces in motion as Wormhole effect.

It has been hypothesized in the past by scientists that such a Wormhole can be used for inter-space travel with extreme speeds of motions near the speed of light.

We consider that these dynamic magnetic fields regions can be used to increase the speed of any object, which comes in touch with their dynamic magnetic fields. In fact the fast journey of the object through the F1, will not necessarily lead the Matter to anywhere rather than giving a turbulent fast ride within the structure of the plasma.

In case of wormhole in a galaxy, the object will have a fast speed travel without much control in speed and dictating the point of final destination of where the object might end up.

These are points in space that acceleration for motion for other Matters of the plasma or physical matters can be obtained, by using the dynamic pmtics forces of the F1 in plasma or space, where these forces happen to exist. Finding these points in space are much easier than ever thought before (Future publication).

Initial structure of Matters of plasma

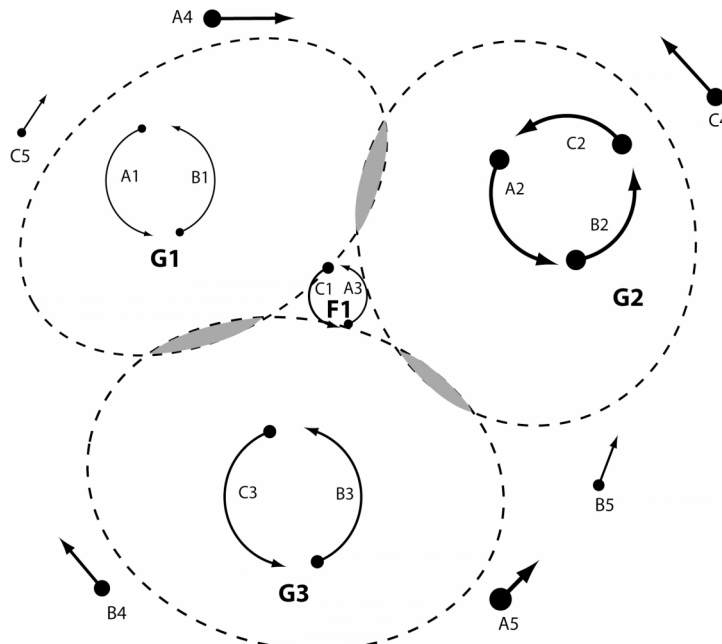


Fig. 18: Set of interaction between the three Matters and the F1.

Even though each of the three Matters are separate and operates independently from other Matters within the plasma, it is possible that from time to time the magnetospheric

envelop of each Matter comes in touch with other magnetospheres of Matters of the plasma and creates a common **interface** in the region for the window of time of the interaction (Fig. 18 shaded areas).

It is important to note that plasmas can possess several G3's and F1's of different pmtics strengths in its overall entity for some time, individually or simultaneously, at different time in its life cycle.

Transition-zone pmtics

The new overall interaction of all three Matters and all fields of all pmtics of all three Packs, as one entity, leads to the creation of the initial Matters and Forces of the plasma (Fig. 19).

At this point, there could be other pmtics of the three original packs within the structure of plasma that could not link or be part of the components of the three Matters and the F1, these free leftover pmtics literally float in the plasma and over time, they become the feeding pmtics for one Matter or another and the interlocking magnetic fields forces of part of the other Matters of the plasma.

These loose pmtics in-between interfaces of Matters are the dynamic plasmatic magnetic fields transition zones, which we call "***the energy transition zones***" (Fig. 20, the field arrows), in the overall structure of plasma. The magnetic fields in these intervening gaps among the Matters are fields that are mutually shared by all Matters in the plasma, when there pmtics strength comes to their level; these residual pmtics are considered more as a mixture of magnetic rays than pmtics.

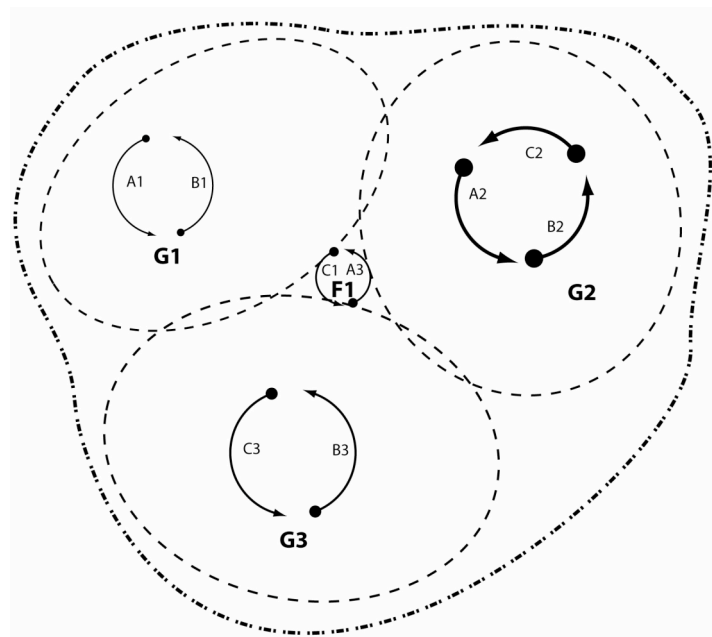


Fig. 19: Initial Matters and forces of the envelope of plasma.

They are in the plasma, like intermediating or interface zones in between two or more

Matters of the plasma at the same time.

Now that all the plasmatic magnetic fields of the three original packs are considered and counted for and used up, now we consider that the full set of the G1, the G2 and the G3, loose pmtics in the transition zones and F1, create an overall **integrated** independent Magnetic field and gravitational field of their own to keep the integrate of all pmtics of the three Packs A, B and C, together as on entity. Where this new entity becomes to be known as the “Initial Fundamental Plasma”.

Initial Fundamental Plasma

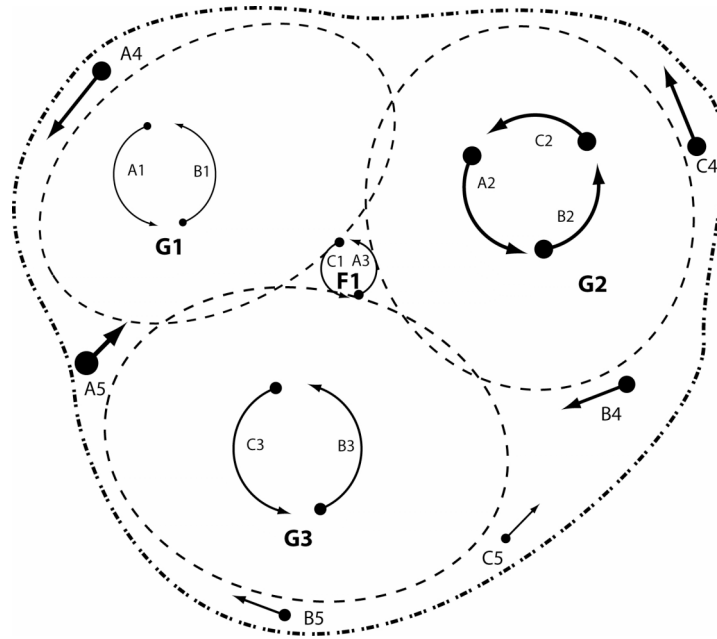


Fig. 20: Keshe Model of the Initial fundamental plasma.

I call this dynamic concept the **Keshe Model of “The Universal order of creation of Matter”**.

We consider the Initial Fundamental Plasma to be similar to **the construction of the Neutron** (Fig. 20).

Figure 21 gives the conceptual presentation of complete plasmatic magnetic fields of plasma, of “**The universal order of creation of Matters**”. This model represents the pmtics structure of the **Initial Fundamental Plasma**, where the G1 is the Magravs of Matter, the G2 is the Magravs of the Antimatter and the G3 is the Magravs of the Dark Matter.

It is considered that Initial Fundamental Plasmas always have an internally balanced magnetic fields environment, as one observes in the plasma as in the solar systems.

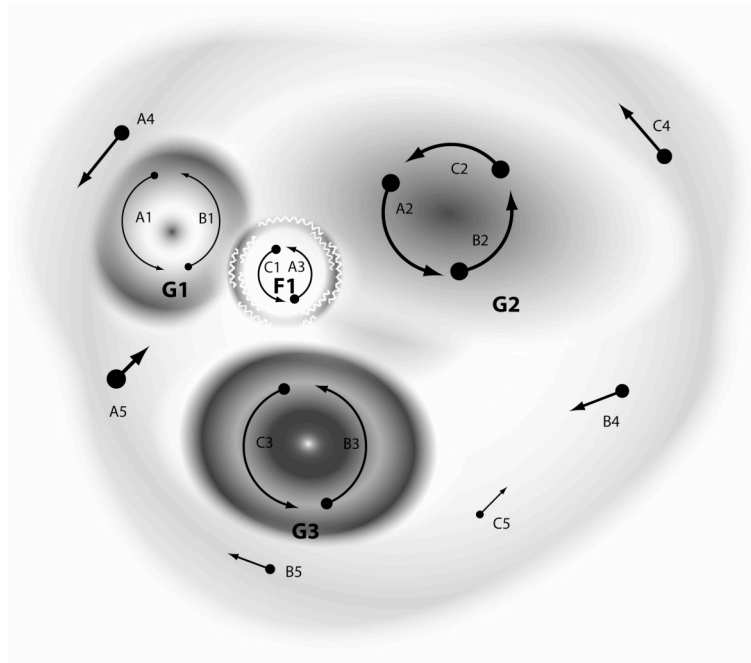


Fig. 21: Keshe Model of the pmtics of Matters of plasma.

At the same time initial fundamental plasma maintains an overall and external Magravs created by Matters and all pmtics, which are within the confine of the plasma too. Thus the internal balance magnetic fields of the neutron does not mean that it does not possess Magravs in respect to its outside environment. But due to the existence of Magravs of its component structure the initial fundamental plasma maintains an independent magnetosphere in respect to its surrounding environment.

When, contemplating on discussing about the proton or the neutron as a plasma, one has to talk about the whole of the plasmas' components, namely, the *Matter* part (what has been considered as the matter part of the nucleus of the atom), the *Antimatter* part, the *Dark Matter* part, the *spherical torus magnetic fields* and the *transition magnetic fields parts*. These are all together ***the components of one plasma*** and have to be considered as one package and entity.

There cannot be a plasma condition, where all three Matters do not participate in the existence of the plasma.

Decay of initial fundamental plasma

At the point in the cycle of the life of an initial fundamental plasma, when the shared magnetic fields of the transition zones, or pmtics of one of the Matters of plasma are partly exhausted and the Magravs balance among or in the Matter fields are disturbed and the Magravs binding forces are unbalanced, then the initial fundamental plasma disintegrates to its substructure of new balanced Magravs of the same Matters for the initial fundamental plasma to find a new balanced combination within its own Matters and fields within their given environment.

This process of splitting of the initial fundamental plasma to find new and smaller balanced plasmas for Magravs of Matters and fields balance, I call this process the **decay of the Initial fundamental plasma**.

The decay of the initial fundamental plasma always leads to the creation of at least two new balanced and smaller initial plasmatic magnetic fields plasmas of the same configuration, with, one plasma which possess more of the Matters and is larger, and one plasma which is a smaller and holds less of the Matters and pmtics of the original initial fundamental plasma. Nevertheless, the two new plasmas and their contents have to keep the overall balanced structure of the initial fundamental plasma. This happens so that both plasmas can survive within their environment as one entity.

The outcome of the **decay of the initial fundamental plasma** into two new components is considered to become the creator of the new *proton* and the *electron* of an atom. This new balanced pmtics entity, or so-called atom; itself has to have an overall balanced Magravs forces operating within it, for the atom to keep the integrity of the original initial fundamental plasma.

The decay of the initial fundamental plasma leads to the splitting of its content into a proton and an electron simultaneously (Fig. 46 diagrams 1 to 8). Nevertheless, at the same time as the new plasmas' component reposition and rebalance during this process of decay, this leads to the release of some residual pmtics or magnetic fields, which are not needed for or by the two new entities for their respective parts of their Magravs positioning (Chapter 18).

The release of the unwanted fields for the balance interaction between the two new plasmas, leads to the release of the magnetic fields packs as different rays or energies from the splitting of the initial fundamental plasma. This release can be in any form like a mixture of rays, pmtics, sound energy packs and so on.

I consider this *process of the decay* of the initial fundamental plasma of the contents of its three Matters and fields to be a **new** fundamental universal principle, where in larger scales of order of magnitude; it is called the nuclear decay of atoms.

In science at the present, scientists consider that elementary particles are quarks and so on, but now we know that *quarks themselves are further made-up of basic magnetic fields and their interactions*. Where, *collections* of magnetic fields in a group, as dynamic plasmatic magnetic fields, and their interactions with other dynamic plasmatic magnetic fields, leads to the creation of the Matter(s). Where, the mass of the "quark" is produced by the interaction of these plasmatic magnetic fields through the principle of the creation of gravity as has been explained in Chapter 1.

Secondly, what is at the present called the spin of the quarks now we understand is the natural dynamic motion of the Matters created in the plasmas' environment, through the interaction and Magravs positioning of the dynamic Matters of the plasma.

Thirdly, what is considered by the present science, as the *colours of the quarks*, are in reality the different contents, of different plasmatic magnetic fields strength interactions leading to the creation of gravity and Magnetic fields with their overall interaction

effect in respect to their environment pmtics, which leads to the creation of the magnetosphere of each Matter of the plasma, these being the magnetosphere of the Matter, the Dark Matter and the Antimatter in the magnetic environment of the plasma or the neutron, the proton or the electron.

This means that the quark cannot be considered as an “elementary particle” as it has sub-components and is made of magnetic fields itself.

Thus, *I consider the new “elementary particle” to be of the “magnetic fields” origin*, which this itself explains why one sees all sorts of effects, like the present quarks, bosons and the spin of the dynamic Matters of the plasma, and so forth. Where, these all can now simply be explained as being due to the interaction of different magnetic fields strengths, which makes up the structure of the Matters of the plasma and the other magnetic fields, which are within the structure of the plasma.

Even in the largest scale, this initial fundamental plasma decay model is what cosmologists see in the galaxies as the collapse of stars (which the star is and can be considered to be the initial fundamental plasma) and its re-emergence as new smaller components of star or solar systems. By the same principle, the release of energies for the star to find its new balance through its star decay always leads to releases of vast amounts of unwanted matters, Matters and energies and creation of sub-components but still with its Magravs forces.

This decay of initial fundamental plasma is discussed in more detail in Chapter 15.

CHAPTER 4

Matters' of plasma and their transition of states

There is conclusive evidence to show that plasma possesses energy, and maintains specific magnetic behaviour, and that plasmas can and do generate their own Magnetic fields and gravitational field forces.

Research done by a number of institutes around the world indicates that the plasma of Matter is accompanied by a second Matter constituent called the Antimatter. Some institutes (6, 7, 8) claim that they have separated and have managed to contain the Antimatter.

In other sections of science, scientists refer to what is called the **Dark Matter**, and observations of virtual matters.

The world of science has failed to consider the creation of all these three states' of Matters (Matter, Antimatter and Dark Matter) as constituents, and as of one process, in the chain of initial progressive process of creation of the three Matters and as the content of one plasma in the universe.

This failure has been due to the lack of understanding that the Matter, the Antimatter and the Dark Matter components of plasmas are all created simultaneously and as one integrated dynamic plasmatic magnetic entity.

It is fundamental to understand that one of these Matters' does not exist without the others within the overall structure of the plasma. Then through this process, it becomes easier to understand the operation of Matters, matter and fields, plasmas, atoms, molecules, solar systems and galaxies.

One can now translate this new understanding of how plasmas are created and operate into how larger celestial objects are created, and operate in their given environment collectively. In other words, we translate the knowledge of the operation of electrons around the nucleus to the operation of planets around their stars.

To understand the relationship and construction of the plasma with more clarity, every effort in this book have been made to go through stage by stage, how **Matters** of plasmas are considered to be connected, and *appear to inter-transit from one state of Matter to another* within different environments without loss or gain of any of their plasmatic magnetic fields strength.

In the matter world this is like the inter-change between states of matters, from solid-to-liquid, liquid-to-gas, and vise-versa.

Where in the matter world the *state-of-matter* is *magnetic fields'* **forces** dependent, and in the *state-of-Matter* it is *magnetic fields'* **strength** dependent.

The phenomenon of transition from one state of Matter to another is a regular occurrence in dynamic pmtics processes in the spans of the universe (Fig. 21).

All components of Matters of the plasma or any Matter or matters in the universe are connected to each other through the interaction of their pmtics, and their pmtics strength, which are the constituent and the creator of their Magravs.

Thus, as each Matter gains or losses some of its pmtics, one Matter component of the plasma will become or can become the component of another Matter of another plasma or field at “a given point in motion of pmtics” (time) and at a given point in its space.

For example, Matters of plasma can interchange from one Matter to another due to their motion of dynamic pmtics or what is called energy levels changes in respect to a given environment pmtics strength.

All Matters can appear as different Matter by just changes of the environmental pmtics strength too. For example the same plasma or Matter by just passing through another region of different pmtics strength. This is the process what we call *transmutation*, but in this case the transmutation is done by the environmental condition and not by the internal Matter pmtics strength change.

Matter can appear as different Matter, for example Dark Matter can appears as Matter by *simply entering into a new pmtics environmental condition*. This is how Dark Matter suddenly appears as virtual matter.

For example, **Dark Matter** in a given environment of plasmatic magnetic fields strength by entering into a new and stronger or weaker pmtics strength configuration, instantaneously, becomes **visible Matter** in respect to its newly entered environment (Dark Matter to Virtual matter). I call this the ***phase of transmutation of Matter(s)***, so this is the unveiling or occurrence of a new state of Matter from the same old Matter in a different outfit.

Secondly, Matters can change their status and behaviour from Matter to another for example from Dark Matter to Antimatter or Matter, by simply ***gaining from*** or ***losing to*** a part of their plasmatic magnetic fields strength to other Matter(s) or pmtics in respect to their given environment.

If Antimatter Magravs strength reaches an environment pmtics strength that its overall Magravs strength becomes equal and in balance with its new environment pmtics strength level, then the Antimatter can become and behave as the Dark Matter entity in respect to its new given environment (Fig. 22).

On the other hand, for example as the pmtics strength of the components of Antimatter reduces or as Antimatters interact with other Antimatters of different Magravs strength, these Antimatters lose enough of their Magravs strength that one or both Antimatters come to a new balance of plasmatic magnetic fields strength. Where, these balances can be in their internal and external Magravs, then these Antimatters Magravs strength can

come to a level that the new strength of the former Antimatter become to be in the pmtics strength level of the Matter, or change to the Dark Matter field strength level status in respect to the same environmental condition.

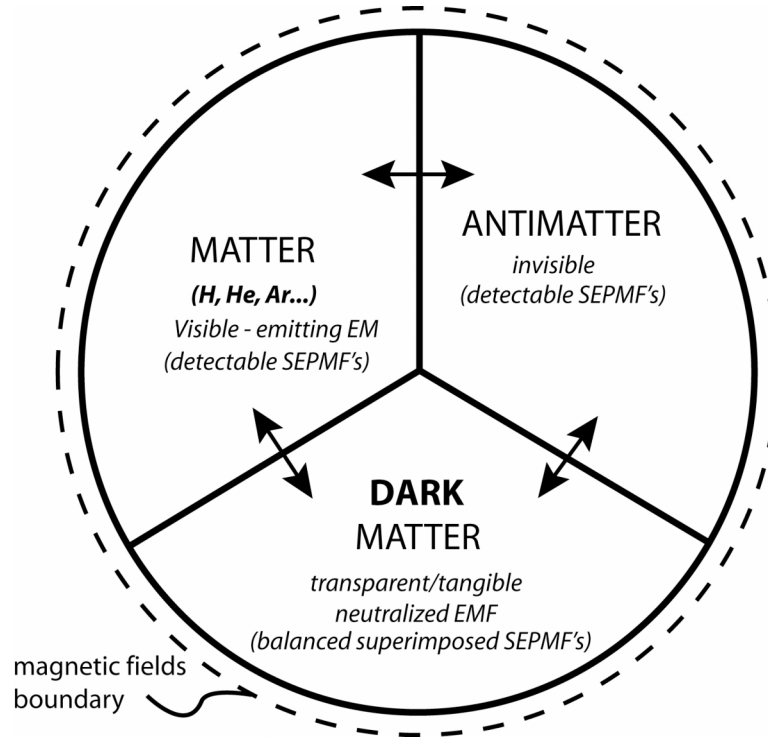


Fig. 22: Schematic Keshe model of interconnection relation between different states of Matters.

This is what we call the ***Keshe Theory and principle of the transition of Matters***, that is to say “***the transition from the Matter to the Antimatter or the Dark Matter and in reverse, and the transition of the Dark Matter to the Antimatter and in reverse, is a normal condition of transition of the Matters***” (Fig. 22 and Fig. 23). These figures showing in a simple and new way how and the connections by which interchange(s) between the states of Matters in the universe are achieved.

Keshe principle of transition of the Matter states’ that, “the plasmatic magnetic fields strength of the environment in which the Matters operate in, ***dictates*** what the Matter appears as or presents itself as, in that given environment” or on the other hand “when one Matter gains or losses enough of its plasmatic magnetic fields strength that the Matter Status, characteristic or behaviour becomes of other Matters of the plasma status and behaviour or characteristics within the same given environment”.

Therefore, Matters can change from one Matter to another by increase or decrease in their pmtics strength or they can appear as different Matter as they enter different plasmatic strength environment and conditions.

That is to say, the Matter can become to have the characteristic of the Dark Matter in a given environment pmtics strength, and by the same measure, the Antimatter can lose enough of its pmtics to become Matter, and so one. The schematic transitions of state of

the Matters are shown in figure 22 and figure 23 of the *Keshe model of transition of Matters*.

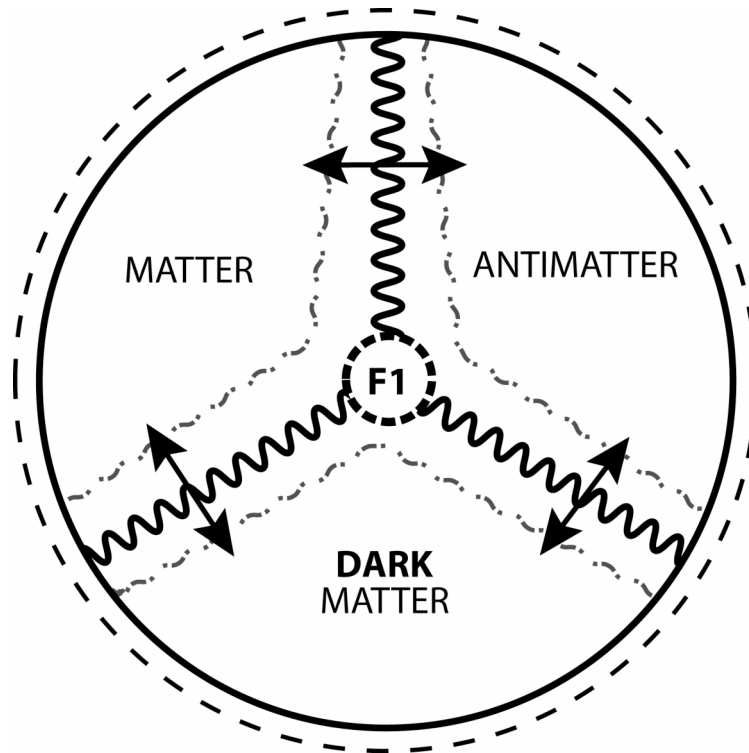


Fig. 23: Keshe universal Model of the plasma transition of plasmatic magnetic fields and Matters.

With the use of simple pmatics plasma dilution reactors, which have been developed by Keshe Foundation through its Keshe Technology development sector, the principle of transition of Matters have been tested and results have proven to be in line with the theoretical consideration.

Where, in these nuclear-based reactors, Matters can be allowed to go from one state of Matter to another and then allowed to return to their original state of Matter. This new method of transition of Matters brings about a new way and technology of producing all man's material needs for motion, energy, creation of new matters and so on.

For example, effects and properties of transition of Matters (Fig. 23) can be used to make physical Matter to have no magnetospheric boundary as Dark Matters do in a given environment, so that the Matter behaves like the Dark Matter in characteristics. In these environments, the Matter will become translucent dark or the centre core behaves as becoming invisible in respect to its surrounding environment, without any change in the property of the physical Matter or change in its gravitational field strength or position in space of the Matter.

As the Matter with this property presents no effective magnetospheric condition in respect to its surrounding environment due to the lack of /or little interaction between the pmatics of the Matter and its environment, then the Matter now can behave as Dark

Matter and move without friction and freely within the same environment.

Utilizing this state of the Dark Matter effects around an aircraft or spacecraft, this condition will give the craft frictionless motion and higher speeds and possible invisibility in the same environment (Chapters 13).

The technology of transition of Matters has been tested-out over years by the Keshe Foundation, and several systems were designed, developed and manufactured and used to achieve the formation of original magnetic fields plasmas to prove the correctness of these principles, and indeed the effect of transition of Matters were proven to be correct.

The implication and application of the use of transition of the states of Matters are so immense and profound, that one needs to know, for example, where the Matter will end-up in, and in what state of Matter in respect to its environment, one will appear as.

That is to say, one has to know if for example, going from Matter to Antimatter, where in the strength fields of Antimatter, one will end-up in. Vice-versa, when one can go from Dark Matter into a Matter condition zone, one has to know in what state of matter (gas, solid, and liquid) one will come to ends up in.

Through the operation and control of these reactors, one needs to know where the system state of matter and magnetic condition will end-up. This could be in liquid seas, or in the middle of a solid Matter or in the middle of deserts. Without being prepared for these parameters through the operation of systems, which can facilitate such a transition behaviour and characteristic, the use of Matter transition can have catastrophic consequence, not only for the system, which produces it, but also for the occupants of possible crafts using this type of transportation in the spans of the universe.

By the understanding of the principles of creation of the initial fundamental Matters within the initial fundamental plasma, through the interaction of the initial fundamental particles, a number of unanswered questions in the world of science can be answered.

For example, in the universe the total quantity of plasmatic magnetic fields and the related energies are to be considered *constant*. Therefore, *in the totality*, no matter, Matters or magnetic fields will ever be lost or gained in the universe. Pmtics of different strength start existence at one strength level and they consolidate to become stronger, or lose their field strength through division and collision to become weaker in strength. Nevertheless, pmtics in their different strength fields can never be destroyed or lost.

Therefore, pmtics simply interact, divide, and interlock to produce different Matters and conditions like forces, motions, heat and compactness for them to be matters to be visible to the eye of creatures, according to their positions, and so on.

Pmtics in their interactions with others of the same can only move from one state of Matter to another depending upon the condition(s), which prevails at a given point in a given time in space. Thus, the Matter can go from the Dark Matter to the Antimatter and vice-versa, and the Matters to the Dark Matters and vice-versa and so on.

Therefore, the theory and the discussion that universe one day will run out of matters and energy and then there will be nothing as has been promoted by some scientists in the recent past is anything but a fallacy.

By the same principle, we call the **pmtics in motion as the energy** of the pmtics. These pmtics in motion can release and can lead to creation of the same Matters as they were created-out of, and can have the same capability. That is to say, for example, the energy of the Dark Matter can change into energy of Matter, or part of the matter, and the same applies for other states of Matters.

In understanding, the principles of “**the universal order of creation of Matters**”, one can utilise the transition of states of Matters and matters to take full advantage of universal Matters and matters pmtics and their energies.

Through the permanent interaction of all dynamic pmtics of different scales of strength, there will be no end to the universe, as the universe moves through its different pmtics strengths field interactions and repulsions. Where, these will lead to eternal motion of the universal pmtics forces and creation of new Matters, matters, forces and new condition for them to cooperate within the universe. Thus, there never has been a Big Bang and there will never be a doomsday scenario for the universe as a whole, the universe will be forever in equilibrium in its overall universal order of pmtics.

The pmtics of Matters will *transit* from one state of **Matter** (Matter, Dark Matter, and Antimatter) to another state of **Matter**. In addition, from one state of **matter** (solid, liquid, gas) to another state of **matter**.

Where, these changes will depend on the properties and forces of the states of plasmatic Magravs and their strength in respect to each other. Similarly, pmtics from strength of fields of Matter will transit to pmtics of different pmtics strength of Matter, in these *processes of transition*, plasma releasing dynamic pmtics in motion as **energy**.

The real size of the universe will never change; that is to say, the universe cannot expand into a space if the space for its expansion was not there to begin with. Where, from our point of view we only observe a small fraction of the whole, which we observe that fraction expanding. The observed expansion is relative to the position of the observer in respect to a given position in the universe, for example what will be a red shift observation of one at one end of the universe, this will be blue shift to an observer on the opposite direction of the motion of the same entity. In the paper titled “Creation of magnetic fields” it has been explained that the *blue shift of light* is created when *pmtics are compressed*, and the *red shift is created* when the *pmtics move away* from each other, or *when pmtics are opened up*.

In the real world of the universal order of creation there is no room for the principle of singularity. Except, if, we would call, a large pmtics, that covered the whole of the universe singularly by itself. Then all that has happened, is that the original single plasma has gradually disintegrated to smaller and weaker strength fields, which their interaction has lead to the creation of what has been seen and is in the present in the short time of the life of man on the Earth. Then, such original singular plasma, which

covered the whole of the universe, had to gradually to disintegrate to smaller strength fields, which their interactions have lead to the creation of all events, Matters and matters in the Universe.

The transition of state of Matters principles will be discussed in full in future disclosures.

CHAPTER 5

Definition of Energy Through pmtics

The initial components and construction of plasma are due to the existence of initial dynamic plasmatic magnetic fields.

For a magnetic field to be able to be detected or its existence to be confirmed, the pmtics has to *leave the confines of the boundaries* of its containments, this being the boundary of Magravs of the Matter or the plasma.

It is important to keep in mind that the pmtics do not possess or show **field force** unless they are in motion.

The energy possessed by a plasma can be define as “the total plasmatic magnetic fields forces of all its constituent Matters *and fields in motion*, in respect to the original position of the plasma in a full three hundred and sixty degree spherical direction”.

This is an important factor, as up to this point, scientists have measured and calculated the energy of the Matter component of the Matters of the plasma. Where, in calculating the true energy of the plasma, *one has to calculate the energy of **all Matters*** (Matter, Antimatter and Dark Matter) and the other components of the dynamic plasma.

When the magnetic field has left the Matters’ or the plasmas’ boundary, at this point its existence and the content of the pmtics strength of all Matters pmtics’ released can then be confirmed as energy. This is shown in (Fig. 24), the magnetic fields in the Matters.

The pmtics constituent constructions of individuals Matters of plasma are not energies in respect to other Matters while they are within the boundary of the plasmas Magravs’ forces. These are shown as the magnetic fields inside the Matters on the left of image (Fig. 24) but are *only forces* (these being the like of Magnetic field or gravitational field forces) in respect to other Matters and pmtics.

When the field leaves the environment of its Matter or the plasma, it is at this point that it can release its domain pmtics to other plasmas in regions or combinations of field interaction zones. These are shown as field forces A at the boundary of the plasma in figure 24.

As the plasmatic magnetic fields, moves further from its original plasmas’ boundary (field B in Fig. 24), the plasmatic magnetic fields uses’ its energy to overcome other Magravs in its environment. Hence, as the plasmatic magnetic fields moves further away from its mother plasma, the less energy it will have to transfer to other plasmas as it comes into contact with their pmtics.

Thus, energy transfers from one Matter to another Matter through one pmtics strength and the measure of the pmtics possessed at the point of the contact with the second Matter, this is position and distance dependent, from the point of departure to the point

of arrival.

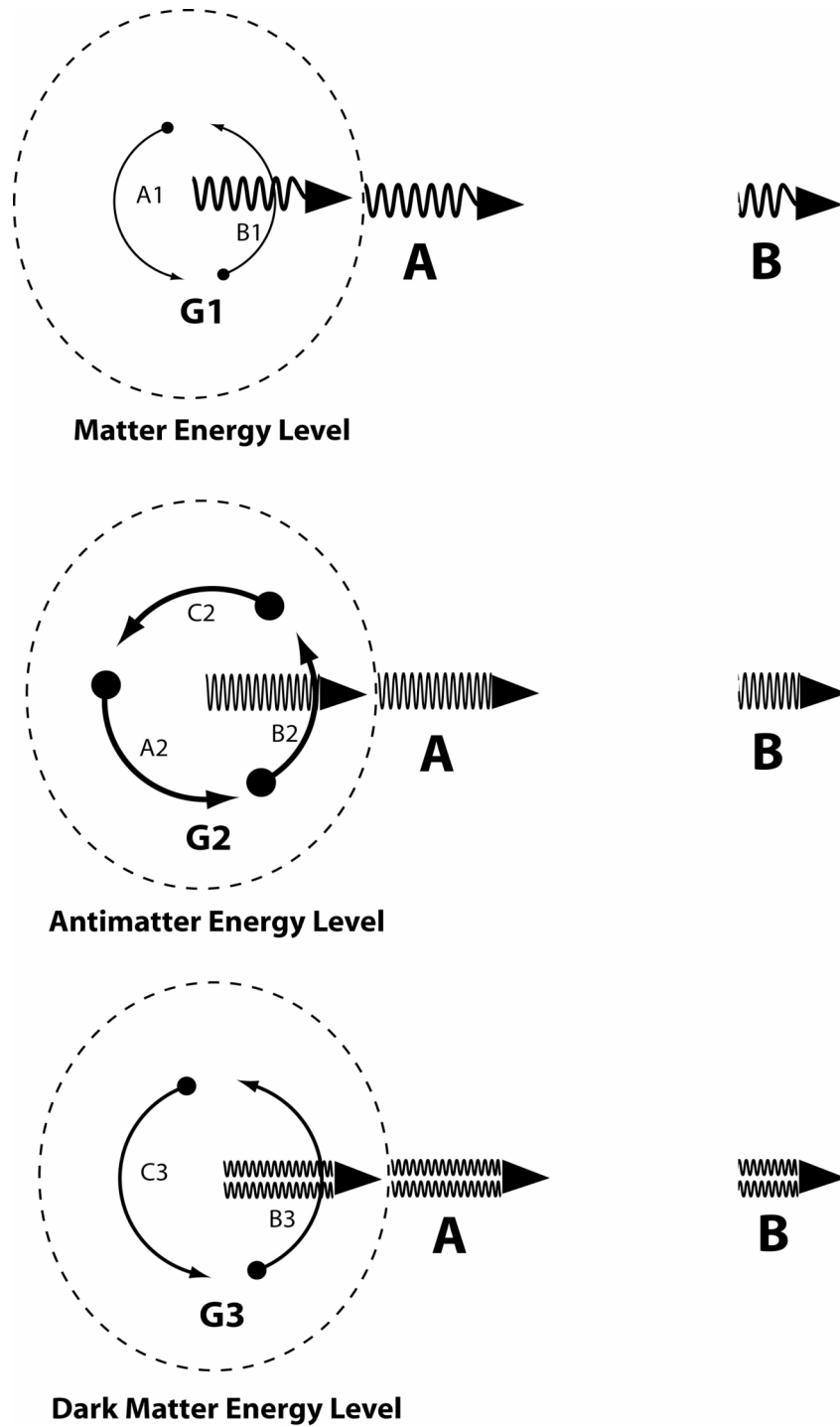


Fig. 24: Schematic presentation of relationship of pmtics and energy in respect to their Matters.

The total Energy released by the Matter or plasma is the total of pmtics forces that the plasma can release and transfer, and that and what measure of the pmtics can be absorbed by all components of other plasmas in its environment.

That is to say, the same proportion of magnetic fields forces by Matter, Antimatter and Dark Matter and other fields of plasma are released and the same proportion of all energy fields are transferred to the all recipient plasmas and Matters and pmtics.

The total energy of Matter is said to be the total pmtics that Matter can release as it disentangles all the components of its **initial fundamental magnetic fields**, or what is known as its' "**initial fundamental particles**", which the plasma and of the Matters of plasma were made up of, at the point of their inception.

Thus energies released by the plasma or the total energy possessed by the plasma is in fact, the total collection of initial fundamental magnetic fields of all the component constituents of the plasma, which disentangles from their Matters or plasmas and are in motion in the direction of the encountering other pmtics components.

Pmtics absorbed by some plasma's can be only a part of the total pmtics in motion, or energies that have been released by the initial fundamental plasma, and are not necessarily considered to be the total energies that a plasma possessed or has released.

Energies released by plasma are said to be "**the total initial fundamental pmtics released by all components of that plasma**" **passing its Magravs boundary**.

Multi-plasma atoms' release more plasmatic magnetic fields, due to their total sum of the plasmatic magnetic fields released by all their participating plasmas (protons plus neutrons, and electrons).

The principles of creation of Magravs forces, gives us an insight that "**energy**" can simply be defined as "pmtics, once released, through the dynamic Magravs characteristic boundary from the plasma or Matters, that these released pmtics can ***exert or pass a part of their released pmtics to another plasma***, for the new Matter or plasma to maintain its existence and/or maintain constant normal magnetic fields strength and/or increase its magnetic density of the same pmtics strength condition to their ground base levels, in their given environment" (Fig. 24).

Measure of a mass

One of the central unsolved questions in the world of physics is how the mass of the Matters or of matters are created, and how they can be calculated.

Through the ***Keshe theory of Mass***, the creation and the measure of the mass of an entity can be defined to be:

"Due to the interaction of at least two magnetic rays, magnetic fields, or plasmatic magnetic fields, which the outcome of their interactions leads to and creates two field forces of a ***pulling*** field forces called *the gravitational fields force* and a ***pushing*** field force called *Magnetic fields force*, whereby the interaction of the gravitational and the Magnetic field forces with each other, this interaction of two field leads to the creation of a given magnetic fields strength **balance** between the two field forces, where, the

measure of the magnetic fields difference of the interaction of these two field forces of the gravitational and the Magnetic field forces, is the measure of the Mass of the entity which the two original magnetic fields have created.”

The outcome of the interaction of the fields balance is creation of the mass of the Matter, components’ of the plasma (Fig. 25), or mass of the matter (solid, liquid or gas).

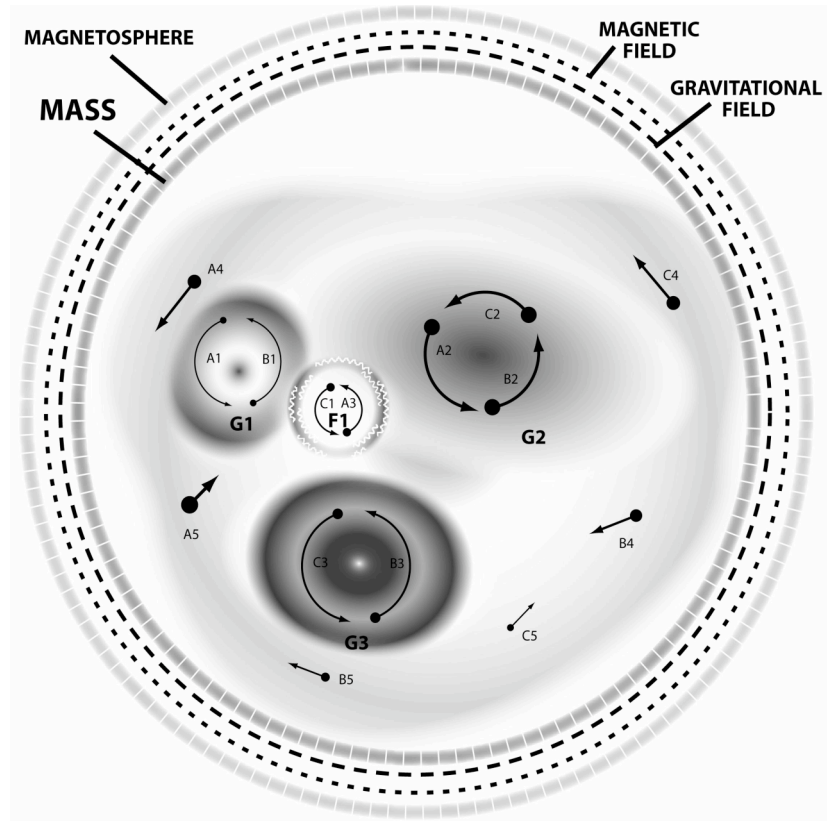


Fig. 25: Mass

That is to say by the ***Keshe law of measure of the mass*** of any entity, this being Matter, plasma, atom, matter, planet, star, etc states that:

$$\begin{aligned}
 &\text{“ Mass of any entity =} \\
 &\quad \textit{Measure of the total gravitational fields strength forces of the entity} \\
 &\quad \text{ - (minus)} \\
 &\quad \textit{Measure of the total Magnetic fields strength forces of the entity”}
 \end{aligned}$$

Through this definition and understanding it becomes clear that the gravitational field forces are always predominate and stronger as all entities possess mass, otherwise their mass would be negative.

Thus *mass is the measure of the difference between two or more magnetic fields after their interaction*, and **NOT** the measure of strength **before interaction**.

Where, the measure of the magnetic fields *before interaction* is their “forces” of their fields, and *after the interaction* of the magnetic fields the outcome of the balance between the gravitational and Magnetic fields that is generated, becomes the mass in respect to a given fixed position of the central Magravs.

The creation of Magravs always is accompanied by the creation of a **Magnetosphere** and the creation of the mass of any entity in the universe, and all these four forces are created instantaneously and simultaneously.

That is to say, “the **Initial Fundamental four forces** of existence of an entity that are, the **Magnetic fields**, the **Gravitational fields**, the **Magnetosphere field** and the **Mass field** forces, are *all the outcome of the interaction and interlocking of two or more mainly matching in strength magnetic fields* or plasmatic magnetic fields, irrespective of the size of the entity, this being Matter, matter, an atom or a star.

This is the reason why the mass of any object, which is created by any two magnetic fields strength, is *independent of any external forces and factors*, like gravitational fields forces of other objects or entities. The instance the two magnetic rays or magnetic fields interlock, to generate the first Gravitational fields as an entity, at that moment the span of the Magravs of the two fields forces involved in the original fields are not as individual fields, but they become an *independent entity* in respect to their environments’ fields forces. That is the reason why the **Mass of any entity**, like the Matters, are *constant and independent and irrespective of the environmental Magravs forces* which the entity exists and operates within.

That is the reason why the Mass of spacecrafts of the future, or the Mass of planets like the Earth are independent of their environmental conditions. That is to say, the **strength** of the interaction of the two **original** magnetic fields and the span of the fields they produces that created the Magravs *decide how much mass the interaction of the two fields will carry* and no other factors.

This is the reason why, Man will be able to make crafts that can carry any payload by the use of Grapos nuclear reactors Magravs strength, as the payload of these systems and the strength of Magravs that these systems generate, creates independent environment Magravs forces *as long as the boundary of the magnetosphere of the Grapos can cover the physical boundary of these crafts*. Figure 25, in its design, explains’ this concept fully. That is why the two magnetic fields have to be equal in strength before they can create the initial four field forces.

If two unequal magnetic fields in strength interact, the two create the gravitational, the Magnetic, the magnetosphere and the Mass, and the lowest strength field, which dictates the maximum level of the strength of the four fields that the Matter can have. The stronger magnetic field residuals of these types of unequal magnetic field strength encounters and creation of matters become the **tail magnetic field of the entity**, and

this tail is the cause of the creation of the coiling effect of these kinds of masses. Where and if the two unequal magnetic fields strength **cannot** create a mass, the same interaction leads to the creation of the coiling of the two fields and to what is known as the **coiling of the magnetic fields**, this effect is partially the cause of the *swirling of the F1* torus field zones in the plasmas, and its larger counterpart, the rotation of Wormholes, as these regions in the universe are created out of unbalance Magnetic field strength interactions and interlocking, this be it in the plasma or in the universe. In so many ways in knowing the strength of two magnetic rays, magnetic fields, plasmatic magnetic fields and so on, which are about to interact and to create the initial Magnetic and gravitational fields of an entity, one can tell what would be the outcome measure of the mass of the entity they will create.

Einstein has related the mass of matter to its energy through the general equation of relativity.

As explained above, the mass of an atom or plasma itself is made of a collection of dense pmtics strength and their interaction with each other.

Thus initial fundamental plasmas always have the same mass irrespective of the Magravs of their environment.

By the same measure, the Atoms of the same elements are always made of the same number of initial plasmatic magnetic field's sub-components, of neutrons, protons and electrons.

Atoms of the same elements always have the same total plasmatic magnetic gravitational fields **pull** and Magnetic field **push** in respect to all their internal components, irrespective of the environmental plasmatic Magravs that the atoms might be in. This becomes the total mass of an atom, as mass is an expression of measurement of the total enclosed pmtics interaction within the fields of confinement of the plasma.

In considering the general equation of relativity

$$E = m \cdot c^2$$

The energy for the mass of Matters of the plasma, accordingly will be

$$E = m(M) \cdot c^2$$

That is to say “the total pmtics released in motion by the Matter of plasma (once they have left the boundary of the plasma) (Energy), is equal to, the total balance after interacting pmtics strength of the Matter components of the plasma (Mass) which the plasma is made of, multiplied by the square of the maximum speed that pmtics can travel in the matter environment (speed of light)”.

Considering that, pmtics of different strength can travel different distance from their point of release with **different speeds** in *different Matters*, Matter *and* matter mediums.

Then it is correct to say that the pmtics of the Matter, once it has left the Matter

Magravs of the plasma, this pmtics of the Matter will travel with a different speed than the plasmatic magnetic fields of the Antimatter of the same plasma, or be it the pmtics of the Dark Matter component of the same plasma, in the matter environment.

The Antimatter has and is made of different pmtics strengths, by virtue that it has been created initially by stronger fields, then its speed will be different and higher than that of the pmtics of its Matter component of the same plasma in the same environment.

By the same principle, the faster field of the Antimatter carry more energy or more powerful energies than the slower pmtics in motion of the Matter component of the same of plasma.

Alternatively, in reverse, as the Antimatter possesses more power or energy than the Matter, then for the same volume of Antimatter as Matter in the plasma; the Antimatter pmtics must move faster than the pmtics' of the Matter, in the matter medium.

The Fermi National Accelerator Laboratory - or Fermilab, in USA (6, 7) - considers a small amount of the Antimatter, once released from the Matter of plasma; it can deliver more energy than its Matter parts of the same plasma. They are considering and working on the principle as; they can burn the Antimatter to release its energy so that by the time the Antimatter reaches the state of matter energy, that they can harvest its surpluses energy.

Through the *Keshe principle of conversion of energy*, the fundamental universal conversion principle follows the path that the Matters convert to matters through their **dynamic pmtics in motion and forces**, or what is refer to as the **energy of the Matter magnetic fields forces**, as these energies are transferred to the constituent pmtics' of matter.

From what I call "The fundamental *universal conversion principle*" follows that "the pmtics of the Matters' like of Antimatter slow down, through interaction with other magnetic fields, so that their energy can be absorbed and converted to Matters' pmtics strength levels, that become useable in matter environment and appears as the matter (solid, liquid and gas)".

By the same principle, the matter can be converted to Antimatter through the same method in reverse. Where, these processes are not much different for both paths of conversions.

Only the state of pmtics strength and the effects of the environment, which dominates at a given point and at a given motional position (time), that will dictate what state the dynamic pmtics in which the state of Matters, the matter manifest itself as, and what matter will appears in the line of sight by given tools of detection at a given point in the universe. This dictates if pmtics strength will appear in state of matter as solid, liquid or gas, or will manifest itself in one of the state of Matters, as Matter, Dark Matter or Antimatter.

CHAPTER 6

The total energy balance equation of Plasma

The energy balance equation or general equation of relativity ($E = m.c^2$) gives the relation between the *tangible part* of Matter of the plasma and its constituent energy.

The mass of an atom or collection of plasmas of its components, themselves are made of a collection of densities of pmtics strength of different Matters and their interactions, in respect to each other within their respective initial fundamental plasma.

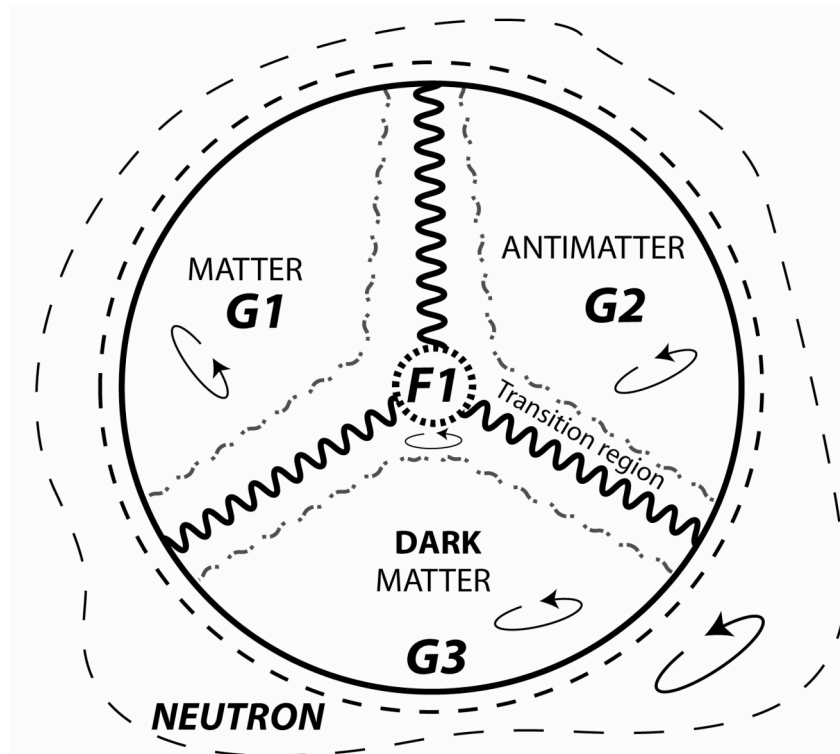


Fig. 26: Schematic of the fields of all components and of the initial fundamental plasma.

In considering the plasma, the general equation of relativity can be written in its real terms of its constituent components and their interactions and effects. Thus, this equation as has been said can be defined in respect to the Matter components of the plasma in the following manner.

That is to say “the total pmtics released in motion by the Matter of the plasma (once they have left the boundary of the plasma) (Energy), is equal to, the total balance after interacting pmtics strength of the Matter components of the plasma (Mass) which the plasma is made of, multiplied by the square of the maximum speed that pmtics can

travel in the **matter** environment (speed of light)".

Knowing the new composition of the plasma, then the **total energy of the plasma** has to be in its **totality of all its masses of all its Matters** and not just its Matter component.

Therefore:

K (the total energy of plasma) = [energy of the Matter + energy of the Antimatter + energy of the Dark Matter + energy of the spherical torus-shaped field force effect + the energy in the inter binding between the other parts in the transition zones of the plasma].

$K = [E(\text{Matter}) + E(\text{Antimatter}) + E(\text{Dark Matter}) + E_{cf}(\text{centre spherical torus pmtics}) + E_{tr}(\text{pmtics within transition zones})]$.

Where, total general equation of relativity for the whole of the components of the plasma can be written in the following form.

$$K = EM + EAm + EDm + Ecf + Etr$$

Or:

$K = [(The\ total\ components\ of\ constituent\ pmtics\ of\ the\ \textbf{Matter}) \times (the\ square\ of\ the\ \textbf{speed}\ of\ pmtics\ in\ the\ \textbf{Matter\ medium}\ or\ the\ speed\ of\ light) + (The\ total\ components\ of\ constituent\ pmtics\ of\ the\ Antimatter) \times (the\ square\ of\ the\ \textbf{speed}\ of\ pmtics\ of\ the\ Antimatter\ in\ the\ Antimatter\ \textbf{medium}) + (The\ total\ components\ of\ constituent\ pmtics\ of\ the\ Dark\ Matter) \times (the\ square\ of\ the\ \textbf{speed}\ of\ pmtics\ of\ the\ Dark\ Matter\ in\ the\ \textbf{Dark\ Matter\ medium}) + The\ total\ energy\ components\ of\ constituent\ pmtics\ of\ spherical\ torus-shaped\ field\ force\ effect + The\ total\ components\ of\ constituent\ pmtics\ of\ the\ inter\ binding\ between\ the\ four\ other\ parts\ in\ the\ transition\ zones\ of\ the\ plasma]$.

$$K = M(M) \cdot c^2(M) + M(Am) \cdot c^2(Am) + M(Dm) \cdot c^2(Dm) + E(cf) + E(tr)$$

Note: Capital M indicates here a mass of Matter.

When for example an apple is measured using the present measuring tools and methods, the figure attained is only for the mass or the weight of the Matter part of all the plasmas' of atoms of the whole apple.

As a representation, one initial plasma of an atom in the whole construction of an **apple** with it's Matter, Antimatter, Dark Matter, and other pmtics are shown on the right hand side picture of figure 28. Where, the *tangible apple as matter* represents the total Matter components of all the pmtics of an apple is shown on the left picture of figure 28.

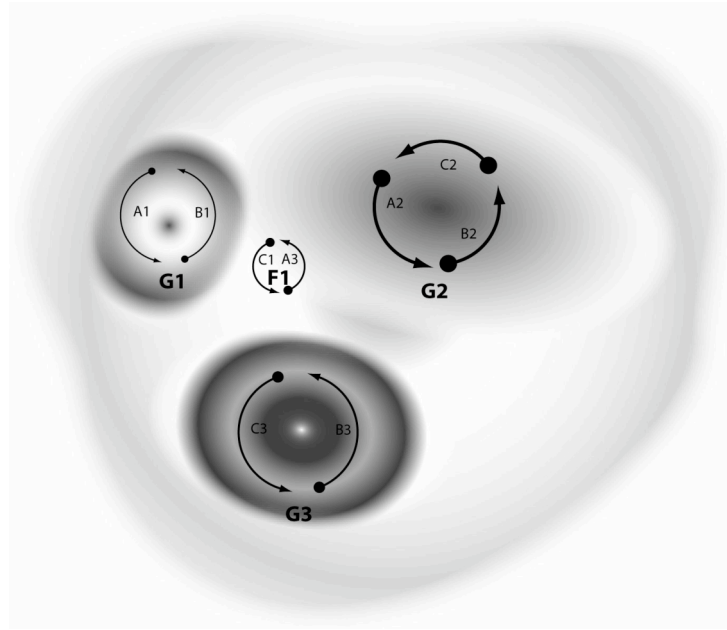


Fig. 27: The pmtics of all components and of initial fundamental plasma.

The total weight or mass of the plasma has to be the total weight and the total mass of all the components pmtics and all of all the plasmas of Matters of the initial fundamental plasma.

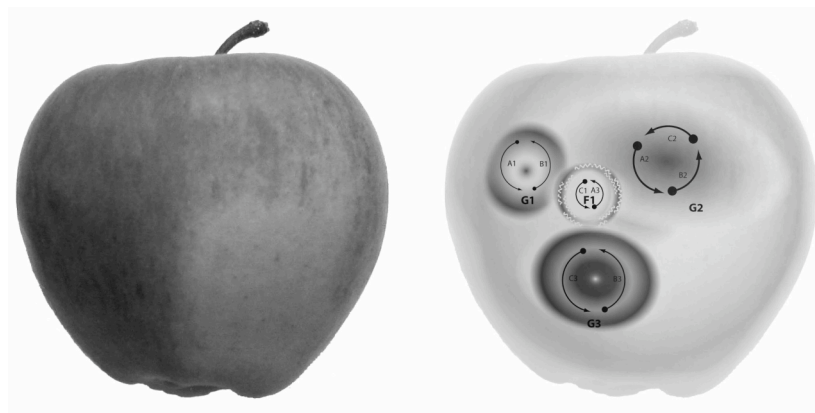


Fig. 28: Newton's apple has different types of pmtics and Matters.

*Note: When the Matter is part of the plasma, this is denoted as **Matter** (G1 in Fig. 26, Fig. 27 and Fig. 28) and when the same is considered as tangible matter, it is noted as **matter** (Apple in Fig. 28), of an atom or an object.*

By the same measure, if one has managed to separate the Antimatter of the plasma from its other constituents of the Matter and the Dark Matter of the plasma to confine the Antimatter in separate container as the Fermilab has claimed. The question to ask is that, what is the weight or the mass of the balanced leftovers of the Matters, (or Matter, Dark Matter and residual pmtics) of the plasma? By the laws of physics, one cannot have something (Matters/Energy) out of nothing. One cannot have mass of Antimatter component of the plasma, when its mass is not calculated in the overall mass of the

plasma, or the leftover mass of the Matter and the Dark Matter of the same plasma must be less than before the Antimatter was taken out.

On the other hand, the question is that, is the present used methods of measuring the weight and mass of the plasma, measuring the *total mass* of *all the Matters* of the plasma? Alternatively, does one has to break the present numbers of mass and weight of each Matter, up to its sub-weights and sub-mass of the Matter (Fig. 26 and Fig. 27 G1), the Antimatter (Fig. 26 and Fig. 27 G2) and the Dark Matter (Fig. 26 and Fig. 27 G3) of the plasma. Further, the Magravs of the Matters of the plasma in conjunction with their own Magravs and other pmtics in the plasma create their own additional gravitational and Magnetic field forces, their own additional mass, as well as the individual masses of the Matters of the plasma. Thus the total mass of the plasma has to be more than the total mass of individual Matters of the plasma.

As Fermilab has separated the Antimatter components of the plasma, then, the question to ask from them, is that, if the mass of the matter of the plasma they hold still has the same mass as before without the Antimatter in it? So, what is the mass or the weight of the Antimatter that has been separated?

This applies the same to the Dark Matter components of the initial fundamental plasma too.

As has been said before, the total weight or total mass of the plasma is and has to be the total weight and total mass of all components of the Matters of plasma. This includes the masses or energies of the magnetic fields force of the F1 and the residual fields in the initial fundamental plasma.

Thus, there is a *fundamental error* in the present methods and technologies of measuring the weight and the mass of the plasma systems as a whole.

That is why suddenly one can see strange results from the Antimatter component of the plasma of the same mass or weight in the matter environment.

If, the total dynamic pmtics of the initial fundamental plasma, would have been, measured correctly from the beginning, then there would have not been such an ambiguity and mystery arising from the sudden hidden energy sources called the Antimatter, or the powers of the Dark Matter of the plasma.

The fact is that, the Antimatter and the Dark Matter possess plasmatic Magravs forces and that is why, they are called the **Matters**, as they possess mass and energy.

Hence, if there is a gravitational field's force of the Antimatter or the Dark Matter components of the plasma, then these Antimatter and Dark Matter have to have mass and they have to have weight in respect to the other Matters in the plasma and in respect to their environments pmtics, which the plasma is in, at given time. Therefore one needs the measurement of both of the mass and the weight of the plasma as whole as an entity as well as all the individual masses of each Matter too.

Then, the same as with the atomic mass and atomic weight of an atom measurement

phenomenon of today's science, **there is a need for a new scale of measurements**, and new measuring tools to be brought about and developed for the true and total pmtics measurements of the constituent Matters and fields of the Initial fundamental plasma.

By this new total weight measurement, then the ambiguities in the present plasma physics and nuclear physics will be sorted.

That is to say then, where and when one gives the measure of the mass or the weight of the plasma, then at this point, one has to give the mass or the weight of the Matter, the Antimatter, the Dark Matter and the rest of components of the plasma in a given motional position, and the position in the life of the plasmas independently, for all components of the plasma, and one measurement for the plasma collectively as the whole needs to be given too.

The reason for stating the position and motions of the plasma is due to the fact that, the plasmas having dynamic characteristic components, plasma itself as a whole is a dynamic system too and continually gains or losses pmtics from or to its surrounding pmtics environment respectively. Therefore, the total pmtics of plasma, in different frame of motion (time), will be different, from one point to another in a given space.

In the future measurements, one has to be clear about all measurements of the Dark Matters as well as the Matter as well as the Antimatter components, as well as all magnetic field components, the likes of the F1 or maybe several F1 configurations in any given pmtics of the initial fundamental plasma. Therefore, there is a need for correct figures for the mass, the weight and the energy of the initial fundamental plasma, because such data are needed for in-depth research and developments of various kinds of applications in Magravs positioning systems using components of Matters of plasmas as the Matmags, for future space travel.

Another point to consider is the Matters environment in which the weight or mass of the plasma is carried out. That is if, this is carried-out in the Matter plasmatic magnetic fields, Antimatter pmtics strength, or Dark Matter pmtics strength environment.

Similarly, the plasmatic magnetic fields' strength in which the measurements are taken should be considered. This being, in what fields strength in the Matter, the Antimatter or the Dark Matter field strength or their respective pmtics energies measurements are taken place.

This is the true nature of the complexity of the relationship with the mass, weight, energy and their interactions in the world of Matters. These cannot be so simplified with one equation of relativity with three simple denotations, if in the future scientists strive to achieve the universal method of producing energy and motion.

The space travellers of the future will come truly to understand that a small error in the measurement of all matters and Matters components, the environmental magnetic plasmatic strength and so forth, can land them in strange and peculiar environments, which these were not planned for or expected. These small errors can end them up in new conditions and positions in the galaxies, which could be nice for experimental purposes, but not necessarily good for the health or the life of the passengers of these

future crafts using Matters *Magravs positioning systems* (Chapters 22 and 23).

It is possible that due to miss-calculations, one part of the systems of the future crafts, or even the reactors of crafts, which are creating the conditions for motion or energy, will experience different environmental and Matter conditions than the rest, of the craft or the reactor. As, for example, the same system can land in the border of two different pmatics strength environments, or, in a different plasmatic condition than was originally planned, because of the miscalculation of the Dark Matter Magravs strength.

A physical comparison of the two state of Matters can be for example, considering a cube of sugar, half-submerged in a hot liquid, like tea, where, half of matter of sugar is in the solution of the hot liquid and the other end of the cube being between the fingers of the dipper, in solid state.

Therefore, the question emerges, of how does or can one put the original components of the sugar cube together to get back to the first state of the solid cube, in its original solid state and shape.

The rearranging Matters through the understanding of the Matter energy balance will be the solutions for these kinds of mistakes.

The misunderstanding and potential pitfalls with space technology of the future will be with the miss-calculation of the loading of matters as the “Matmags”, and the control in the reactors of crafts of the state of Matters transitions will be interesting.

Nevertheless, the travels and space ventures of the future through miss-calculation of energy balance and wrong Matter Matmags loading will not be without its problems and sorrows, as have been experienced in the short lifetime of the space explorations of today for men whom have dared to test the limits of space explorations.

Who dares, in the space traveller of future, may succeed to have a taste of the pleasure of the unseen in the universe! Our hope is that they come out of these journeys much wiser, but not necessarily less darer than before.

CHAPTER 7

The creation and speed of light

One of the possible ways that light in the universe is created can be through interaction of pmtics' of the plasmas. The speed of light is not considered to be the ultimate speed of Matters. We will discuss how, the interaction of pmtics of the flight systems using Magravs positioning reactors would lead to the creation of light around such a system in the atmospheric conditions like that of the Earth.

Understanding the basic structure of the initial fundamental plasmas, the rationale that the speed of light is the ultimate speed of travel of any Matter becomes questionable.

The phenomenon that the speed of light is the ultimate speed of travel of any Matter(s) or matter(s) is an assumption that has a clear flaw in its concept and cannot be correct for all states of Matters in the universe.

In the iron-based magnets of the solid state of matter, the magnetic fields flow is in one direction, out off the North Pole and their return through the opposite South Pole.

The question that needs to be asked is that, what is the ***speed of the flow*** of the magnetic fields force from one pole to another in solid state of matter?

For ease of understanding let us consider two packs of dynamic plasmatic magnetic fields strength of the pack A and the pack B (Fig. 29), in the path of collision with each other.

The pack A and the pack B can be considered to be of the plasmatic magnetic fields of the plasmas, solar systems or galaxies. The other assumption is that the pmtics strength of these two sets considered not being equal. These two sets of pmtics are supposed to be the mixture of the pmtics of gravitational and Magnetic fields of their respective Matters or objects in each pack.

In considering three snapshots a), b) and c), the motion of the two packs A and B in a given space of time and pmtics strength of the environment area of the D in respect to each other.

- a) As the pack A and the Pack B are in motion in space and heading towards each other and these two fields are set to collide with each other (Fig. 29).

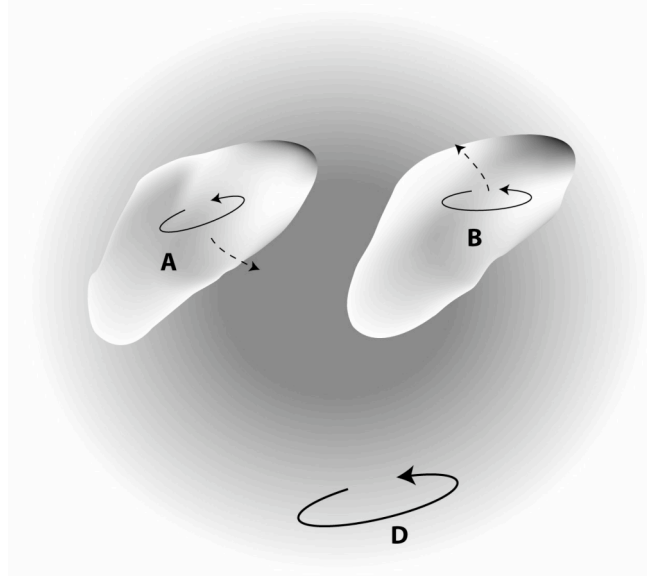


Fig. 29: Two unequal pmtics packs heading for collision.

b) Further, in the process of their motion, the two pmtics collide with each other (Fig. 30).

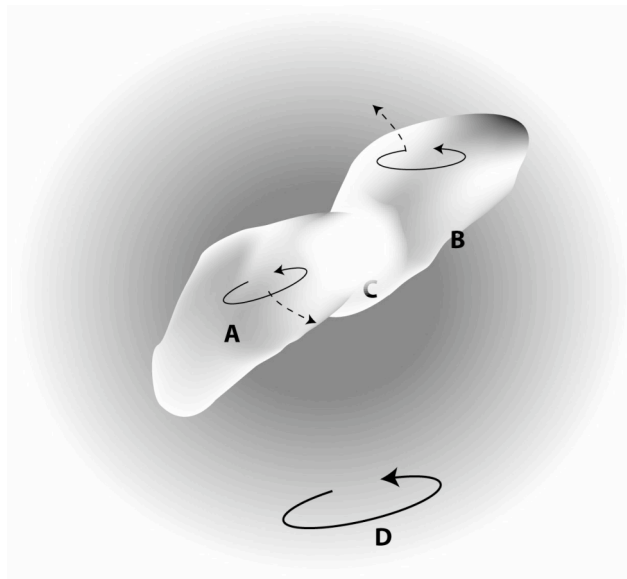


Fig. 30: Two unequal pmtics packs colliding and releasing lower order of pmtics strength as light (C).

c) Further, in the process of the interaction of two original pmtics of A and B, the two fields separate (Fig. 31) and carry on in the universe with some of their fields being released during the collision.

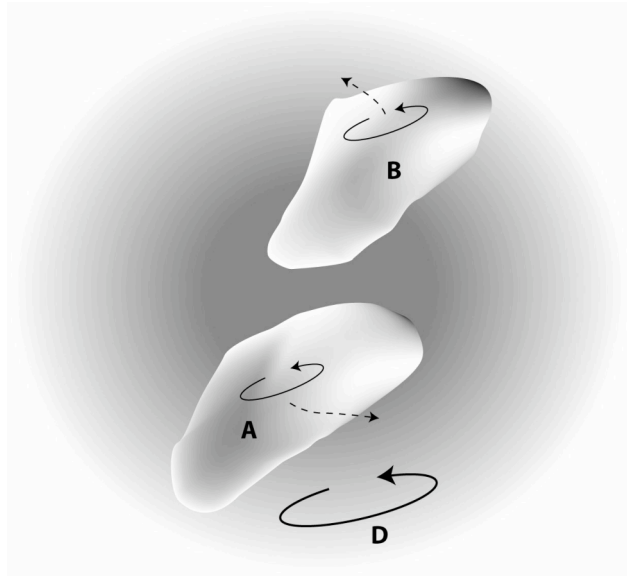


Fig. 31: Two unequal pmtics packs after collision moving away from each other.

Considering the point (b) of impact and collision as in figure 30, as there is no physical matter in these zones, only the pmtics forces can collide and interact.

The collision of the two plasmatic magnetic fields due to their frictions with each other, this leads to separation and production of fragments of pmtics, which some will be of slower plasmatic magnetic fields strength than the two original pmtics of the two original packs.

In case of physical matter, it is normal that when two matters collide head-on, they slow down and some parts of their matter are sheared off and released as fragments.

Through the collision and the interaction of these two packs of pmtics with each other, and the friction between them, these cause separation and fragmentation of some of the same pmtics from the two original pmtics of the two packs. The collision in between two sets of magnetic fields causes some of the pmtics to slow down. In the case of pmtics collision, these slowed down fragments of original two packs of pmtics are slower, and possesses weaker strength pmtics compared to their original two pmtics strength, which were involved in the collision.

We can assume that the original two pmtics plasmas speeds of travel have to be much higher by order of magnitude than the fragments that are created by the collision and interaction of the two packs of magnetic fields forces.

In other word, when two pmtics are colliding with each other, the outcome is partly slowed down fragments of pmtics as the residuals of this collision. These slowed down plasmatic magnetic fields fragments of the collision of the two stronger plasmatic magnetic fields, are slowed enough to appear as, and to be of light magnetic spectrum within the matter magnetic fields strength spectrum of the matter detection zone.

Nevertheless, one can say that, when the two pmtics of A and B collide, the outcome are residual pmtics fragments of the collision, which some of their slowed down magnetic fields fragments created due to their friction and collision, leads to the creation of slower pmtics strength in the range of visible light (Fig. 30 field zone C). Where, this visible range of the magnetic wavelength is part of the overall universal order of magnitude of the magnetic wavelength spectrum fields.

In the universe, when two or more plasmatic magnetic rays, fields, plasmas, of Magravs collide with each other, some of the residual pmtics fragments produced by their collision will be slowed down to magnetic rays or plasmatic magnetic fields strength levels, which the strength of these magnetic rays or magnetic fields are in the range of magnetic fields strength spectrum of the visible light. In other word, the outcome of the interaction of two or more magnetic rays, magnetic fields or plasmas of Magnetic and gravitational fields (Magravs) is the production of light.

This being considered as “one of the prime methods by which visible light is created in the universe. These being the residual of slowed down weaker magnetic fields strength fragments of pmtics released by the collision of two or more pmtics of Margraves of plasmas with each other”.

The speed of pmtics fragments, which has slowed down due to a head on collision of two pmtics plasmas, cannot be faster than the original two pmtics plasmas themselves that have caused it to be produced.

Thus, the *speed of the light*, which is created by interaction of two faster fields’ head-on collision, as a fragment and slowed down field, cannot have a faster speed and more pmtics strength than the fields that have caused its creation due to their collision.

For example, by the slowing down of the two faster pmtics of the Earth and the Sun that have not been visible, after collision with each other, and slowing down, they create the slower plasmatic magnetic fields’ strength and slower speed magnetic fields in the range of the speed of visible pmtics as of the daylight.

It is correct to accept that “the pmtics, through their collision, have to slow down so that they became slow enough that they become in the range of the slower wavelength in the visible light pmtics wavelength spectrum”.

It is obvious that a slower fragment cannot be faster than the fields that have caused its creation. Therefore, “The speed of the light is not and cannot be the ultimate speed of motion” when itself is created by interaction of faster or stronger plasmatic magnetic fields.

In universal order of magnitude of the speed of motion, I consider “the speed of light to be somewhere in the lower end of the overall universal magnetic fields speed spectrum”.

Thus, the speed of the light is only the fastest to human methods of detection and not necessarily true in other levels of universal order of motion.

It can be said that the speed of the light is “the ultimate speed that can be attained by pmtics in the Matter components of the plasma”.

Another, fundamental point to realise is that “the speed of travel of light is **different** in a Matter environment than the Antimatter environment and even in the Dark Matter environment”.

Similarly, it is correct to say that “the light created by the interaction of the Antimatter pmtics plasmas and the Dark Matter pmtics plasmas, they have **different** speeds than the light created by the interaction of Matters’ pmtics plasmas”. These faster speeds of magnetic fields than the pmtics of the light spectrum are not detectable by the present tools in the scientific state-of-the-art technology. But their effects and power and strength has been seen and observed in the reactors, which have been built and tested for lift and motion in the past years.

Considering the collision of two pmtics like those of the Earth and the Sun, where the Earth’s Magnetic and gravitational pmtics (Fig. 32 field B) being made through interaction of magnetic fields of Matters in the inner cores of the Earth (Chapter 1), and the Sun’s Magnetic and gravitational pmtics (Fig. 32 fields A) being made by the matters, in the cores of the Star. (In this case, we do not consider the pmtics of Matter, which are released by interaction of matters pmtics on the surface of the Sun).

An example of the creation of the light through the interaction of pmtics:

As the pmtics of Magravs produced and released by the Sun, reach’s’ the boundaries of the Earth pmtic of Magravs, these two pmtics of Magravs collide with each other at the edges of the Earth’s upper atmospheric levels.

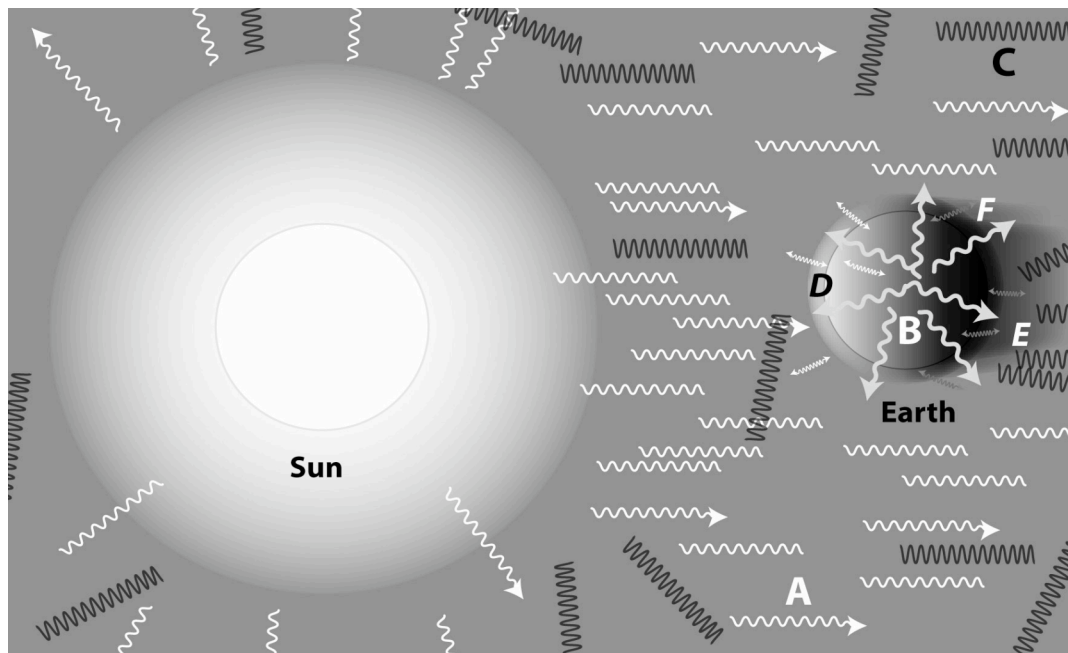


Fig. 32: Interaction of three different types of pmtics strength (A, B, C) and the resulting three residual fragment pmtics (D, E, and F).

Where, these interactions leads' to the creation of the pmtics interface, or the **magnetosphere** of the planet. Where, this magnetosphere of the Earth is partially produced at the same time in respect to the other surrounding pmtics of Matters and other plasmatic magnetic fields (Fig. 32 field C) in the solar system as well as the pmtics of the Sun.

Through the pmtics plasma interaction principles, the pmtics of the Magravs of the Sun interaction with pmtics of Magravs of the Earth leads to the creation of new residual ***slower rays and pmtics strength in the light spectrum*** (Fig. 32 field D), where, the overall effect of these pmtics fragments of light generated, leads to the creation of the *daylight* on the Earth, in the interfacing sector of the Earth with Sun's pmtics only.

The light generated in the sector of the planet, facing away from the pmtics of Magravs of the Sun, in interacting with the weaker pmtics of the Dark energy of space around it, due to the weaker plasmatic magnetic fields' strength of these pmtics of Dark energies in space (Fig. 32 field C) and the same constant pmtics strength of the Earth (Fig. 32 field B), in this sector, ***weaker strength pmtics residuals*** (Fig. 32 fields E and F) are created and released, thus, the appearance of the darker sky or the *night light*.

Thus, the interaction of the *same pmtics* of Magravs strength of the Earth (Fig. 32 field B) with the *stronger* plasmatic magnetic fields of the Sun (Fig. 32 field A) leads to the creation and release of more powerful pmtics strength residual fragments in the light spectrum (Fig. 32 field D), hence ***the daylight***. Similarly, the interaction of the *same pmtics* of Magravs of the planet (Fig. 32 field B) with the *weaker pmtics* of the Dark energy (Fig. 32 field C) in space, away from the Sun's plasmatic magnetic fields, leads to the creation of weaker pmtics strength residual fragments, hence weaker lights or dark night light and creation of the translucent plasmatic darkness (Fig. 32 field E and F) light of the night.

As the Earth's reach a more Magravs pmtics strength balance and equilibrium with its environment's plasmatic magnetic fields' strength, thus the darker that part of the atmosphere it appears to be (This principle is described in Chapters 12 and 13).

Through the same principle of interaction of and collision of solid matters of the cosmic dust and the pmtics of the Earth, the northern lights in different colours are created. Where in this case, the light created is due to collision of the matter pmtics and pmtics of Magravs of the Earth.

It is not correct to consider the speed of light to be the ultimate speed of motion, for any pmtics of Matters environments existing within the universe. Similarly, it is conceivable that pmtics can fuse and that their pmtics can increase in strength and consequently they can increase their speed too. (Paper: Creation of magnetic fields).

In principle, the speed of light is not only achievable by the reduction in pmtics of higher order of magnitude pmtics strength, but conversely it can be achieved from the addition or adhesion of the strength of lower order of magnitude pmtics strength too. By the same measure, the pmtics of the light can be integrated, to create their stronger and faster speed of motion, with new and faster pmtics from their interactions too.

The **pmtics strength** and the **speed of plasmatic magnetic fields** is environment dependent and there are no limits in its lower or higher orders of magnitude. Generally, as long as plasmatic magnetic fields can interact, they can add to pmtics speed or lose their speed.

The limitation of speed of travel to plasmatic magnetic wavelength of light is the restriction that Man has forced upon himself, purely due to lack of his understanding of the true construction of Matters of his universe.

The present limitation of the speed of the light for motion is very much similar to the earlier century's hypocrisy and lack of knowledge of Man, with the belief that the Earth was flat and at the centre of the universe.

The pmtics become visible light to the human eye, purely due to the fact that human eyes are adapted through their protein molecular pmtics strength chain, for them to be able to interact and recognise them. This range of the plasmatic magnetic wavelength is translated for the human brain to be the visible light for humans to be able to see and function. Where, this visible range of the magnetic wavelength is part of the overall universal order of magnitude of the plasmatic magnetic wavelength field's strength and not necessarily its ultimate speed.

Thus, "if the human proteins pmtics strength had a different chemical chain, that is to say, if the protein chain did not have hydrogen, oxygen, carbon and nitrogen in its composition, then man would have had different overall pmtics strength in his protein and the universe would have been visible to man in a different range of plasmatic magnetic wavelength field's strength spectrum".

This phenomenon of the protein chain pmtics strength of creation is explained in more detail in the book to be published, titled "The universal order of existence (9)".

Further, in this book we will talk about new nuclear-based systems, which have been developed for them to be able to make use of the creation and control of pmtics of Magravs strength for motion. We have called these systems **GRAvitational POsitioning Systems (GRAPOS)**. From, tests and what we have seen and observed in the past years in proof of pmtics creation and control, the following can be discussed in respect to the interaction of the pmtics of the Grapos Magravs and the pmtics of Magravs of the Earth.

Using Magravs positioning reactors, the interaction of the Magravs generated by these reactors with Earths' Magravs, these interactions of the two of Magravs, by their natural phenomenon of creation and interaction of pmtics, these Magravs interaction of the Grapos reactor and the planet, always leads to the creation of light around these systems in planets' atmospheric environment.

Crafts using **Grapos for lift and motion** in their movement and travel in pmtics plasma of Magravs environments, like the Earth's atmosphere, **these systems generate pmtics fragments of rays of light and appear** to be like **moving bright lights in the skies** (Fig. 33 disk 3 and 4).

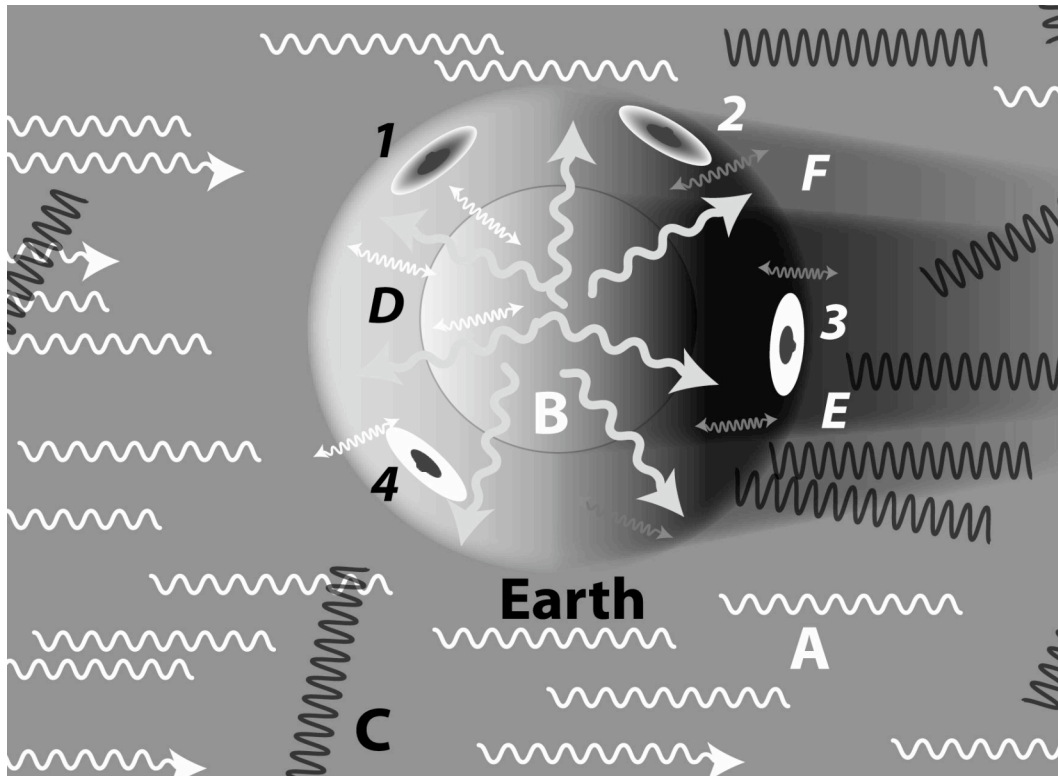


Fig. 33: Visualisation of Magravs positioning systems (1, 2, 3 and 4) within Earth atmosphere.

The effects of the interaction of the *four different Grapos and their different pmtics* strength and lights they produce around these systems, due to their of Magravs strength in respect to the Earths' pmtics are demonstrated in the figure 33 disks 1, 2, 3 and 4.

The **brightness** of these lights in sky is due to the pmtics of Magravs strength of Grapos' in respect to their environment pmtics of Magravs of plasma strength of the Earth, and these *lights are balance pmtics strength dependent*. Lights around these crafts are produced by the same principles and are similar to the way light is created by stars.

Another example of the Magravs positioning reactors to be used in future craft systems' is, in creating a balanced Magravs strength in respect to the Earth atmospheric plasmatic magnetic fields' strength, so that there would be not much field strength difference and hence nearly no interaction between the pmtics of the system and the Earth. Thus, no or very little light created around these systems as is shown in figure 33, with disks lights 1 and 2. So the system or spacecraft in a given position and time in the Earth atmospheric condition can become dark translucent in respect to the Earth pmtics strength. This giving the impression that, the system has disappeared from the sky, in fact, the system has created its own balance plasmatic magnetic fields' strength condition of dark light in its environment in respect to its environments Magravs strength, while the system still is/or can be keeping the same position in atmosphere. By being able to adjust the Magnetic and gravitational field's strength of Grapos reactor(s), these crafts can change their visual appearance in the Earth atmosphere, from dark to

bright light and deemed-light and so on. Four different Magravs strength of Grapos in Magravs of the Earth are shown in figure 33 and figure 55 in disks 1, 2, 3 and 4.

Man can and will travel several times faster than the speed of the light in the future. This will be of his own choosing and limited by his technological advancement and the limitation of understanding of his own tangible existence.

The speed of motion, due to the interaction or gravitational pull of the planets and stars of destination, in pulling the crafts equipped with Grapos towards them is beyond the present technological ability and comprehension of the scientific world, but in time this will be as easily and manageable as daily atmospheric flights of today. Which these crafts can travel several times faster than the speed of light.

The other scenario of collision of pmtics around the Earth could be that when the two field Magravs of the Earth and the Sun collide, and their overall field interactions can lead to the creation of faster pmtics than that of visible light. This again is the result of the amalgamation of two pmtics strength forces from two celestial objects.

Theoretically this is not possible around the Earth as most of the fields of the Earth are outward going and crossing the path of the pmtics of the Sun, and these fields would be carried away and out from Earth's atmosphere and not inwards. Therefore, any amalgamation of two pmtics of the Sun and Earth has to be inward so that Earth's atmospheres can generate the daylight.

This phenomenon of the addition of two fields to create light in the case of the high speed of the plasmatic magnetic fields of the Sun and the Earth is not a common possibility, or there is so very little of it.

By the pmtics theory, in the case of an atom's structure, pmtics of Magravs of the constituent Matters of the electron interact with the pmtics of Magravs of the proton. This creates the fuzzy light around the electron fields in motion, which makes it dimensionally easier to detect the presence of the electron than its nucleus. This fuzzy light being similar and created through the same principle as to the interaction of the pmtics of Magravs of the Sun and the Earth, as was explained.

Considering the interaction of the pmtics of matters on the surface of the Sun: The lights which can be observed from the surface of the stars is primarily due to the interaction of the pmtics of the gravitational and Magnetic field from the centre of the star and their interaction with the Magravs of the plasmas on the surface of the star, where this interaction of the two fields leads to the release of pmtics in the visible light spectrum. The intensity of the light of the stars is in principle due the strength of the gravitational and Magnetic fields generated in the centre of the star, as the pmtics of the hydrogen plasmas on the surface of the Sun are considered to be constant.

We consider the pmtics received by the fields of the Earth from the pmtics from the matters from the surface of the Sun to be small and to be a fraction of the power of the pmtics released due to the gravitational and Magnetic fields from the centre of the star which reaches the planet Earth. The only time when the pmtics of the materials on the

surface of the Sun has any effect on the interaction with the Earth's gravitational and Magnetic fields is when there is a surge in the volcanic eruptive activities on the top layers of the materials on the surface of the Sun. These eruptions cause the release of large quantities of physical material of plasmas into the solar system.

CHAPTER 8

Dark Light phenomena

In the previous Chapter we explained that the *visible light* is created through the interaction of Magravs and the *light* created due to the difference in strength of Magravs. Opposite to this, must be the interaction of balanced Magravs strength where the weak or balanced Magravs fields strength, which leads to the creation of a type of night light or dark light at nights.

The point has reached in physics, that these balanced pmtics Magravs strength conditions needs to be considered on their own, where the **Dark light phenomena** can be introduced as part of the science of physics.

“**This Dark light phenomenon**, with Dark light intensity, can be said to be created and be due to the near to, or balanced, equilibrium in pmtics strength reached, or that can be achieved, through the interaction of two or more pmtics forces in respect to each others in a given environment”. Where, the intensity of the darkness is pmtics strength balance dependent (Fig. 36 zone C).

The level of measurement of this darkness is not field strength dependent, but *plasmatic magnetic fields strength balance dependent of one pmtics in respect to another pmtics*. That is to say, the interacting pmtics environments can possess any magnetic strength, but in all cases, when the two pmtics strength are ***near equal***, then the darkness phenomenon of the same dark intensity prevails and the same type of dark light phenomenon occurs, irrespective of the original pmtics strength involved.

If this phenomenon is fully understood, just as man has developed night-vision tools, equipment can be produced that can view Dark light plasmatic magnetic fields strength balance in respect to different pmtics strength. Then the universe would be full of new objects that have never been seen in light energy matter conditions.

What a wonderful world would one be in and see, through these tools and machines, Men of vision would take pleasure and treasure by looking through from such a machine.

CHAPTER 9

Relation between Gravity and Light

Through the pmtics theory principles, as gravitational fields are made of interaction of pmtics, and the light being itself made of pmtics, it is inevitable that entities made of the same, will interact with each other.

From previous chapters, it is clear that the light is made of the lower order of magnitude pmtics strength in the overall pmtics strength spectrum in the universe. The light in essence is itself moving dynamic pmtics and that by the principle of this definition **light is energy**. Alternatively, it can be said that the light possesses energy.

We consider that light is a made of pmtics strength of a lower order of magnitude in the overall pmtics strength spectrum in the universe.

At the same time as has been explained, “Gravity and gravitational fields’ (Chapter 1) are themselves made of interaction of at least *two similar pmtics* or at least *two similar magnetic rays*”.

It is understandable that, any gravitational field’s forces, as an entity, in essence are made of interactions of pmtics. Thus, gravity can and will effect any other entity in possession of pmtics, or entities being made of pmtics, like light. The light and the Magravs (known as gravitational fields) are both made of the same magnetic entities; it is normal that they have interactions and attractions in respect to each other’s position.

Fundamentally, it is **not correct** to say that **light is gravitational dependent**.

But, it **is correct** to say that, “the attraction and interaction of **the light rays** in respect to, and from, another collection of plasmatic magnetic fields like **gravitational fields (Magravs) are position dependent**”.

In classic physics, the behaviour of the light has been said to be gravity dependent. Through the new understanding of the creation of Magravs, this cannot be correct. As the light and gravity are made of the same magnetic fields of different strength, thus they can have near enough the same speed of motion in matter magnetic field strength medium.

In the case of light rays, when the ray comes in the vicinity of, or in position in space that it can be within a field of, or be near to or in the catchments area of a collection of Magnetic fields or gravitational fields (Magravs), these two entities’ magnetic fields interact.

Thus, light is not gravitationally dependent, but in fact the attraction of light is position dependent from a pmtics of any Magravs area.

Thus, the stronger the Magravs of an object are, the stronger the pull.

Following the new principles of magnetic field interactions, the stronger pmtics of Magravs strength of the Matter, the Antimatter or the Dark Matter will exert their gravitational magnetic field forces on the weaker magnetic field strength of the light rays. Hence, the stronger pmtics of heavy matters and the stronger pmtics of stars, the Antimatter and the Dark Matter, pull weaker magnetic fields like light pmtics towards themselves.

So that the visible light will move slower as it will be pulled towards the gravitational force of these stronger, Magravs like stars and Antimatter zones and as it interacts with their pmtics forces.

Light has a different speeds in the Antimatter, the Matter and the Dark Matter due to their magnetic fields strength, very much like as it has slower speed in liquid than in air in the matter environment.

The difference between matter environment and the Antimatter and the Dark Matter environment is very much in that the former is pmtics compactness and density dependent, as in the latter it is pmtics strength dependent.

Thus, light, by the principle of its construction from pmtics, will be pulled and travel slower in other state of Matters and near large and stronger plasmatic Magravs strength of objects like stars, through the magnetic fields interaction principles or the gravitational pull of one stronger magnetic fields in respect to the weaker magnetic fields of the light.

In physics, this has been said to be like the effect of the bending of light when it passes a planet or star in possession of gravitational field forces. The principle of bending of the light, or gravitational lensing in vicinity of, for example, stars is purely due to the interaction of the pmtics of the light with the plasmatic Magravs forces of the star.

It is important to notice that in positions in space, where the Magnetic fields of the star supersede the gravitational fields' strength in respect to any given ray of light, the light ray as well as being able to bend inward due to the gravitational pulls, it can also be reflect away from Magnetic fields forces too.

By the same principle, it is now understandable, why and how for example in strong gravitational fields like black holes areas, even light appears as to get absorbed into them. This being due to the fact that Magravs strength in the centre of the black holes in these regions are so strong, that due to their magnetic fields strength they gravitate the magnetic fields of the light inwards or what they call in common terms "absorb" the light. This attraction is simply a gravitational pull of stronger Magravs strength of Matters and matters in the centre of a black hole in respect to the much weaker magnetic fields of the light.

Most certainly, ***gravity and its field strength is not warp dependent*** or gravity is not caused and is not created because of a warping of the matter in the plane of time and space, as has been discussed in some fields of present physics.

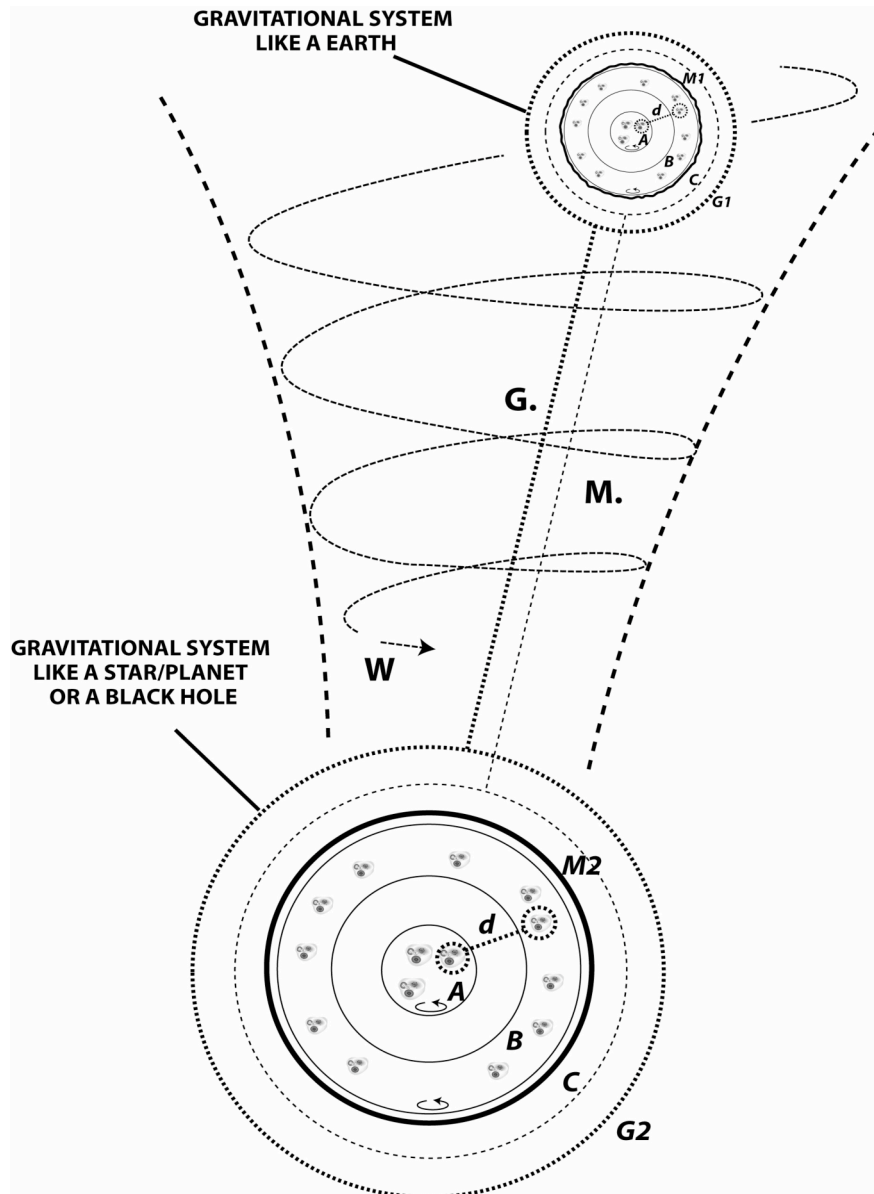


Fig. 34: Warping path of a weaker Magravs system towards the stronger Magravs system.

Note: Definitely the warping is not the creator of the gravitational fields, but the warping shows the path of the motion of the one gravitational field downward or toward onto another gravitational field.

That is to say, one weaker gravitational field can be attracted towards another stronger gravitational field G2 (Fig. 34), so that the path of the direction of the motion of the weaker gravitational fields G1, towards the stronger, could make the warp like path (Fig. 34 path W) in a given plane of time. This is the warping effect of a **weaker** gravitational field in respect of a **stronger** gravitational field and this is the warping path of attraction.

Therefore, warping of the matter is not the cause of the creation of gravity in the matter

of the weaker gravitational field strength object, but in fact the warping is only an indication of the path of the attraction and motion of the weaker gravitational fields towards the stronger gravitational fields.

Celestial matters in possession of Magravs, through their internal pmtics and their attractions and interaction and nothing else, can generate the majority of their own gravitational fields in the universe. At the same time, the motion of two objects in the possession of their own gravitational fields can set and start different gravitational fields of one object in respect to the other. That is to say, when two stars in the universe come into each other's catchments zone, the catchments envelope creates its own gravitational pull, separate from the internal gravitational pull of the stars themselves. That is in fact the operation of two original pmtics Magravs being cascaded by the bigger one outside them. The interaction of the two stars, in trying to find their position, causes the swirling effect first and then the warping effect type of motion of the weaker stars' gravitational fields towards the stronger pmtics gravitational field.

External motion of matter does not necessary create gravitational fields inside an object, but the path and speed of the motion of matter indicates the strength of the pull of one field towards another and the direction of the path of the attraction.

There are no planes of references for this warping, as the original point of the reference of the interaction of the two pmtics magnetic fields in respect to each other comes from where, *they first come into touch* and start the first fields interactions; this becomes the plane reference point for the path of the attraction of one gravitational field towards another (Fig. 34)

In fact, the theory of warping creating gravity is as far from reality, as gravity being time dependent.

Maybe it is right to say, "In time, once two Magravs come in contact with each other and stay interlocked, the two fields might merge into one, this time of merger is then pmtics Magravs strength dependent".

As has been explained, Matter is one of the three parts of the Matters of the plasma. Thus, the same interaction between the three gravitational pulls of three Matters within the structure of the Matter (see Chapter 18 and 19) causes the warping and motion of Matters in respect to each other within the plasma.

In fact, any magnetic and pmtics entity, at all times of its existence, is gravitating or will have gravitation towards one or another magnetic ray or pmtics or Magravs in its regions and is warping towards one point or another in space at any given frame of time. That is to say, there are ***no regions in space in the universe, which are void of magnetic rays or pmtics***, and their gravitational interactions and attractions in respect to one field or one Magravs or other.

Nevertheless, there are different magnetic fields strengths, which in one form or another, are gravitated to one or another magnetic fields regions in the universe, in respect to their proximity of distance from a ray or a pmtics.

Maybe we can say “that gravitation in respect to time, is dependent on the position in space and pmtics strength of the any two entities, and that in time, for example light being in essence a magnetic field in origin, it will be effected or attracted or gravitated to another magnetic field or collection of fields, and that these magnetic fields can already possess gravitation in respect to each other.

Thus light rays in given point in space will come in touch with other magnetic fields, which they will gravitate towards each other, for them to merge, where this merger will take a certain given duration.

Thus, the light rays and other pmtics strength have a direct effect on the rate of attraction of one field to another. Thus, speed of attraction is pmtics strength dependent”.

In real physical terms, the light itself can be or become one-half of a gravitational field set, so not only is the light getting attracted towards another Magravs system, but also in this process, the light becomes part of a second magnetic field of a gravitational set itself in respect to the first gravitational field. Then this light pmtics becomes part of a plasma magnetic field, which this is, a new set of a light field and the first gravitational field interaction, and this itself becomes another Magravs system like.

The other important point to consider, is the time it takes for the light ray to reach or be attracted into or by a gravitational field, zone or area. This interaction and attraction, is both gravitational field strength, and the light ray’s magnetic fields strength, dependent.

That is to say, stronger gravitational magnetic fields, ***pulls*** rays faster to themselves than a weaker gravitational magnetic fields.

Thus, *the time, that it takes for a light ray to get attracted into the gravitational field zone is gravitational field strength dependent and not time dependent*, as the strength of the pmtics of the light of the matter is considered to be constant for all states of Matters.

Then for different Matters (Matter, Antimatters and Dark Matters) in the universe, there should be different *frames-of-reference* of duration or time. As the light created in the matter environment will have different speed in the Antimatter and Dark Matter magnetic fields spectrum environments of stronger pmtics strength regions. While the light created by the Antimatters and the Dark Matters pmtics, interactions have very **different speed** than the light created by Matter pmtics interaction. Secondly, the speed of the light from Dark Matters and Antimatters are much faster than the speed of the light of the Matter state or in matter state pmtics’ strength levels.

Some notes about light

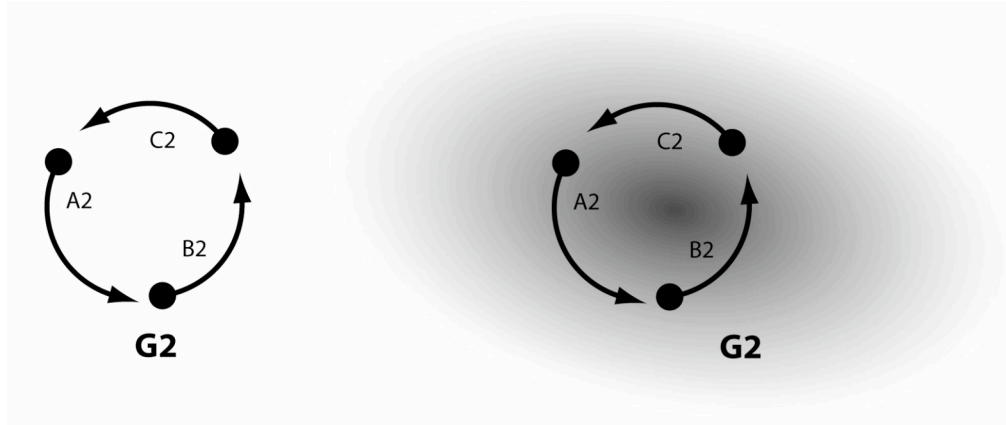
1. The frequency of the light wave is created on the same basis and due to the same principles as the change of the polarity in the stars, for example the Suns’ eleven years half shift in polarity change (12, 18).
2. By the same principles, the alteration in the extreme points known as maximum and minimum points of return of the waves are Magravs positioning balance dependent,

and not as what has been assumed, electromagnetic field based, as electrons themselves are made of plasmatic magnetic fields.

3. The pmtics as rays, as they enter or come in touch with an atom or an object that they can move or cause motion in the penetrated atoms, electrons of matter or Matter or in their initial fundamental particles, because the matters or Matters components are similarly made of dynamic pmtics, thus, when a pmtics comes in touch with another pmtics, these pmtics interact and collide with each other. Thus, the outcome is a transition of pmtics from one entity to another.
4. The transition of pmtics takes place when the plasmas of Matters come into contact with the initial fundamental plasma of the Matter and they transfer their plasmatic magnetic fields strength from one to another. Usually this transfer is from the stronger to the weaker field strength directional of flow.

CHAPTER 10

The Antimatter



In the world of science, the Antimatter has been considered and said to be the largest source of energy for the future of the energy, space and motion technology.

In the structure of the initial fundamental plasma, I consider that “the Antimatter is the *main component* of the whole structure of the plasma and it is the carrier of the *largest amount and strongest* of dynamic pmtics strength in the plasma, which Antimatter can release the maximum and the larger amount of pmtics strength in the full spectrum of pmtics of energies from the plasma”.

To understand what the role of the Antimatter is in the overall construction of plasma, we can simply look at the larger scale of the same type of entity and its effect in the universe. In the universe, the large-scale plasma conditions are said to be the like of the Stars, or the Suns’ in their solar systems.

Where, the **Antimatter** part of the plasma is the same as the Star of a solar system, and it is the **holder of the main quality and quantity** and the possessor of the **strongest pmtics strength** of all Matters of the initial fundamental plasma.

I consider that, the Antimatter is the **source of the energy** and the **central gravitational point of the plasma** as a whole. The Antimatter is in fact the Star of the plasma, thus it is as the Sun to the solar system. In fact, there is nothing “anti” about this Matter component of plasma in the universe.

This is the reason why, in being able to free them from the sub-components of the Matter and the Dark Matter of the plasma, the Antimatter appear to be such a fantastic new source of energy.

As the Antimatter was made initially from the stronger magnetic fields strength in the plasma to start with, hence it holds the real fundamental source and the supplier of pmtics to all matters in the plasma. It can be said that pmtics released by the Antimatter are the platform for the change for almost everything that is made in the matter world.

That is to say, “that Antimatter is the source, where pmtics are positioned to start the change from stronger pmtics strength level in the plasma components, and transfer more of pmtics strength of Matters to matters”.

It is the pmtics of the Antimatters, which are transferred in most parts, from one plasma to another, which, causes energy transfer from one molecule to another or one cell to another.

We have used these Antimatters pmtics strength effects in the recent past in our reactors, the pmtics interactions of Antimatters were utilised to create the Magravs forces needed for the Magravs positioning of these systems in respect to another plasmatic Magravs of another object, this being like the Earth's Magravs.

Through tests, it has been proven that the presence of the **Antimatters** and its strong plasmatic magnetic fields that it provides for the creation of Magravs in the reactors is the main reason why, we have managed to lift and move large masses through the gravitationally positioned principle.

In Grapos test reactors, which have been developed and tested for lift and motion, the operativeness of pmtics strength of the Antimatters have been proven to be in line with our theories, where if the pmtics of the Matter were used in these reactors, the Magravs created by pmtics of this Matter would not have been strong enough to cause the motion or lift of the system.

The scientific world is using accelerators (6, 7, and 8) to slam the plasma into a wall of matter, for the plasma to open and to release its Antimatter sub-components.

In present technology, scientists are trying to understand how to gather and harvest the power of this Matter. It is however crucial to understand that, “**one does not burn the Antimatter as fuel**, as it is assumed by the present scientific world in this field and as Fermilab (6, 7) is considering”.

Nevertheless, there is an easier and smoother way to achieve this separation, and that is just to dilute the plasma (Chapter 21), through this method, it will be easy to release the Antimatter from its plasma.

Once the scientific world has a full understanding of how to separate this Antimatter from its plasma, then they will understand that one does not need to burn this Matter as fuel to create motion and energy. But, they simply have to learn **to use the effects of the interactions of the constituent pmtics of this Antimatter** in conjunction with other Antimatters pmtics of other plasmas or Matters pmtics to achieve lift, motion, and for creation of energy, as has been done in the universal order of motion and creation of energy for billions of years.

CHAPTER 11

The Antimatter energy

Antimatters are known to be the sources of vast amount of the **strong pmtics**. The strong fields of the Antimatter are considered to be the major sources of the energy supplied into their respective environment for Matter-to-Matter, and from Matter-to-matter through their pmtics. The **strong pmtics**, once released by the Antimatter, and these pmtics in being *in motion* in their environment, they become to be called the **energy of the Antimatter**.

These pmtics by essence of their origin and strength they are, and become, **strong energy field sources** and reservoirs of energy in their environment. Where, some of the pmtics within the Antimatter are used to maintain the integrity of the Matter and the plasma itself.

At the same time, some of the pmtics of the Antimatter are equally reduced in strength, and these changes and reductions in their strength of some of the pmtics strength of the Antimatter overall constituent pmtics, these pmtics are allowed then to escape the gravitational fields of their Antimatter pmtics Magravs.

These released pmtics from the Antimatter, become the Antimatter pmtics in motion (energies) due to the strength of their plasmatic magnetic fields' forces. These pmtics can travel *much further* from the Matters and plasma, to transfer their energies to other pmtics in their environment.

These released fields become the Antimatter pmtics in motion (energies), which, due to the strength of their plasmatic magnetic fields' forces, these pmtics can travel *much further* from the Matters and the plasma, for them to transfer their energies to other pmtics in their environment.

Due to the fact that the Antimatter itself is originally made of the stronger pmtics, the Antimatter will let go of pmtics in stronger and wider spectrum of magnetic fields strength. Thus, the Antimatter releases a full spectrum of pmtics strength forces. That is why they are more powerful and covering a wider range spectrum of energy levels as they slow down.

In essence, the **Antimatter** itself starts from a combination of interactions of stronger pmtics bases, and hence has more to lose of its slowed down fields and it has more to attract due to its stronger Magravs too. At the same time, it covers a larger domain as its pmtics can spread further.

In fact, the energies that are released by the Antimatter look to be, and basically are stronger than other energy fields around them, purely due to the fact that they start their life from stronger pmtics strength base in their environments.

CHAPTER 12

The Dark Energy

The principles of creation of the Dark energy as an outcome of normal interaction of pmtics are discussed. The similarities of the Dark energy and force, which are created around Black holes, are in principle of the same origin.

In the dynamic environments of the universe, changes happen due to various conditional factors like motion, compression, turbulence, temperature, and so on, that can individually or collectively lead to concentration or motion of pmtics (energy). These changes in environmental conditions can lead to the manifestation of Matters like the Matter, the Antimatter, the Dark Matter, atoms, stars and galaxies and so on. This is the common fundamental base for the creation of Dark energy and creation of Dark Matters (36) and any dark objects like the Dark Matters, the regular appearance of dark spots on the surface of the Sun and stars (12, 13, 14), the appearance of Dark spots in the galaxies known as Black holes (13), the Dark Rings around Saturn (17) and so on. The creation of these conditions and matters can all be explained through the following interaction of normal dynamic pmtics in the universe.

By pmtics theory, the Dark energy is said to be the ***collection of balanced and equilibrium pmtics strength forces in motion*** in respect to their environments pmtics strength, this being in any given environment, in deep space in the universe or in the centre of an atom and so on.

The universe always possesses equilibrium pmtics strength in its total energy balance, hence the universe possesses more environments which are in pmtics balance strength and hence the existence of vast-spans of the universe which energies are in motion, but due to their balance magnetic fields strength in these regions of the universe, no light through the interaction of various magnetic fields are produced to confirm the motion of the pmtics in that region.

It is important to note, that in the universe only the difference in magnetic fields strength is the cause of creation of visible light from the human observation point of view. Where there is balance and equilibrium in the environment, no lights through interaction of magnetic fields or pmtics are produced. This doesn't mean that there are no magnetic fields or pmtics in motion (energies) and that nothing is present in that region of the universe. In fact the darkness of dynamic environment of the universe confirms the existence of the balanced magnetic fields strength. Beholding the truth, the darkness of the universe confirms the existence and motion of balance and equilibrium of magnetic fields strength, and not the lack of the existence of magnetic fields in motion (energy).

We have defined Energy as: “**pmtics forces in motion**”. Therefore the Dark energy has the same definition, where in this case, these are **balanced or near balanced pmtics**

strength forces in respect to their environment pmtics field forces in motion.

The universe always possesses equilibrium pmtics strength in its total energy balance, hence it possesses more environments which are pmtics balance strength and hence the darkness of the universe.

Steps in the creation of Dark Energy

To explain the phenomenon of creation of the Dark energy in more detail, let us consider two equal pmtics environment zone A and B in figure 35. These two fields' zones can be for example pmtics from two galaxies in motion in the universe or two pmtics in the span of a plasma.

Before the interaction of the two field zones, pmtics of each zone are interacting with their respective environment, which creates their own boundaries of their field strengths through their magnetosphere boundaries, in respect to their environmental pmtics (zone A with zone D, and zone B with zone D).

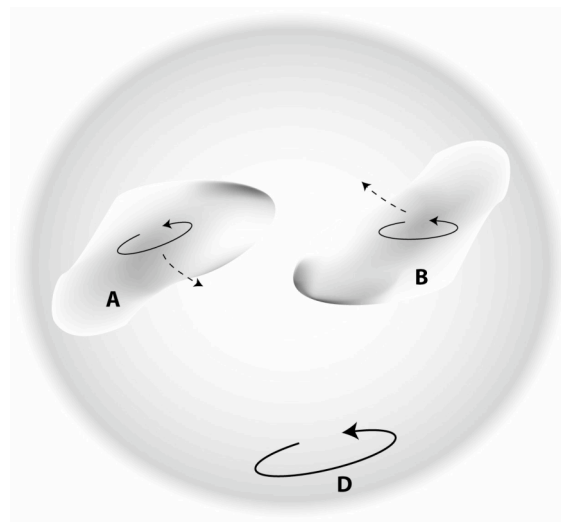


Fig. 35: Two equal pmtics strength entities moving in each other path.

Lets assume; a) The universal magnetic fields are always in rotational motion as of D (Fig. 35), and b) The two pmtics of the A and the B are in motion in directions shown. Through their motion and the environmental forces, the two fields zones come to be partially in contact and interact with each other. (Fig. 36)

As segments of pmtics of the zones A and B collide (Fig. 36), and as their interacting pmtics are similar in strength, then there are no differences in field strength for the two pmtics to create the magnetospheres condition (14) or no residual pmtics or very little pmtics fragments are produced from the interaction of these two pmtics zones. Thus in the interaction of two fields and due to balance in their pmtics strength, this interaction **zone C** of fields does not lead to creation of pmtics fragments in the light magnetic field spectrum leading to the creation of pmtics of light (Chapter 7), to make this region light

to show the existence and occurrence of collision between two equal magnetic fields strength zones.

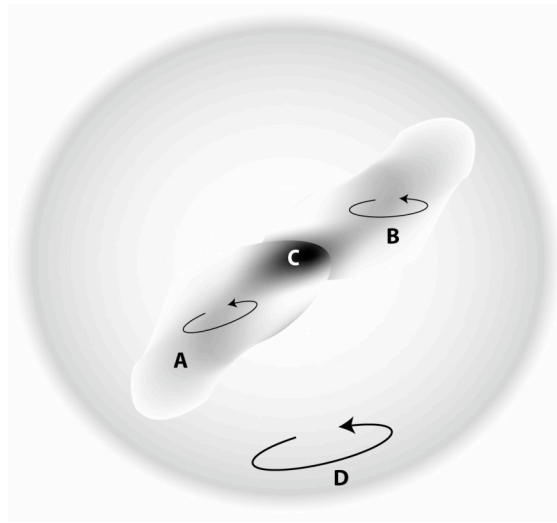


Fig. 36: Two equal pmtics strength entities moving in each other path colliding and creating a temporary Dark energy zone (zone C) due to their interaction.

Thus in respect to the surrounding environment the colliding of two pmtics in motion and the lack of production of pmtics fragments strength in the bandwidth of the light in this section of colliding pmtics, this creates the appearance of being dimmer or darker zone (Fig. 36 zone C) compared to its two original zones magnetospheric condition in respect and in comparison with their surrounding pmtics.

In the region of C of figure 36, due to the balance in pmtics strength and the creation of very little residual pmtics fragments, this area has a darker appearance in comparison to the rest of the region which one can observe with the rest of the two zones of A and B in the overall region of the D environment. Nevertheless, the energy of the pmtics in motion of the two pmtics zone of A and B exist and they can be measured, as the two pmtics of A and B move on, this confirms the existence of energy in the dark zone C, where in fact there are no sources for such an energy field to justify their existence in this darker appearing region.

Thus, in the case of the Dark energies zones in the universe, most of the time, one has to look at the overall picture of the interactions of the package and area, rather than to the local zone where the darkness and dark energies appears to be and where pmtics in motion as energy fields are present.

Further on, as the two fields zones A and B are dynamic entities and they are pushed by the forces in the bigger picture of the zone D, the Dark zone C, figure 36 disappears as two zones of A and B move away from each other.

Thus, the interaction and creation of the zone C, figure 36 is a **temporary phase** as the two field zones separate and carry on in their own path and the Dark energy zone C in figure 36 disappears, as there never was a Dark energy zone in that part of the zone D as

whole (Fig. 37 fields A and B).

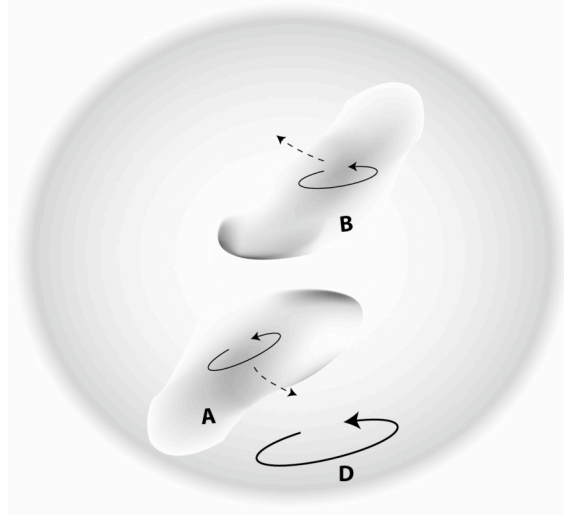


Fig. 37: Two equal pmtics strength entities moving away from each other after their collision.

Therefore, Dark energy zones in the universe are not necessarily a place where there are void of Matters or magnetic fields, but the darkness itself confirms the existence of the balanced pmtics strength in motion in respect to the majority of pmtics strength forces in that given environment, which pmtics in these areas are in balance and in equilibrium in strength with each other in a given point and a given window of motion of fields called time in the span of the universe.

At the same time, these sudden Dark energy regions in space are temporary conditions in a given specific time and specific position from a specific point of observation.

On the other hand if one is inside such a zone not necessarily means that one is in the Dark energy zone. In some cases of dynamic solid gravitational fields of matters in the centre of these energy zones, due to the interaction of the Magravs of the Matters and in level of Dark intensity translucent, inside these Dark energy zones one can have bright zones as being near a star zone.

It is obvious that most of the universe appears as dark, even though pmtics always exist in these areas of the universe and are essential components of its structure. This by itself means that the universe is in pmtics strength balance and equilibrium within itself.

The Dark Matters do not all possess the same pmtics strength and therefore the Dark energies are not all of the same magnetic or Magravs strength, in respect to other pmtics strength environment.

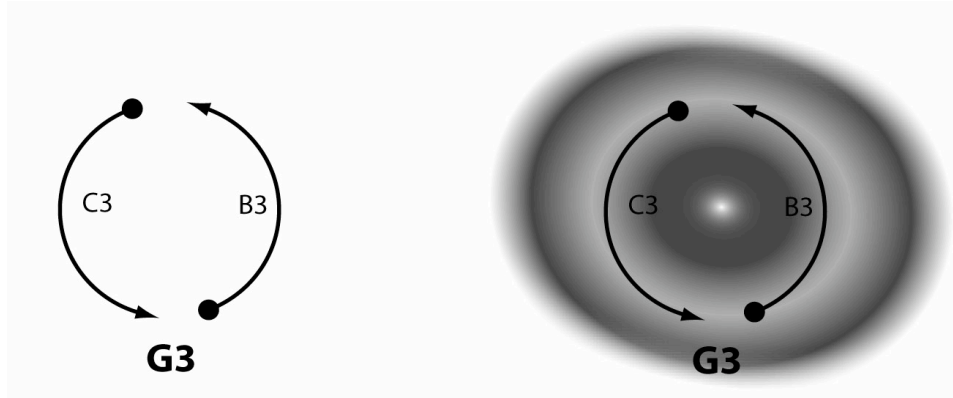
By the same measure, the Dark Energies in the universe do not all possess the same pmtics strength, as their strength is pmtics strength dependent in respect to the environment pmtics strength of their appearance.

In the case of the Dark Matters as sources of the Dark energies, these Dark energies are produced through the initial pmtics interactions in the centre of the Matter, and hence the energy they produce as their overall outward Magnetic fields and inwards gravitational fields, are always in balance in respect to other pmtics in their given environment. Where this balance of pmtics strength gives the Matter the appearance of **darkness**, or darker looking in respect to its overall given environment.

Some of the Dark energies have a Magravs source in their centre in the universe. Thus, these types of Dark energies are part of a Dark Matter source, which are part of the overall magnetospheric environment of the Dark Matter pmtics. These sources of the Dark energies are the Magravs of a matter which in respect to its environment from a given position in space, and due to the equilibrium of the pmtics of the Matter and the environment, cause the Dark energy zone, from that specific point of observation, as that given zone of pmtics interaction appear to be darker than the rest of the environment surrounding it.

CHAPTER 13

The Dark Matter



According to the *Keshe pmtics Theory of Dark Matters* “for an entity to be considered as a Matter, the entity has to possess both Magravs pmtics forces, so that not only the Matter can maintain its Magnetic and gravitational fields, but at the same time the Matter can maintain a balanced pmtics magnetosphere magnetic fields forces strength zone and a magnetic fields mass, for the Matter hold on to its constituent pmtics for it to exist, with the difference with the Dark Matter that the magnetosphere created through the **overall** interaction of its Magnetic and gravitational fields forces strength of the Matter and the environment pmtics force strength that these two forces are in equilibrium in strength, where the interaction of the pmtics of Magravs of the Dark Matters’ magnetosphere and the environment pmtics field force in interacting with each other, they do not create residual fragments pmtics that is in the light magnetic fields strength spectrum level, that makes this Matter visible or detectable, hence the term Dark Matter (Fig. 38 G3) (36).

At the same time the Magravs forces created by the same Dark Matter appears to create a magnetospheric fields forces’ zone around the central Matter, which gives an impression of an energy source that comes from a dark space in a given environment without a visible material source and hence the use of the term **Dark Energy** (Fig. 38 C).”

The Matter is said “to be dark, as its effects can be seen or felt, but, it, is not made observable to the line of vision or is undetectable through detection systems, which are looking for signs of light as means of confirmation of the existence of the Matter”(36).

The Dark Matter can be defined in another way, that is to say:

“The Dark Matter (Fig. 38 Matter G3 field C) is the Matter that, by the interaction of its internal initial pmtics strength, creates the Magravs effects and its external plasmatic Magravs as the magnetospheric field effect for the Matter to exist. Nevertheless, it is due to the overall balanced Magravs strength that are created by the Matter as the magnetosphere of the Matter, being in balanced magnetic fields strength with respect to its given environment pmtics strength, so that the interaction of the two magnetic fields

does not creates pmtics fragments in the light spectrum, where the Matter cannot create detectable magnetospheric light.”

That is to say, the interaction between two plasmatic magnetic fields strength of the Dark Matter and the second pmtics strength of environment does not create a **visible or detectable magnetosphere** effect, which would be needed to confirm the presence of the Matter in that given environment and in a given position, at a given point in time.

The Dark Matters effect of Magravs energies can confirm its existence, as the Matter that *appears* as Dark or translucent Darker Matter, in respect to its given environment, to the line vision appearance of the Matter, in a given position and time.

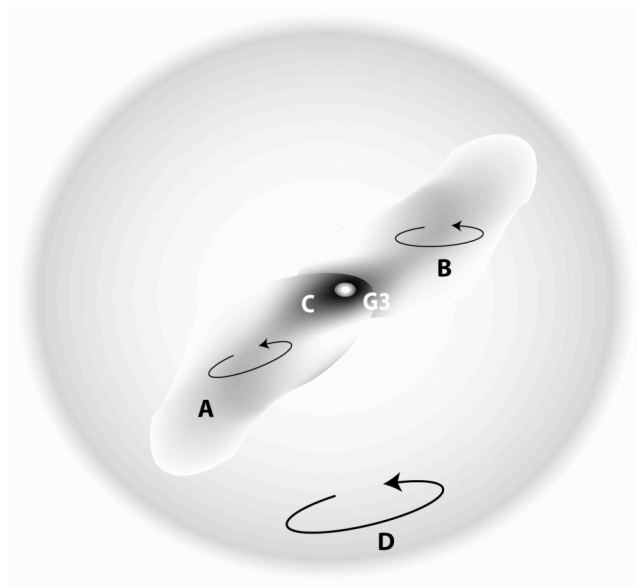


Fig. 38: The Dark Matter (G3), the Dark energy (C)

The Dark Matters can be, or, are made of stronger or weaker plasmatic magnetic fields than the Matter, and the Antimatters components of the plasma.

The Dark Matters are Matters which appear as areas in the universe in possession of Magravs forces but no or a very weak, detectable external magnetosphere in respect to their environment at given point and a **given window of transition of time**, where the confirmation of the existence of the Dark Matter is environmental pmtics strength and position dependent.

If one could create the fundamental principles of the Dark Matter, by the use of Grapos, with the production of balanced pmtics strength around the system, then one can travel the spans of the universe with pmtics Magnetic field protection and more or less without any friction, or resistance in the direction of the motion of the system, this allows the system to achieve speeds far beyond the present knowledge of Man in the space and aircraft industries (36).

The same effects of the creation of balanced pmtics strength in respect to the environment can be used to make systems, that without moving; such system becomes invisible to the line of vision at any point in atmospheric condition or in deep space.

The larger entities like of the Dark Matters in scale of magnitude are the black holes in the galaxies, where a large gravitational fields zone is observed and no physical tangible source for the large and strong pulling forces in that region of the galaxy can be seen. These areas, which are usually and mainly in the centre of galaxies or on the edges of turbulent boundaries of galaxies, as there are more Matters, matters, magnetic fields and plasmatic magnetic fields on the move. Where the total balance of these fields, in respect to their given environment, gives these regions an impression to have the appearance of the **darkness**.

These dark regions with strong gravitational pulls are overall temporary events in the bigger cycle of life of galaxies bigger picture of motion of pmtics and Matters (12, 13).

Sudden appearance of Dark Matter as Matter due to changes in fields forces in the environment can be analogised like having a wet cloth that is dry looking. However, by twisting and squeezing the cloth, out of nowhere, drops of water start dripping out of the cloth. The appearance of the water drop does not mean that water was not in the cloth, but in fact it means that the condition were not there to force the water to manifest itself within the cloth.

The Dark Matter can become visible as Matters around their environment pmtics strength changes. On the other hand, the Dark Matter can become visible Matter when there is a change in the internal pmtics strengths of the Dark Matter, which the change in magnetospheric strength of the Dark Matter, changes the magnetosphere pmtics strength in respect to its environment pmtics strength and the Matter becomes visible. That is why the Dark Matters are environmental pmtics strength dependent. The appearance of Dark Matters, due to changes of their pmtics strength or environment pmtics strength changes have been seen in the universe by scientists and they call these, the Virtual matters or the Virtual particles (Chapter 14).

Dark spots on the Sun and Black Holes

The Dark spots on the surface of the Sun; These effects are usually seen on the dynamic surface of stars, where large numbers of similar pmtics strength materials in motion interact with each other, and hence there are more possibilities of having balanced pmtics strength regions, as most of the matters are of the same structure of hydrogen plasmas.

The main reason for the increase in the levels of the dark areas and dark spots on the surface of the Sun, about every eleven years, is due to change of polarities of the Magravs created by magnetic fields in the centre of the Sun. This increase is purely and only due to one factor, this being that the creation of dark spots on the Sun is primarily due to the interaction of pmtics of the matters on the surface of the star and the pmtics of the Magravs from the centre of the star. As at time of polarity change of the star,

there are more chances of the interaction between two pmtics, which are made by the components of the same matters (Hydrogen). Thus, there are more chances of reaching Magnetic strength equilibrium conditions between the surface pmtics strength of the matters on the surface and the internal Magravs' fields strength created in the centre of the star. Where at these points of balance zones of pmtics strength, no or very little pmtics fragments in the spectrum of light are created, hence the reason why appearance of the increase in the number of dark spots on the surface of the Sun during the polarity changes of the star (12,13).

Thus, the dark spots of the Sun are natural outcomes of the balance interaction of the pmtics strength of the overall Magravs created by the centre of the Sun in respect to the pmtics strength of the plasmas of the materials on the surface of the Sun. Thus, as there are more balance pmtics areas produced, a higher number of darker zones can be observed on the surface of the Sun.

The darkness of Black holes in galaxies, and the Dark energy fields they produce in their environment, are due to the same process (12, 13). Similarly, all Dark energies are not necessarily connected to the central Magravs of the Dark Matters.

The Dark Matter and the Dark Energies appear and behave as dark regions, in respect to a given magnetic fields strength environment, at a specific point in time and space, and specific conditions from the point of observation. By the same principle, the Dark Matter and the Dark energy will be a visible or tangible Matters or matters in a different pmtics strength environment and even from another point of observation.

Therefore, state of the Matters, this being the Matter, the Antimatter, the Dark Matter appearance and detection of their energies are totally pmtics environmental respective dependent.

That is to say, "what is **the Matter and the energy** in one given plasmatic magnetic fields' strength environment can become **the Dark Matter or the Dark Energy** in another pmtics strength environment to the human point of observation".

In the universe, the Matters and the Matter energies or the Dark Matters, the Dark energies, the Antimatter and the Antimatter energies **change from one state of Matter to another**, or one **state of Matter energy to another**, purely due to *the respective Magnetic fields or gravitational field* strength as of their environments pmtics strength as these Matters and energies pass *through them*.

In the micro and macro universe, suddenly Matters and energies **appear out of nowhere** and **Matters and energies suddenly disappear into nothing**. These appearances are all pmtics strength respective environment dependent as the Matter or energies pass through a given field at a given time in their immediate environment.

The universe is considered by us to be covered with the Dark Matters and the Dark Energies. In general it can be said, where there are no faster or slower pmtics, or differences in pmtics strength, interacting or for other pmtics of the same or different strength to collide with, through these balanced pmtics strength regions, there are no

unbalance fields to create friction or to have an interface or to have residual pmtics between the environmental and the moving pmtics, these regions in the universe give the appearance of lack of *Matter*, or the Dark Matter or the existence of Dark energy in respect to the given point and position in the universe. This means that the dark regions of the universe are balanced in pmtics strength, and *not void of pmtics*. Hence as the universe is magnetically strength balanced, therefore the universe, in general, appears dark and empty, even though the universe has no regions without magnetic fields.

These types of darkness can be see-through and can be transparent through their pmtics energies; I call these areas the “***translucent Dark energy zones***”.

This translucence state of position in a given environment is a state where, there is total darkness but at the same time, there are pmtics strength field interactions that allow enough light, in respect to vision and detection for one to confirm the lack of light.

This being the reason why, one can see or detect, other Matters or matters through this universal Translucent Darkness light.

This light in the span of the universe is due to the interaction of very weak pmtics in motion (energies) in the constituent universal pmtics soup. In fact, these dark regions of their environment are where the pmtics are in balance within these regions.

As was discusses in the previous chapter, to the human eye protein pmtics balance set, these residual fields of the two pmtics interactions, due to their pmtics strength balance, appears as the Dark Matter and is like Dark energy zones in space. If humans would possess another chemical pmtics protein chain, what are the Dark Matters and the Dark energies by present means of detection, by viewing through different tools of vision, then these areas will be as visible light regions of the universe, and may be in different colour, for example in the Antimatter colours spectrum of the universe, or even in the Dark Matter colours’ spectrum of the universe. Through the use of such tools, the importance of the use and function of the Dark energy (Fig. 36) and the Dark Matter (Fig. 38) will be soon grasped by men of vision, to see the true darkness. Where in the colour spectrum of the Antimatter the colours are magnetic fields strength dependent and these colours are not noticed by the human eye matter-based protein pmtics. The same applies to the Dark Matter colour spectrum.

In the universal order of containment for Matters and energies, it is not far from the truth to say that the state of Dark Matter is the same as gasses in matter state, that the Dark Matters and Dark energies do not have self-containment.

That is to say, “As with gasses in a state of matter, Dark Matter fills all the environment and space that is given to it, as it creates no effective magnetospheric interface boundary resistance in respect to its environments’ pmtics strength forces.

The boundaries of the Dark Matters and Dark energies are dictated by the boundaries occupied by stronger or weaker pmtics strength regions around them in their given points in the universe.”

The forces of Dark energies can be confirmed only through their interaction with other plasmatic magnetic fields in motion, in respect to the field of the Dark energies motion themselves.

That is to say that the dark lights generated by the Dark Matters and Dark Energies cover the whole of their given spaces, this being the space in-between different Matters in the atoms structure or solar system or even galaxies, I call this ***principle of creation of dark light*** strength difference of pmtics magnitude needed for creation of light, the **principle of pmtics magnitude**.

It is very correct to assume that one atom of Dark Matter and its Dark energies can be and/or is enough to span its balanced pmtics to cover the whole of a solar system, or its bigger counter part galaxies or smaller spaces as the space in the pmtics Matters of one tangible atom.

CHAPTER 14

Virtual Particles (Virtual Matters)

The existence of virtual particles, *which appear out of nowhere*, and have the characteristics of real particles in essence, has been described in the Dark Matter section of this book. The method by which these particles appear within their environment is exactly how the Dark Matters do exist and appear in their environment, after their overall Magravs, magnetosphere strength changes' or due to changes in the pmtics strength of the environment.

In fact the virtual particles are individual atoms' or plasmas, or any Matters, of the Dark Matters behaviour' (Chapter 13, and reference 12), which when they come into new pmtics strength environment *which is different than their previous balance condition* pmtics strength environment with their Magnetic field and gravitational fields, then these particles generate a new magnetosphere in respect to their new condition pmtics strength environment, thus they create light due to their interaction of their plasmas (Chapter 7) and so they appear *as new matters or virtual Matter*.

There is nothing new about virtual particles; these are like loose plasmas or a single atom in the soup of the universal Magnetic and gravitational fields.

Thus, in simple way according to *Keshe Theory of creation of Matters*, virtual particles are Matters and behave like Dark Matters. They are created from the interaction of at least two pmtics, which leads to the creation of Magravs of the Matter, therefore what scientists call virtual particles, these are real Matters, which due to the change in their environmental magnetic fields strength condition, they suddenly *appears as matter(s)* for *a very short time*, until they lose their pmtics strength or their environment pmtics strength changes or as they move out of the environmental pmtics strength level or they seem to disappear.

Virtual particles possess a magnetosphere and the light they create in their new environment is due to the interaction of their pmtics of their magnetosphere with the pmtics of this new environment, which makes them visible in that given point and given time.

Note: When the (virtual) particle(s), Matter(s) or matter(s) is moving towards the observer due to it's *compacting of pmtics*, this creates the blue shift colour of magnetic wavelength spectrum (Chapter 7). If the virtual particles are moving away from the point of observer, due to *opening of the pmtics* of the environment, they create light in red shift colour of magnetic wavelength spectrum. (This is described in the paper: Creation of Magnetic field).

The virtual particles are actually individual nano-atom or plasmas or sub-Matters of plasmas.

The Casimir effect

In present physics, virtual particles are related to Casimir effects.

First of all, the Casimir effect and the photon energy appearance in its setup of its confirmation is always considered to be in a **vacuum condition** between two conductive plates where, photons in between two plates are observed and electrical charges are measured.

In fact, it is not important what vacuum condition level can be achieved in test laboratory conditions, nevertheless still a number of particles, Matters, plasmas (electrons and protons) and atoms could be left in the space between the two plates, which are under observation.

As matters are made of plasmas of interacting magnetic fields of Matters, when the space in between the plates is freed and void of most of its atoms and Matters, at this point the leftover matters or Matters between the two plates are more free to move in the newly created condition environment. Hence it is natural that these residual atoms, electron plasmas, proton, can move really in empty space and can collide with the walls of the matter of the two plates and due to their interaction fragments of particles strength are released which these are in the range of the particles strength of photons.

So vacuuming the gap between the plates creates a new environmental plasmatic magnetic fields force condition that allows a more free motion of leftover Matters and atoms in between the two plates, where in fact the boundary of the magnetosphere of one atom can occupy or expand the full span of the gap between the two plates.

Casimir effect measurement is a good tool to measure how many atoms and/or what Matters are left in the gap between the two plates at a given vacuum level.

We have done experiments in plasma dilution reactors, which we have developed and have seen the Casimir effects. In these tests, we have seen some serious voltages and currents, but never photons. Which indicates that these voltages can only be from Antimatter source in-between plates, as matter cannot produce these levels of voltage and amperages.

In a number of tests we have created 30 mm gap between plates and the results have been the clear indication that Casimir effect testing is good to find nearly the number of Matters in between the gaps, and types of Matter which are left in between the gaps. As **Matter and matter** create *different charge levels* than the **Antimatter** components of the plasma.

We have created environments of 10 (-9, -10, -11, and -12) bar in our tests, and in tests over 10 (-8) bars there was not much difference in voltage and current measurements from both plates' terminals. This indicating that it does not make much difference how far one can vacuum the gap in between the plates, there are still some components of Matters or matters will be present in the gap, which can move with more freedom than before. Where this small number of matters or Matters in-between the plates can

transfer energy through the free motion of their plasmas in collision with plasmas' of matters of the wall and lead to the release of pmtics fragments in the strength of the light magnetic field spectrum or a photon.

Van der Waals forces

In respect to the Van der Waals effect, this **push and pull effect** is now very clear and easy to explain, this is to say as plasmas contains all Matters (Matter, Antimatter and Dark Matter) and these Matters are all made from the interaction of plasmatic magnetic fields, which leads to the creation of their Magravs, so that each Matter is *like a independent entity* within the structure of the plasma, at the same time plasma possesses its own Magnetic and gravitational field forces.

By the same measure, the atom, as an independent system, possesses its own Magravs in respect to other atoms in molecules. The same, the molecules have their own Magravs in respect to each other.

Therefore, what has been considered as Van der Waals forces of push and pull of molecules, these are simply Magnetic and Gravitational field forces or Magravs forces of one molecule in respect to any other molecule.

The Van der Waals force is in fact the pull (gravitational effect) and the push (Magnetic effect) of the individual molecules in respect to any entity (atom, molecule) around them.

CHAPTER 15

Interaction between Matters

*Different Matters in their environment interact and create different conditions, and state of Matters are similar to the state of matter, as one can mix liquid with solid and gas with liquid in state of matter, the same can be done with different states of Matters, like allowing the pmtics of the Matter to interact with the Antimatter and further the Antimatter with the Dark Matter. As in the case of Matters, they are all pmtics strength dependent, where these kinds of mixings of states of Matters allow more profound effects to be developed. This kind of mixing between the state of Matters will open new world of science to mans' encyclopaedia of knowledge **Matteorology** (knowledge of Matters).*

The process by which, Matters are created and operate in respect to each other within the construction of the plasma has been explained in previous chapters. These Matters individually possess their own properties and create their own effects in respect to their environment, both individually and in conjunction with each other.

What is important to understand is: *What happens when these Matters interact or come to collide with each other within the plasma or their environment?*

What is the outcome of the amalgamation of the plasmatic magnetic fields strength of different Matters with each other?

Let us consider some of the variations between interactions of different Matters.

Interaction of Matter with Antimatter

The Matter is composed of ***weaker*** Magravs strength than the **Antimatter**. In this case, the Matter always gets attracted towards the Antimatter.

In the case of the plasmatic magnetic fields of the Matter ***colliding*** with the plasmatic magnetic fields of the Antimatter, the Matters components will **get absorbed into** the larger and stronger pmtics strength, by order of magnitude, of Antimatter.

What can be observed from this impact is the release of some plasmatic magnetic fields residual as pmtics, like release of some lights or rays or magnetic residual. The content of the dynamic plasmatic magnetic fields of the Matter or its energy is ***absorbed into the environment of the Antimatter*** and gets mixed in within its structural magnetic fields strength. At this point there will be no more signs of the Matters past existence.

Where, most of the rays released in this interaction are mostly due to the coming close of the two Magravs of the two Matters, rather than the splashing of the pmtics from the

surface of the Antimatter.

This is like when a drop of water falls into a cup of tea, in this case, the drop of water becomes part of the larger teas' liquid.

Majority of scientists working in this field, are lead to believe, as the Matter and the Antimatter collide, due to their charge balance after the impact, the content of the two Matters ***disappear into nothing***, except some residuals released as energy, gamma rays or photons, then, in their opinion, there is nothingness left as these two Matters' charges balance each other out.

Such a belief and concept is against any natural laws of existence. That is to say, there cannot be a position of total annihilation of both Matters, where there can be nothing left at all after the two actual Matters in possession of Magravs collide with each other. This nothingness of the two Matters after the collision of the Matter and the Antimatter is a rash assumption and incorrect.

In fact, the Matter and so-called the Antimatter by their pmtics strength order of magnitude in the matter world, is like the Earth slamming into the Sun, and then saying that after this collision there is nothing left of the Sun and the Earth, except some outwards splashing fragments of plasmas from the surface of the Sun. This is illogic attempt at a scientific explanation for such a real physical event.

The Matters of the Earth would cause a small splash on the Suns' surface. This splash then releases some plasmas or gamma rays or photons from the surface of the Sun. Then the plasmatic magnetic fields components of the Earth become part of the plasmatic magnetic fields of the plasmas of the Sun. This is exactly the same incident as when pmtics of the Matter collides with pmtics of the Antimatter.

In view of this principle in physics of the conservation for energy, ***nothing in the universe is lost or can disappear***. They just change their magnetic fields strength and their compactness from one form and level to another.

Thus, collision of the Matter and the Antimatter create nothing but the Antimatter, with more content of different plasmatic magnetic field's strength of the Matter components inside it. Therefore the outcome of this collision is mainly the Antimatter balance remaining.

Interaction of Matter with Dark Matter

This follows the same principle as the previous states of the Matter and the Antimatter. The content of the Matter then becomes the constituent Matter of the gravitational centre of the Dark Matter. With the difference, that in this case the Matter will not have to overcome any magnetosphere of the Dark Matter.

This interaction will be the same as seen in the universe matter dimension, where for example Stars and cosmic matters disappear into a Black hole in the universe.

In some instances, this process can disturb the overall Magravs' strength balance of the Dark Matter in respect to its surrounding plasmatic magnetic fields strength. This change can induce the production of slightly stronger or weaker magnetic fields strength magnetospheric conditions of the Dark Matter in respect to its surrounding field's environment.

In these rare cases, due to the change and unbalance of the magnetic fields strength between the new content and new Magravs strength of the Dark Matter, this new stronger or weaker plasmatic Magravs strength, allows the creation of a new magnetosphere field strength of the Dark Matter in respect to its environments pmtics strength to take hold. Then, what was the Dark Matter in a given environment, can in the same given environment, with a different and new plasmatic magnetic fields strength, now create and possess a new magnetospheric field strength zone in respect to the same environment's pmtics strength and then the Dark Matter can become like the Matter that is more visible.

This incident has been recorded by cosmologists a number of times. Where, *out of nowhere*, Matters appear in the Dark spaces of the universe.

In fact, even changes in the tightness of plasmatic magnetic fields in the span of universe, can unbalance the Dark Matter environment pmtics strength and make the Matter visible.

This magnetic unbalance of the environment causes different balance condition around the Dark Matter pmtics, and then out of nowhere stars appears in the Dark spans of universe.

The interaction of Antimatter and Dark Matter

In the case of the interaction of the Dark Matter and the Antimatter, there are clearly several scenarios, which are possible.

1) Scenario 1

This case is the most probable and is considered to be the norm. This interaction is a collision of the giants of the Matters of the plasmas'.

Assuming that this scenario of interaction takes place within the environment of an initial fundamental plasma.

Considering the construction of pmtics strength of the Dark Matter and the Antimatter, when, these two Matters of the plasma collide, the outcome is normally production and release of new and balanced plasmatic magnetic fields environments. In this case, it is considered that each of the Matter's components of the plasmas keeps their pmtics strength plasma status.

Due to the enormity of the quantity of the amounts of the two plasmatic magnetic fields of the *Antimatter and the Dark Matter amalgamation* (denoted as **A-D Matter**), new supersized, unstable giant plasma is initially created. This new plasma needs to reach stability over the entity of the plasma as a whole for it to survive. Thus, the new super giant plasmatic magnetic field has to find a new Magnetic and gravitational balance and equilibrium within itself.

For the new giant plasma to reach the new equilibrium condition, the new plasma has to, and always does, release its excess plasmatic magnetic fields into its surrounding environment. The new released plasmatic magnetic fields have to be in balance by themselves too, for them to exist and stay within the gravitational fields of the A-D Matter.

This new release of excess plasmatic magnetic fields near to A-D will contain some of the Antimatter, some of the Dark Matter and some other newly balanced interacting and attracting weaker plasmatic magnetic fields of different strength in the Matter pmtics strength level. These *weaker fields* are mainly from the leftover weaker fragments of the collision of the two giant Matters. These new released small bundles of weaker plasmatic magnetic fields strength themselves due to their proximity and their source of origin, these usually bunch-up and become a new *miniature plasma version of the original initial fundamental plasma within the A-D Matter*.

At the same time, this newly created mini-plasma still has to keep it's own balance and the balance of the whole of the original Matters pmtics and stays' within the Magravs hold of the giant A-D Matter mixture. This mini-plasma creates its own Magravs and then this mini-plasma has to have a Magravs positioning in respect to its original initial fundamental plasma. Thus the new mini-plasma is forced to take a new position and new gravitational positioning in respect to its larger neighbour of A-D and it is at this point that it is forced out of the A-D Matter plasma environment, but still in A-D Matter Magravs catchments' area, therefore this mini-plasma attempts to stay in the orbit of its mother seed, and becomes the **initial fundamental satellite plasmas'** of the original A-D Matter.

Further on with the same process, the A-D Matter mixture has constituents of two unbalanced and un-matching plasmatic magnetic fields strengths of the Dark Matter and the Antimatter within it, at some point, the two Matters plasmatic magnetic strength fields separate and the balance returns' to a new central plasma. By this time the central plasma due to this interaction, finds itself with a new rotating satelliteing smaller plasma.

It should be noted that pmtics of different strength *never mix* with each other, however they can be *influenced* by each other.

The collision of the Dark Matter and the Antimatter, and creation of new satelliteing mini-plasmatic Magravs rotating around the central plasma is the **creation of the electron** from the interaction and collapse of theses two Matters of the initial fundamental plasma. The interaction of the Antimatter and the Dark Matter of the Initial

Fundamental plasma leading, to the creation of a new central plasma and its satellite mini-plasma, lead to creation of **Initial Fundamental Atom** (hydrogen atom). This is what I call the initial fundamental decay of the initial fundamental plasma, or decay of the neutron.

The collision of the Dark Matter and the Antimatter is usually due to unbalance or some deviation in the plasmatic magnetic fields' strength of one Matter or other within the confine of structure of the plasma itself.

2) Scenario 2

This scenario happens usually when the F1 collapses altogether, sending the two giants Matters of the plasma, the Antimatter and the Dark Matter, to collide head on.

In this case, there are two possibilities, which remains open to the new A-D Matter plasmatic magnetic fields.

A) The first possibility is that the plasmatic magnetic fields of the Dark Matter superimposes the Antimatter plasmatic magnetic fields.

By this process, the outcome will be a giant size plasmatic region of the Dark Matter and energy in the plasma.

This new giant Matter, due to the interaction and amalgamation of the two sets of plasmatic magnetic fields strength and their Magravs of its two separate Matters will have large-scale gravitational pull system, with no clear magnetospheric zone boundary in respect to interaction with its outside plasmatic magnetic fields strength environment as before.

This will be a giant gravitational region that will have massive pulling effects, but its core cannot be seen due to the lack of interaction of its magnetospheric condition with its environment's pmtics. Therefore, this region even possessing enormous amount of gravitational field pull has no balance interacting Magnetic field strength or a balance Magravs strength in respect to its surrounding pmtics strength. This Matter seems as if it does not exist, or appears to be Darker than it's surrounding. Around this area, enormous gravitational pulls' can be detected, but the cause of all the pulling and where the gravitational pulls is coming from are not clear and obvious. Where, this darkness is purely due to the balance magnetic fields strength of the magnetosphere of this Dark Matter and being too similar in strength in respect to its surrounding environment pmtics strength to be able to generate the magnetospheric light.

Thus, this area is and looks like as a giant eating machine, which has a lot of energy and gravitational pull, but no visible source to show for its Dark energy as was explained before (36) and the Dark Matter. This condition is usually referred to as the **Black Hole effects** (13).

In fact, the only way that one can say that the Antimatter is cascading in this case by the

Dark Matter, is by observation of the appearances of the interaction of the Matters Magravs patterns of the magnetosphere of the whole structure from the outside of the structure.

In these cases of cascading, where the two pmtics strength at the point of separation between the Antimatter Magravs strength and the Dark Matter Magravs strength, internal layers cannot mix due to their different magnetic fields strength, this interaction between two different pmtics field strength at this magnetic interface, creates an ***internal pmtics-interface zone***. Where, this pmtics strength interface zone creates a different zone gravitational and Magnetic field strength on the outside of the magnetosphere surrounding environment of the cascading Dark Matter, and the position of this zone on the outer regions of the Magnetosphere of the Dark Matters are in position and in-line with its physical position of the pmtics interface in the infrastructure in the centre of the cascaded Material.

This internal interface plasmatic magnetic fields zone can create ring-like zones around the outer boundaries of the Dark Matter magnetosphere, where these rings are like different colour or light intensity rings around the whole of the outer boundary of the Dark Matter in respect to their environment pmtics. Where, the thickness and the width of such a ring is equal to the thickness of the embedded Antimatter component.

The physical observation of these effects of the pmtics-interface strength can be seen in the gaseous planets which have initial solid core centre, and where different pmtics strength zones interfaces of different Matter layers are created internally due to their internal pmtics interfaces, as each interface is seen as one ring in the extended magnetosphere of the giant gaseous planets.

These type of magnetospheric rings are usually seen around the gaseous planets with a embedded and initiated solid matter centre cores, and as a number of different layers of the same or different gases are superimposed on top of each other over the life time of the planet. Where the solid matter due to temperatures of its blanketing of gases has become to be in the fluid state-of-matter and creates its own plasmatic Magravs forces. Which the Magravs of matters core interact with the Magravs of the gases in different layers, and/or gas-to-gas of different layers. Where, at the interface of each layer of matters, different Magravs strength are generated and their regions and position of pmtics Magravs strength balance are observed, as one ring related to that specific interface, around the outside of these planets magnetosphere environment in their solar systems. This is exactly how the rings of the Saturn and the Jupiter are created (17, 18). In fact if one could count all the numbers of the dark rings of the Saturn, one should be able to say how many layers of gasses the planets has in its constituent inner structure. This is like counting the rings across cutting of the trunk of a tree to establish its age. How these rings have come to be made and how layering of different gas layers have been achieved by the planet Saturn has been explained in full in the papers under reference 17 and 18.

These multi-layer gas rings actually can be seen around some stars too, but these are hidden within the intense light from the surface of the star.

The application of multi-solid core and rings in Magravs positioning reactor

When this principle is used in a Grapos reactor, this gives the system and craft a major impenetrable multilayer magnetic shielding ring for protection from cosmic dusts or in defence technology for maximum shielding from incoming asteroids on the path of high-speed crafts (17, 18, 29, 33). Or these types of magnetic multiple ringing can be used around a craft for submerging in deep *liquid environments* (29, 33). Where, the craft using these systems become liquid-sealed and Magnetic field and gravitational depth positioning, and temperature independent.

B) The second possibility, with this interaction is that the Dark Matter's plasmatic magnetic fields moves to the centre of the Antimatter's plasmatic magnetic fields region.

In this case, the Dark Matter plasmatic magnetic fields are superimposed and they are cascaded by the Antimatter plasmatic magnetic fields.

Considering that this scenario happens in the environment of the initial fundamental plasma and between its Dark Matter and the Antimatter components. In this case, again, giant plasma of double layers of the Antimatter and the Dark Matter is created and the new plasma will suck-in the Matter components and the electron or another pmtics around it into itself as before.

Nevertheless, this interaction gives the impression of a sudden expansion of the Antimatter as a bright Matter. That is to say that the magnetospheric zone of the Antimatter becomes the total magnetospheric zone of the central plasma. Thus, this new combination of interactions will have a new plasmatic Magravs strength of the three Matters. These being the contents of plasmatic magnetic fields' strength of the Matter, then the Dark Matter and then the plasmatic magnetic fields of the Antimatter.

All these Matters again as previous scenario being cascaded this time by the pmtics of the Antimatter. Where, the weakest pmtics strength of the Matter will be in the centre, superimposed by the plasmatic magnetic fields of the Dark Matter. Then, these two Matters are superimposed by the pmtics strength of the Antimatter on the outside.

The new giant combination of three Matters at this stage is a super plasma size, and this is a temporary condition and is called the Nova state of the three layers Antimatter cascading of the plasma.

Where, the Antimatter's strong plasmatic magnetic fields strength are on the *outside* and create enormous amount of light compared to when there was a balance state of the initial fundamental plasma. This sudden expansion of the Antimatter due to ballooning of the other Matters inside the cascade gives the impression of a sudden expansion of the bright plasma, or what is called a *Nova condition*.

Sometimes in stars, due to the internal interacting dynamic plasmatic magnetic fields of the plasmas, and through natural process of interaction like fusion or fission or nuclear decay and generation of weaker fields in the centre of these objects, Dark Matters and

Matters pmtics strength conditions are generated and held in the centre of the star.

This generation of new Matters *internally* will cause the expansion and ballooning of the volume of the star initially for a short time. Further on, at this point, as the content of the new-cascaded plasma of Matters can push its boundary to limits beyond the internal central gravitational strength pulls of its three different Matters, then the star explodes in its environment.

This explosion leads to the total release of the internal plasmatic magnetic fields of all its constituent Matters and pmtics inside the cascade. Therefore, these Matters and plasmatic magnetic fields can again start new interacting conditions and environments. Henceforth, the whole cycle of the creation of fundamental particles, then initial fundamental Matters, plasmas, atoms and matters starts again.

This is in fact the normal cycle of the process of interaction and attraction of plasmatic magnetic fields strength in their confined of their environment. There is nothing more and nothing less to this natural cycle of regurgitation of plasmatic magnetic fields of different strength and conditions that these create for themselves and the effects they create to secure their existence.

That is to say, in the case of the plasma, this becomes the release of some particles, which gets absorbed by the other atomic plastic structures around the plasma.

In the case of a star, this becomes an exploding star, which its constituent plasma after disintegration becomes part of the soup of the galaxy and the content of the star gets absorbed in, for regeneration of new stars and so on. In the case of galaxies, this is the same; further on the same happens to universes and so on.

There is the possibility of another scenario for the same new cascaded materials, and that is:

Once the Nova is created and it is not allowed by the external field force in its environment to expand its boundaries beyond its combined internal Magravs' strength, it is at this point that, the *internal* gravitational fields of its three Matters interactions starts to lock into each other and create one overall Magravs force in respect to their outside environment.

This new overall plasmatic Magravs force, which is created due to the interaction of plasmatic magnetic fields of the three layering and three different pmtics strength of the three Matters (the Matter, the Dark Matter and the Antimatter) in conjunction with each other [This is a similar principle to the systems of three internal layers for creation of gravitational field forces of the planet Earth as explained in Chapter 1 (12, 18)], once this new gravitational fields forces takes place and takes hold, and becomes operational, then purely due to its interacting layering gravitational strength magnitude, and the span of its coverage the Matters of the cascade will start pulling all three plasmatic magnetic fields components of three Matters tightly to itself. This causing the retraction of the matters of the Nova and hence contraction of the Nova. The Nova volume shrinks, in response to the new created three layers interactions' Magravs strength.

Thus, by the time all the Matters settle down to their new position, this new plasma will be a condensed Matter of all sorts. As each Matter layer, due to their plasmatic magnetic fields strength will hold onto their position within the construction of the cascaded plasma. Once, the new matters settle into their new positions from the previous giant Nova condition, this new plasma state of the three Matters will be a fraction of its Nova size. Nevertheless, its size will not be equal to the total size of the collection of all three previous Matters and its initial fundamental plasma size, but its overall internal gravitational fields strength will be enormous compared to its past when it was the whole initial fundamental plasma.

By the this stage the content of the outer layer is still active plasma with bright lights of the Antimatter, but due to the new strong internal gravitational pull of the Matters, even the light that is created through the interaction of plasmatic magnetic fields in the outer regions of the Antimatters, interacts with the strong internal field of the cascaded materials and converges inwards (Chapter 9). This giving the impression that the plasma or the Star is dormant or dying, but in fact the systems has never been as powerful and active internally as this in its whole existence even as plasma or as a star.

Interaction of plasma with plasma

Another possible scenario in interaction of collection of Matters as a plasma, is in collision with another collection of Matters as a plasma.

Electron interaction:

i) For example, there is the possibility that the plasma of the electron can be fused into the plasma of the central nucleus of its proton.

“I have called this interaction and fusing of the electron to its proton plasma the ***inter-atomic fusion principle*** (37). I consider this method to be a simpler and more practical to achieve fusion for production of energy, than the path being followed by the present scientific world in fusion reactors technology in trying to fuse two large plasmas of the proton, without any tangible success up to now after over fifty years of research and development to attain any sustainable fusion cycle to produce usable energy for domestic market. These systems being like of the Jet project (Tokamak) in UK and the present upcoming ITER (Tokamak) project being built in the South of France at the cost of over ten-billion US dollars investment with the final goals of only to produce for a few milliseconds of energy within 10 year’s time.

The process of the inter-atomic fusion is shown step by step in figure 39.

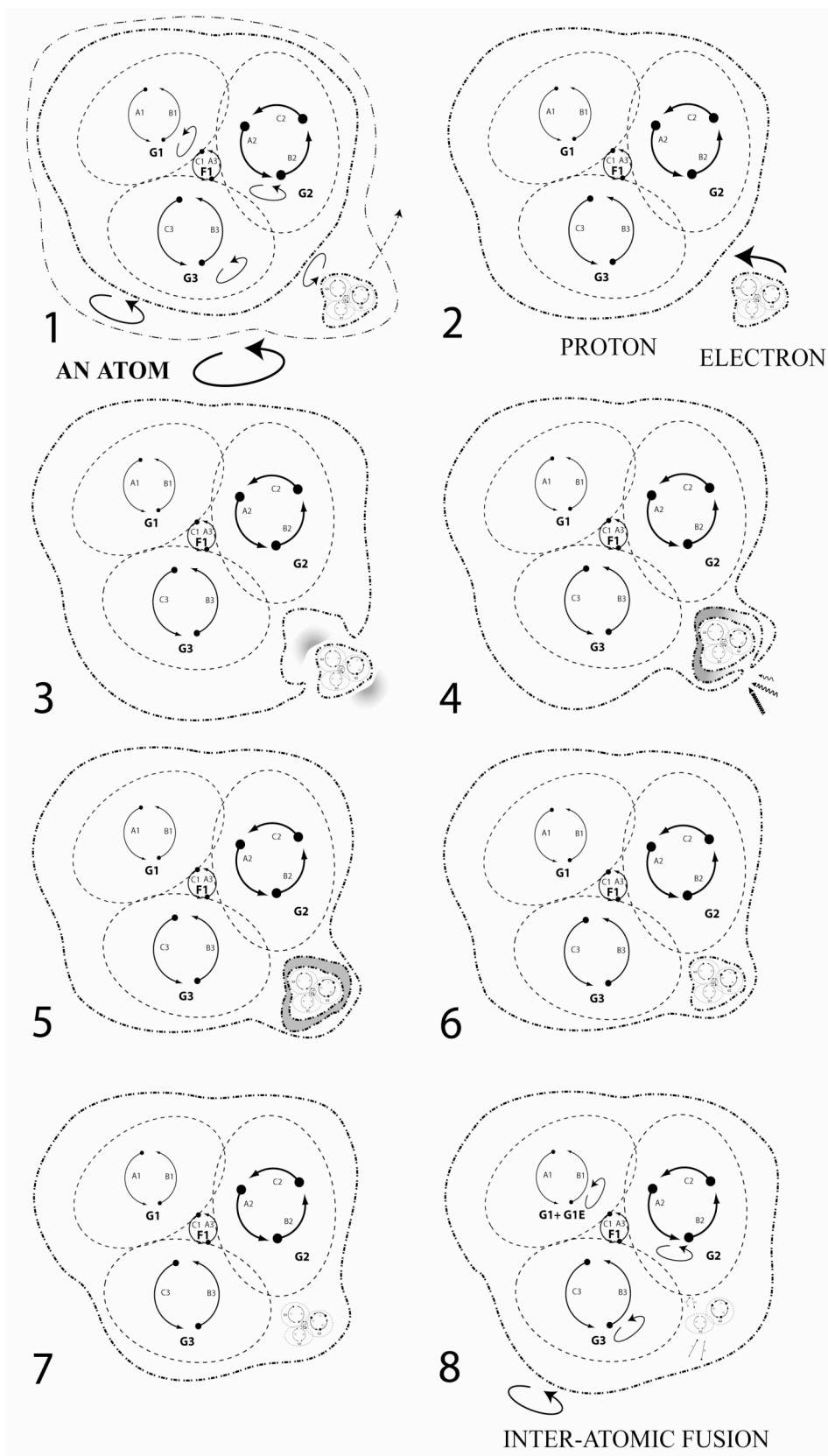


Fig. 39: Schematic process of the inter-atomic fusion.

Where, initially by using Dilution plasma reactors (Chapter 23, Fig. 57), by feeding the atom of hydrogen into this reactor cores (Chapter 21, Fig. 54), and then in allowing the magnetic atomic structure to dilute and to open up in the soup of the plasma of the reactor (Fig. 39 diagram 1) into its sub-components of electron and proton. At this point the magnetic fields' strength of the soup of the reactor is brought to the levels, which now can be matching with the plasma of the proton pmatics level, for the reactor fields strength to match the overall Magnetic and gravitational pmatics of the protons' plasma. This is the magnetic field strength level of the binding of the plasma, which is called the Coulomb charge barrier of the plasma. Which at this point, the Matters' of the electron are more free and can be gently Magravs positioned to join up in to the Matter components of the proton.

This is the natural method of fusion in its basic form, where there is no need for the huge magnetic fields forces to achieve what happens naturally in the universe to fuse an electron of atom to its proton. The same process of fusion in the plasma dilution reactors' technology can be used for fusing Matters, plasmas or even atoms.

This inter-atomic fusion is done in a magnetic field environment of *soft* plasmatic magnetic fields forces and at the same time in a similar magnetic fields forces strength of the same atom environment of the two similar plasmas of the proton and the electron of the same atom, where, in fact the magnetic fields of the outer cores of the reactor performs a similar job as the magnetic rings of the Tokamak systems in providing the containment magnetic fields. Where as in the plasma dilution reactors, at the same time natural gravitational and Magnetic fields needed for fusion criterion is provided by the operation of the fields in two cores of the reactor fields' interactions with each other.

If scientists use this method of creation of Magnetic and gravitational fields forces in the present Tokamak reactors', to replace the solid coil electric magnetic rings, they will achieve fusion in real universal conditions, fusion within natural gravitational fields forces environment necessary to accommodate the fusing of any plasma at a fraction of the present costs and in a very short time-frame.

With these soft magnetic fields in plasma dilution reactors, one can achieve more rapidly fusion than using current induced enforcing magnetic fields rings. These types of magnetic fields strength in dilution plasma reactors are similar to the magnetic fields strength of the plasmas and atoms, and hence they can be manipulated much easier, than, trying to force the plasmas' of two protons.

In comparison, that is to say, to make *an omelette*, it is easier to mix the contents of two uncooked eggs homogeneously as happens in plasma dilution reactors, whereas in trying to make the same omelette, this time by boiling the content of two eggs first into two hard boiled eggs, as Tokamak scientists have been trying to do for past fifty years to make the fusion in reactors by hard balling the content of plasmas (by squeezing the plasma with the use of external magnetic fields to a tighter, harder, smaller entity) and then trying to fuse the two hard balls of plasmas to achieve the fusion process. Then hoping, with increasing the speed of the two hard balls, that they can smash and fuse the two smaller hard balls together. That is why the present path of Tokamak technology in trying to achieve fusion is a sweet dream that will never come true.

In this inter-atomic fusion technology, smaller and weaker plasmas of electrons, which are already within the structure of an atom, are fused into the Matters' component of the proton of its central plasma (Fig. 40). This is a more realistic and practical method of fusion than the present, fusion technology in trying to fuse two large plasmas of hydrogen's protons together, and creating unmanageable heat, of several billions of degrees. Where, the tools and materials to control and harvest the energy of such huge temperatures, on the long term bases in small Tokamak reactors, does not exist within the known galaxies in the universe.

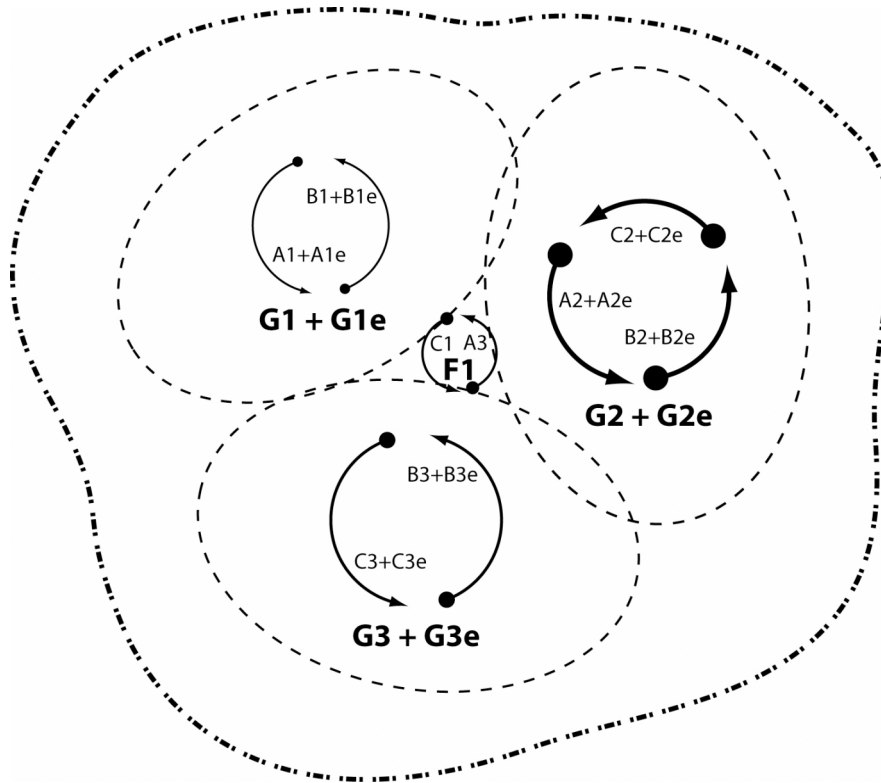


Fig. 40: Schematic diagram of the fused proton and electron plasmas.

In these processes of dilution plasma technologies, when the electron plasma is gravitationally positioned or encouraged to amalgamate its contents with the content of the plasma of the proton, as the two plasmas approach each other, the interaction of two plasmatic magnetic fields of the two plasmas will and can produce several scenarios, which their effects can be harvested for production of different energy levels or production of new materials and so many other purposes.

In brief two cases are discussed here:

a) If the strength of the pmtics of these plasma dilution reactors is set at a level, to be just below that of the total balance of the pmtics strength (Coulombs barrier) of the plasma of the proton, in this case, as the two plasmas approach each other, the initial stages' of the process of fusion starts, which this process begins and will be

accompanied with light and heat emission as in figure 39 - diagrams 1 to 5. This light or heat from this process can be used for example for present state of art technology turbine power generators directly. Where, the temperature of the interaction of the systems can be set at the optimum efficiency temperature of the turbine. Hence, operating these reactors in the same configurations as is done in the present fission reactor technology power generators to generate steam to run turbines. With the difference that these dilution technology reactors leave and produce no nuclear waste, and heat can be generated at any level as per demand of the system.

In these reactors, the Magravs strength similar to the plasmas' **Coulombs barriers** charges can be created and controlled. In the dilution plasma reactors' the magnetic fields created through the soup of the plasma will create and maintain pmtics strength, which can be similar to the magnetic fields barrier strength of the plasma of the proton. Where, the strength of the pmtics field in the reactor will decide the strength of the pmtics in comparison to the protons' plasma Magravs strength. As the pmtics strength of the reactor reaches more to the level of the Magravs strength of the plasma, then there is *less resistance and less friction between the plasmas of the proton and the electron*, when, they are brought together to fuse. Thus as the strength of the magnetic fields of the plasma can be reached by the reactor operation, this allows less friction and hence *less heat* to be produced by the interaction and by the gravitation of the two plasmas of the proton and the electron to fuse. By being able to control the pmtics strength of the plasma dilution reactors Matters' soup of plasma, one can dictate the amount and the rate of the heat release from the interaction of the two plasmas, thus one can control the heat output of the reactor, if the production of heat is the primary objective of the use of such a system.

In general, in being able to control the **Coulombs barrier strength** in respect to the given environment of the reactor, one can **vary** this barrier magnetic fields strength in the soup of Matters in the plasma dilution reactors.

Therefore there is no need even to fuse the plasma of the proton with the plasma of the electron, and by just bringing them close to each other to create the right friction when the Coulomb barrier is at the right strength, between the two plasmas, then the reactor can generate a controlled heat-output, or any other rays that is demanded from the systems' operations.

Therefore by *bringing the reactor magnetic fields strength to the level of Coulomb barriers*, one can bring into balance the magnetic strength barrier changes in the overall mixture of the reactor to any level from, or to the Coulombs barrier magnetic fields levels.

Where, the **difference** between the two, the **reactor** and the **plasmas' magnetic fields strength**, will decided the **temperature output of the reactor** when, the plasma of the electron is gravitated to the plasma of the proton to fuse. The outcome of the bringing of the two plasmas into each other proximity and the interaction of their Magravs, leads to the friction between the two plasmas, and the release of pmtics in form of heat. Where, the temperature of the heat released by this attempted fusion is directly controlled by the pmtics field strength within the reactor and in respect to the variation level from the

Coulomb barriers' pmtics strength level.

An example of this controlled heating of interaction pmtics in the natural world is the like of when the pmtics of the sunlight in atmospheric condition becoming in touch with pmtics of the cell of the human body. Where, as the pmtics of the proteins of the cell are always constant, by varying pmtics strength of the direct sunlight, the heat released from the interaction of these two pmtics, the human feels the increase in the pmtics strength as heat of different degrees. The stronger the pmtics of the sunlight, the more heat is produced from the interaction of two pmtics, thus the warmer one feels. This is like walking from the shadow into the sunlight.

The phenomenon of heating during illness, happens due to the interaction of pmtics of a bacteria within the blood protein pmtics, where as a blood cell comes in touch with a stronger pmtics of the bacteria, the level of the interaction of the extra pmtics from the structure of infection, in *interaction* with the blood cell, manifests itself as heat or the increase in the body temperature (this is explained in detail in the paper: Universal order of creation, to be published as a book), where the interaction and possible *fusion* of two pmtics of the bacteria and the body cell leads to a release of heat, called "an infection" temperature. This being the reason why the same pmtics of bacteria can have no affect on some human bodies and the same infection can create high temperatures like $41^{\circ}\text{C} +$. The reason being that the cell of the one with the high temperature has a lower pmtics strength, thus the interaction of the two infection and the body Magravs pmtics creates more release of fragments of pmtics as heat. When the temperature reaches a level that the Magnetosphere of the human protein reaches its dilution point then the cell is de-structured.

b) When the neutron is needed to be produced from the atom of hydrogen in space for production of heavier atoms, one can follow the process from stage 1 to stage 8 of the Fig 38. In this process the pmtics strength of the reactor are set to be nearer to the binding Magravs strength of the boundary of the protons of the plasma, so that the electrons' plasma literally melts into the protons Matter structure and the matching pmtics of both plasmas of the proton and the electron. Which these plasmas and their pmtics were all of the same origin; this is amalgamation to produce new neutron type initial fundamental plasma. This is the process of the decay of the initial fundamental plasma in reverse, using the same original components of Matters pmtics of all three matters of the plasma. Such a neutron can be added to the construction of the atomic structure of lighter atoms to create **gap(s)** needed for Magravs positioning for the protons of the nucleus to accommodate an extra proton and its accompanying electron for production of even heavier atoms, for example for the production of carbon, oxygen and nitrogen to produce protein base nutrition in deep space travels. Alternatively, one can produce atoms of any matter from initial hydrogen atoms, through the use of the same method of progressive accumulations of protons and neutrons in fusion in plasma dilution reactors.

ii) The other condition is, when the plasma of an electron is attracted to the protons' plasma, *but does not get absorbed* within its pmtics, due to their Matters strength friction at the zones of contact of the two plasmas.

As has been explained in previous chapters, the electron is itself a plasma condition and a collection of dynamic pmtics of Matters. Where through the method of its construction and motion around its nucleus, this electron is always in proximity of other electrons of the similar construction or it is in the proximity of larger plasmas such as the neutrons or the protons of the nucleus of its atom.

The ***Motion of the electron*** around the proton is created due to the construction of its internal Matters (Chapter 19). Similarly, it has been explained that the interaction of two pmtics due to their friction lead to release of pmtics strength fragments of lower strength of pmtics or rays in the electro-magnetic field spectrum of the light.

Now it is very simple to understand how light is released due to external factors. When the electron of the atom is forced to come close enough to another electron or the components of the plasma of its nucleus or a nucleus of another atom. So that, the interaction of the two plasmas Magravs of the electron and the proton leads to the release of lower magnitude pmtics strength fragments that, its pmtics strength are in the light electromagnetic spectrum (It has been explained that when two plasmas interact and collide; the pmtics fragments of their collisions always releases pmtics in the light bandwidth)(Chapter 7).

This interaction and collision of the pmtics of the two plasmas does not mean amalgamation of the two, but in coming too closed to each other, the two pmtics strength touch and bounce off due to their dynamism.

Hence, as the electron has lost some of its pmtics due to the interaction and collision, with the pmtics of the proton, so now being in possession of different Magravs strength, the electron accepts a new Magravs positioning (Chapter 19) in respect to its proton plasmas.

This interaction of the two plasmas creating the closeness or distance of the electron to its systems' central Magravs point, or what is called that the electron finds a new *ground energy level* position after releasing some of its energies as light, this is then a new Magravs positioning of the electron in respect its protons' Magravs strength forces, which is acceptable by both plasmas Magravs within the atoms structure after collision between the two pmtics of the plasma of the electron and the proton or other plasmas in its vicinity.

Thus when plasmas interact like the plasma of the electron and proton, this leads to the creation of light in the majority of case.

CHAPTER 16

The fundamental difference between Inertia and Gravity

Inertia is said to be due to the total interaction of pmatics of Matter(s) of a solid object without the central dynamic cores that can create Magnetic and gravitational fields forces.

Inertia, through the new understanding of the structure of the plasma, can be simply defined as “the pmatics and gravitational fields due to the Matter in the matter (solid, liquid, gases) components of the plasma (Fig. 41 link F)”

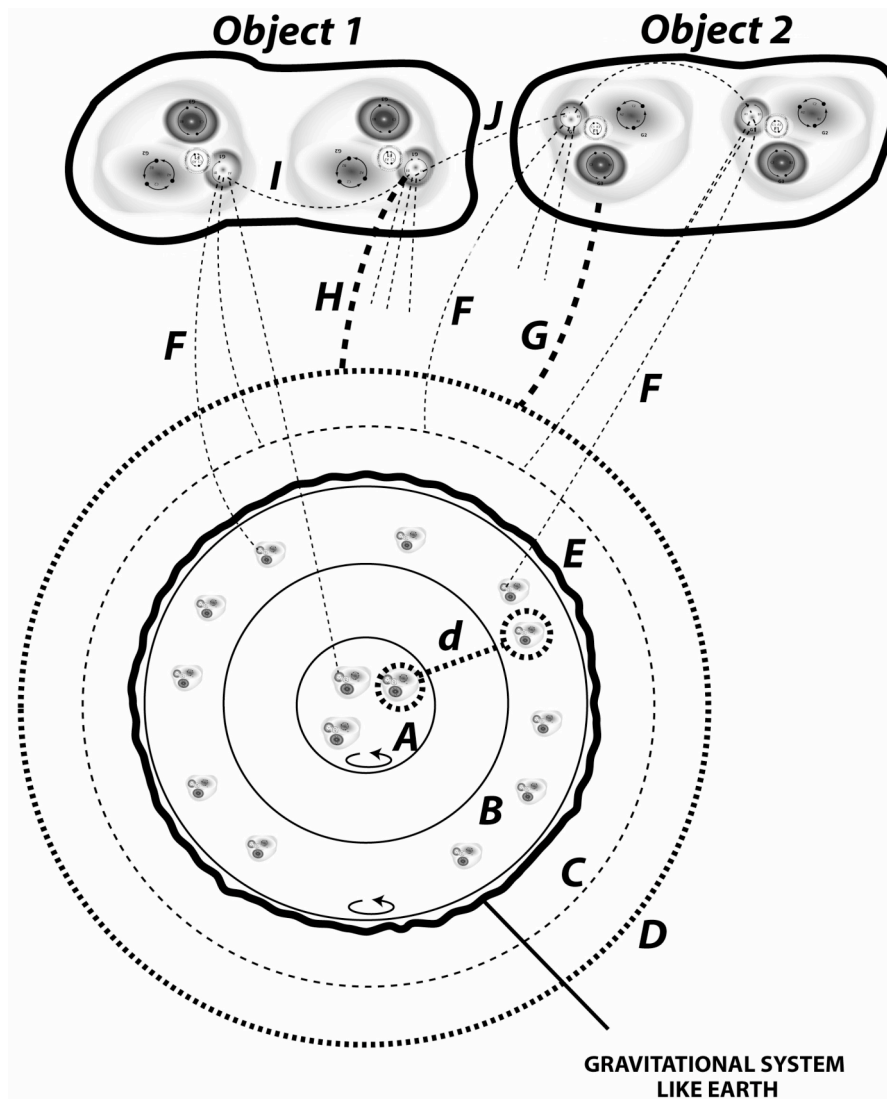


Fig. 41: Interaction and connection between inertia of Matter pmatics of an entity (I and J) in respect to another entity and their interaction (F and H) with magnetic field (C) and gravitational field (D) of systems respectively.

Gravity is simply defined as "the total pmtics Magravs created by all components of the Matters (Matter, Antimatter, and Dark Matter) of the plasma (Fig. 41 link D and G, and Fig. 42 Link G)."

Inertia is said to be due to a *total collection of pmtics* of the constituent Matter(s) of atoms and molecules of an object, interacting and attracted with each other and any other Matter(s) or matter(s) or Magravs.

The principle of inertia is applicable to the Dark Matters and the Antimatters as well as the Matter components of the plasma in the universe.

As each atom is made of and possesses specific pmtics strength, these fields, in interacting with each other in the state of matter (solid, liquid and gas), create their own total Magravs by addition of the overall magnetic fields of all the atoms of the structure of any matter. The structure of the matter could be made of molecules or an asteroid or any physical object, which is void of gravitational pull, but in possession of pmtics Magravs' pull of Matter component of plasma, due to the construction of components of its neutrons, protons and electrons of matters. These pmtics, in being interlocked with each other, cannot create a dynamic Magnetic and gravitational pull or interactions between the constituent pmtics of all the Matters of an object. Nevertheless, they create gravitation in between the Matter components of the Matters of plasmas of the object.

In other words they have or create gravitation in respect to Matter-to-Matter components of plasma, or this singularity Matter attraction or gravitation of the total Matter of plasma, is called the **Inertia**.

As the **Gravity** is due to the overall dynamic pmtics strength of all Matters of an object, which is in possession of at least two **sets** of dynamic pmtics in respect to other pmtics, where, the interaction between two sets of dynamic pmtics, leads to the creation of gravitational field forces and simultaneously Magnetic field forces for plasmatic magnetic fields, or rays of magnetic fields, or the whole Matters of an object, this being a planet or a star or others."

In the case of larger objects with multi-core configurations like Earth, the multiple pmtics forces of dynamic multiple-core objects are loose from each other. Hence, the overall dynamic pmtics of their Matters can interact, creating much more active fields to be brought into play. These being, the stronger magnetic fields constituent components of the plasma; Matter, Antimatter, and Dark Matter, F1 zone fields and all other transition zone fields to interact with each other within the plasma.

That is to say, that the collective **free Matters** of the plasma create a stronger pull or gravitational forces than when the same independent are compacted and cannot be free in a dynamic condition in matter (solid, liquid and gas).

Gravitational fields, due to their free motion and strength of interaction of their Matters with others of the same, can span and reach further a field in the environment.

Gravitational field forces are always stronger and span wider in their given environment, than their inertia of individual Matter counterparts, simply because

gravitational field forces of planets or stars are mainly created by all components of pmtics of Matters of the plasma (Fig. 42), rather than the collective plasmatic magnetic fields of individual types of Matters' components of the plasma or the matter.

Planets' and stars' total pull is a combination of the gravitational fields and inertia pull of all their constituent Matters and matters. These composite pulls are created due to the dynamic plasmatic materials of their constituent Matters in the inner cores of these objects in respect to each other, plus the total pmtics interaction of their matters.

Through tests, it has been proven; that the Magravs force strength of a dynamic object is independent of temperature and pressure of their cores. Where, we do not consider this to be the same for the inertia of the matter (solid, liquid and gas).

At the same time, Magravs of a dynamic object can vary as the strength of its Matters pmtics constituent changes. Where, the inertia of the solid matter is always constant, both in respects to the same initial given position.

It is considered that Matters, in general, possess Magravs forces due to their dynamic construction of their pmtics.

As much as the universe has inertia field forces, in respect to Matter components of the plasma, there is ***Antimatter inertia*** in respect to the Antimatters components of and ***Dark Matter inertia*** in respect to the Dark Matter components of the plasma or the universe (Fig. 41). In fact, a collection of the Antimatter and the Dark Matter can possess inertia similar to the physical Matter conditioning of their environment. Therefore, the same matter possesses separate Dark Matter and Antimatters inertias too.

By the same measure, it is to realise that there are Matter Magravs systems as are Antimatter and Dark Matter Magravs systems in the universe. In understanding this clarification, in the systems of attraction of Matters, reactors can be build which are inertia dependent and not gravitational dependent.

It is important to note that; gravitational fields of planets and stars are all created by the Matters components of plasma. This means gravitational fields affect all Matters of plasma (Fig. 42), where inertias of certain Matters affect only that particular Matter component of the Plasma. At the same time, it is clear that gravitational field reactors can be produced in such a way that their gravitational fields *can attract certain Matters only*.

These systems will be like laser systems with the advantage that the laser operation can work ***in reverse***, that is to say the system can send rays of a given pmtics strength as well as attraction or gravitating the same rays and collection of pmtics towards or into the system too.

These systems can or will have, single or multi-molecules pmtics gravitational settings, that can be attracted to, or repelled by only specific pmtics strength, to or from their environment.

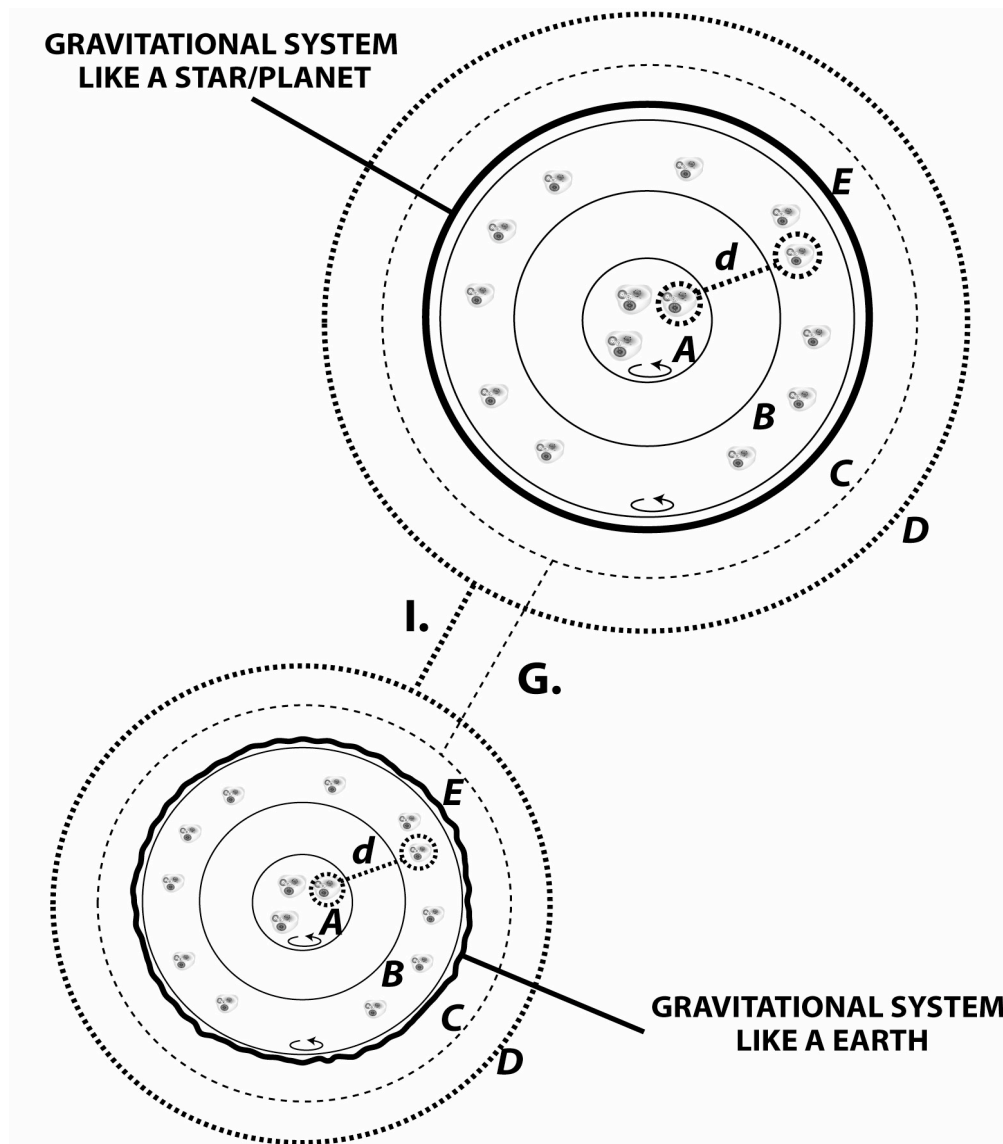


Fig. 42: Interaction between the pmatics Magnetic fields (I) and gravitational fields (G) of two Magravs systems.

Note: In fact the term used as “gravity” has to be explained as gravitational and Magnetic field forces, as when an object is attracted by gravitational fields of a matter, like the Earth, at the same time it is repelled by the Magnetic field forces of the object too. Thus, when talking about gravity it is correct to talk about the overall Magnetic and gravitational fields (Magravs).

These simple mono- or multiple-setting gravitational or inertia systems (Fig. 41 and Fig. 42) can be used for specific *extraction* of certain Matters, matters or materials from the universal Matters or matters soup.

Such systems, will change the present industrial systems thinking that magnetic attraction is only *limited to ferrite metallic objects*. Man has now the possibility to make systems *that can attract **any matter*** through the development of these systems.”

These systems for example can be used, once set to appropriate pmatics gravitational

field strength levels, so that they can extract only the CO₂ from air, or specific poison from water, or rare metals from the Earth and space and so forth (31).

These reactor systems can be used for production of proteins for human consumption and so forth in the future space travels (32, 34, and 38). The production of proteins like matters, through gravitational plasma dilution mixing has been tested and different matters were collected in several tests in summer of 2008. In these tests, the proteins produced and extracted from the reactor cores caused the damage to the ancillary systems of the reactor set-ups. These proteins layers were physically visible and tangible.

Using the mono-Magravs systems (38), new matters can be extracted from other environments, like nano-materials of all sorts. These systems can be used to produce specific matters too, matters like, uranium, hydrogen and so forth from the plasma of the universe as the needs for their use arises.

Thus through the understanding of the principle of mono- or multi-gravitational and inertia systems, reactors can be evolved that are gravitational to one object or one matter or one Matter only. Through understanding of the interaction of the plasmatic magnetic gravitational principles, reactors have been built, that have a Magnetic or gravitation to plastic at one point, and by resetting its configuration becomes magnetic to carbon and so on. Thus, mono-gravitational and inertia systems can be developed that have specific magnetic attraction or repulsion to one Matter, matters or any Matters of the plasma that can be expected of them through their pmtics strength operation setting.

On the other hand, the repulsion technology of the same Grapos can be used to send the Dark Matter and/or its pmtics energy as the Dark energy of the same plasma of specific pmtics strength into deep space for specific applications.

These types of gravitational lasers type reactors can be used for example in communication systems, where the information packs, using mono-pmtics strength of the Dark Matter and Dark energy can be sent through the system, so that the information can be packaged in the Dark Matter-envelop and sent without resistance or loss of energy, for it to travel with speeds beyond the speed of light to its destination anywhere in cosmos. The speed of communication through mono-Magravs systems are speeds which can be several times faster by order of magnitude than the present used state-of-the-art communication systems with satellites and microwave technologies. These speeds of transfer of information will be, by order of magnitude, faster than the speed of light.

These **GR**avitational **l**ASERS systems, that can be called “**Grasers**”, can be used for example to avoid a head-on collision and destruction of crafts by an asteroid in the path of the motion of crafts in deep space (33), or within atmospheric condition. The present missile technology due to its slowness through development of these reactors are obsolete, as once fired to protect the craft in space, for example from asteroids by the time the missile will arrive at the point of destined collision between the spacecraft and the asteroid, maybe it will be years after the craft has past that point.

These mono-gravitational or mono-inertia systems will bring to Man the realisation that

the time of making war-machines has come to its end.

As Man will come to understand, soon enough that using these mono-gravitational or inertia systems against one another as tools of war will mean and will have only one outcome, and that is a total wipe-out of the human race from the face of the Earth. The men of war through this technology will come to accept peace not out of their pleasure but out of the fear of their own demise.

The use and capability of the use of this knowledge and of the effectiveness of these *mono-Magravs systems* lethality, has been the cause and the keeper of the peace in the universe. No chance, will be given to the Man, to change the tranquillity of universal peace by use of this technology.

Man through the lethal powers of these mono-Magravs systems will be taught an unforgiving and painful lesson, if he ever tries to use this technology and knowledge to carry on with his aggressive behaviours, as has been his habit for centuries on his own planet. Then this will be the coming of the end of the term of the Man in the universe.

It is clear that any celestial object as the planets, stars and galaxies, are all created through the attraction and interaction of these Matters and matters, their interactions and their constituent plasmatic magnetic fields. These interactions and collections of Matters and matters in respect to the plasmatic magnetic fields strength, which larger objects possess by their order of magnitude, decides' what will be in their part of their environment. That is to say, the plasmatic Magravs created by the plasmatic magnetic fields of Matters in the inner cores of the stars in principle will decide on the size and the span of the dominion of its field in its environment. Then these Magravs strength and their balances dictate what matters or Matters will be attracted to the atom, molecule, planet or the solar system.

This principle of mono-gravitational plasmatic magnetic fields strength forces is the main reason in the universe that why certain planets only retain one element in their structure. For example, this is one of the reasons why the planet Saturn is mainly made of helium on its outer layers as its main constituent matter (17). The reason being that the initial Magravs of the interaction of pmtics of Matters and matters in the inner cores of the planet has been set to be equal to the helium plasmatic magnetic fields strength of matters in that part of solar system in the early life of the planet.

This mono-Magravs positioning field strength of the Saturn is one of the reasons, why this planet, with its strong gravitational field forces, does not pull in and absorbs a large number of asteroids from the Astor-belts. The other reason is that, mono-Magravs systems possess very strong Magnetic fields too, which this is one of the reasons why this planet can keep the matters of asteroids in check.

Alternatively, certain galaxies have more of one matter like hydrogen than the others having nitrogen and so on. Thus, the pmtics of Magravs forces and their mixture with the inertia of a planet dictates what matters are extracted from their part of their environment, like the solar system or galaxies.

Thus, Magravs positioning reactors are not only for creation of motion and for

protection, but they will be the main tool for cleaning environments, collecting preferred Matters, matters, etc.

CHAPTER 17

Plasma's and Nuclear decay

The nuclear decay principles of an atom, is in general, considered to be on “the same principles and methods and as the simple decay explained previously for the initial fundamental plasma into a proton and an electron (Fig. 43)”.

For the initial fundamental plasma to reach the ground-level plasmatic magnetic fields content condition, the plasma divides itself into two new and exactly similar structures with different amount of mass of the same constituent plasmatic magnetic fields Matters for the creation of a proton and an electron, and releases its unwanted pmtics as residual pmtics or as rays (gamma or x-rays, etc)(Fig. 42). I call this process of the neutrons decay “*The initial fundamental plasmatic decay.*”

Through the process of releasing of the exact amount of plasmatic magnetic fields from the **neutron** necessary for the creation of a **proton**, an **electron** and the **release of energy or other rays** from the initial fundamental plasmatic magnetic fields, this, in a way, confirms that *all initial fundamental particles of plasmas are always make exactly of the same and similar plasmatic magnetic fields and the same configurationally structure.* This being another proof that initial fundamental plasmas in the **universal order of Matter** are always made through and by the same Specific Entangled Plasmatic Magnetic Fields (SEPMAF) strength criterion and procedure, as has been previously explained.

The principles of the nuclear decay of initial fundamental multi-plasmas of an atom, is considered to be solely due to the re-balancing of the overall plasmatic Magravs strength components for Matters of plasmas of the atom **to maintain an overall Magravs forces balance of all participating plasmas**, in the construction of the atom. These being the plasmatic magnetic fields of neutrons, protons, electrons and their constituent Matters, their plasmatic magnetic fields of their Matter, Antimatter and Dark Matter and their magnetic fields forces of each plasma.

For the plasmas of an atom to stay together and hold onto its constituent structure plasmatic magnetic fields, some of these *plasmatic magnetic fields in motion* (energy) are **transferred to other plasmas**, and in term, these plasmatic magnetic fields are said to be used. At the same time, part of the initial fundamental particles fields of plasmas are used for the upkeep of the integrity of the nucleus positioning and dynamism; As part of the binding energy is consumed for holding the fundamental plasmas together. As in this cycle of consuming pmtics reaches that enough pmtics have been used, that the initial fundamental plasmatic Magravs of the plasma cannot hold onto their initial gravitational positions in respect to each other. The plasmas making up the part of participating neutrons or protons in the centre nucleus of atom, gravitationally reposition themselves within the nucleus for the nucleus to find a new Magravs *balance and equilibrium positioning* in respect to other plasmas.

At this point of magnetically repositioning of the plasma of the heavy nucleus, the

nuclei of heavier atoms split into exactly the same configurations of two or more new Magnetic fields and gravitationally positioned balanced plasmatic strength configurations (Fig. 43) of the plasma's of neutrons to protons and electrons, and hence split into two new atoms. This regular splitting pattern of heavier atom to two or more light atoms is known as a **controlled fission** of atoms.

As the initial fundamental plasmas were all made of the same initial fundamental particles of the same specific magnetic fields strength and interactions, in their disintegration of denser nucleus atoms, they split and gather into two or more new less denser atoms and of Magravs' configuration, and their need for the new equilibrium of collective plasmas of new atoms.

That is how the atoms are always split into exactly the same lower order of numbers of neutrons, protons and electrons in the new nuclei for the overall new balance pmtics of the two new atomic structures to be able to be kept.

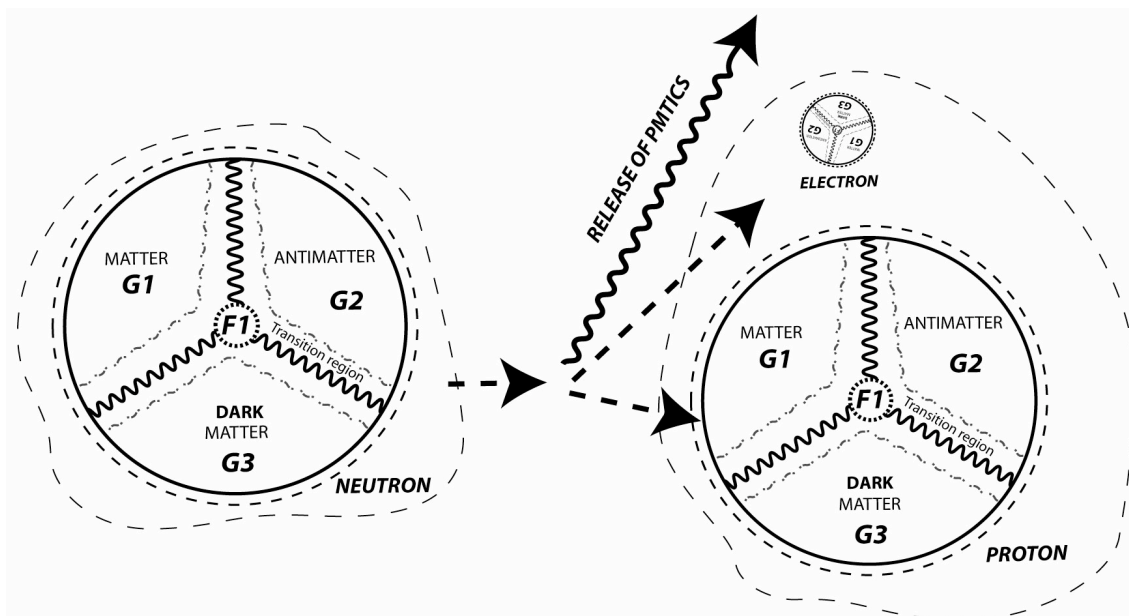


Fig. 43: Schematic of a decay of pmtics and Matters of the Initial Fundamental Plasma (NEUTRON), “the initial fundamental plasmatic decay”.

In principle the overall disintegration of all atoms heavier than Hydrogen, involved in the collective pmtics of a given matter, the collective pmtics of the residual matters is always constant, and of the same end-structure of new and lighter atoms.

The overall numbers of the plasmas involved in a structure of a given matter is said to be constant, purely due to the fact that the overall rate of interactions and disintegration of plasmatic magnetic fields are considered to take place at a constant rate. Hence, the phenomenon that takes about the same time for the plasmas to reach a point of using a given amount of dynamic plasmatic magnetic fields (energy), before they reorganise themselves to a new balance condition. This reorganisation or rebalancing of overall plasmatic magnetic fields of the components of nuclei, leads to the fundamental principle of the nuclear decay nuclear of an atom.

This reorganisation of the new plasmatic magnetic fields balance in mass of matters is in so many ways dependent on all of the atoms participating in the total structure of the mass of the matter. This is irrespective of the number of atoms in the matter, these being in the solid, liquid or gaseous state of matter.

The nuclear decay in some plasmas can be triggered and be due to internal changes in the plasmatic magnetic field's structural balance, or can occur due to changes in the external environment of the initial fundamental plasma. These changes can be due to the **changes** in the external equilibrium of magnetic fields forces or field strength of other initial fundamental plasmas, or surrounding plasmatic magnetic fields adjacent or near to the initial fundamental plasma.

This being why different atoms of a given matter decay at different rates depending on their position within the overall structure of tangible matter. That is to say ***the decay of atoms is environmental pmtics strength dependent***. Which the environment can be within the same matter construction of atoms, or the interface between the matter and for example matters of air. Where each environment enforces different rates of use of internal pmtics of different matters within the nucleus of that atom. This being the reason why different rate of decay of atoms within matters are considered to have a **half-life** principle. Where the half-life is, and can be pmtics strength environmental dependent.

Interesting point to consider:

Does the reorganisation take place in the same position first and the same number, which initiates the course of the decay in the rest of the mass?

Is the decay of an atom in a mass happening faster in the inner positions of the mass of matter, or on the edges of the mass?

CHAPTER 18

Neutron-Proton, Electron-Atom

Through the new understanding of the method by which the initial fundamental particles and their subsequent plasmatic magnetic fields interaction, leads to the creation of the initial fundamental Matters (Matter, Dark Matter and Antimatter) leading to the creation of initial fundamental plasmas or the Neutrons, the subsequent degeneration of initial fundamental plasmas through decays further leads to creation of protons and electrons of an atom, and their interactions and collections into molecules and matters (solid, liquid and gas).

Fundamentally, *initial fundamental particles interactions*, leading to the creation of different states of Matters and the creation of initial fundamental plasmas, where these plasmas are considered to be in a **total plasmatic magnetic equilibrium state** (Fig. 44 and Fig. 45).

The Initial Fundamental Plasmas are **neutrons** in characteristic. Neutrons (Fig. 44 and Fig. 45), in their construction, are considered as **balanced** dynamic plasmatic magnetic fields environments.

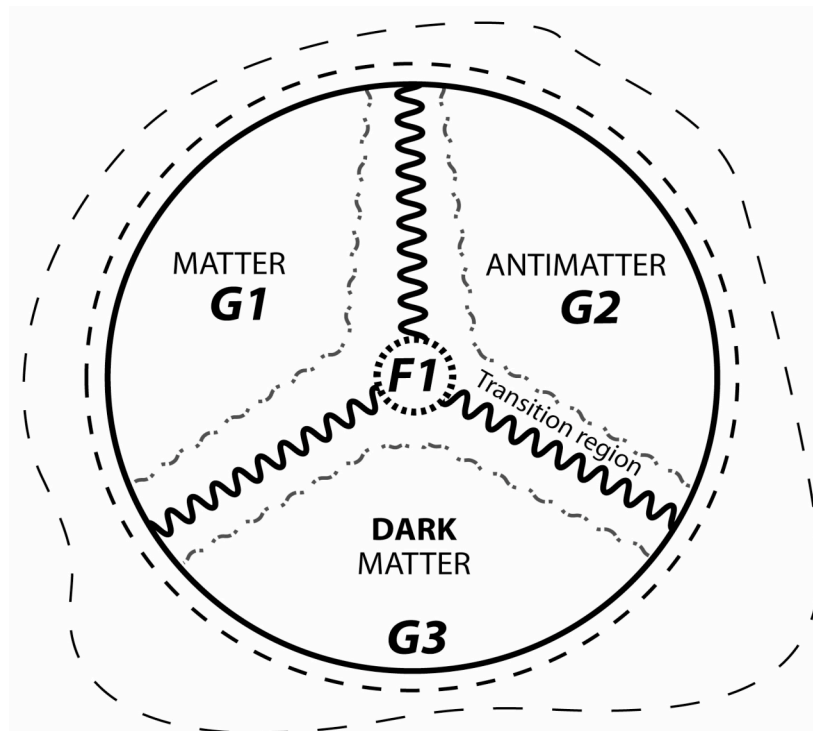


Fig. 44: Schematic presentation of the overall Magravs of Matters and the fields of the Neutron.

Neutrons, due to **the larger content of the three Matters and their F1**, they create a **stronger gravitational pull** between the Matters of the plasma, consequently their

overall Magravs of the initial fundamental plasmas are considered to possess more mass, than the total sum of the masses of the individual proton and electron, from the same plasma after its decay.

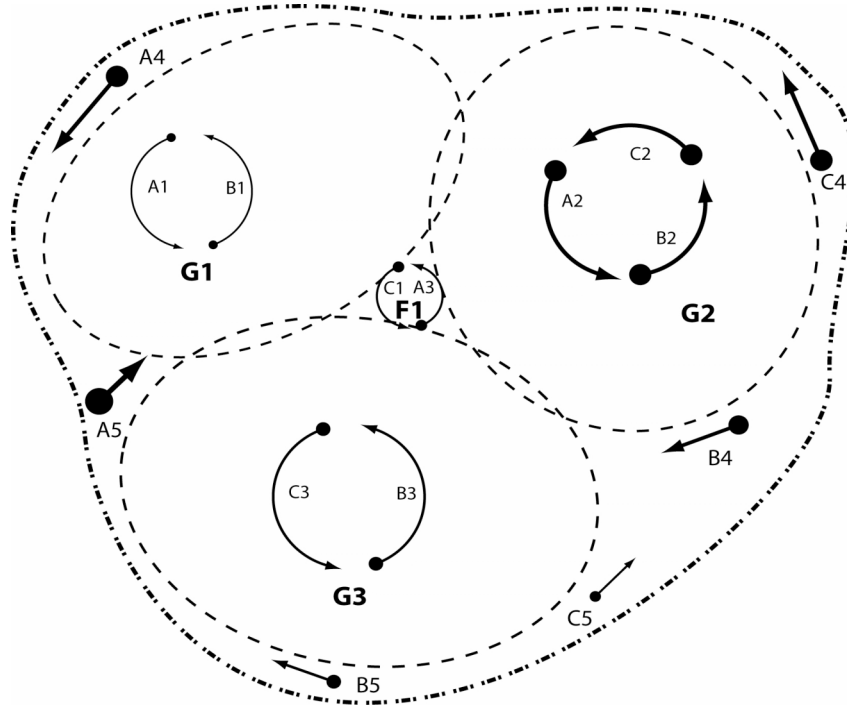


Fig. 45: Matters schematic diagram of the Neutron.

For the *initial fundamental plasma* to find its final balanced equilibrium plasmatic magnetic fields force strength condition, due to different effects, the initial fundamental plasma *reduces its plasmatic magnetic fields balance* to its **ground-level** magnetic fields mass level (Fig. 46 diagram 7) for it to survive, hence the initial fundamental plasma disintegrates or decays' to its sub-Matter levels and fields.

The decay of the neutron

This process has been explained in previous chapters where, now we look at this process in more detail.

The release and division of components of the initial fundamental plasma leads to the release of two independent, yet at the same time interlocked, balanced plasmatic magnetic fields environments plasmas (Fig. 46 diagram 8). Of these two new plasmatic magnetic fields plasmas, one would retain more of the initial fundamental plasmas' mass and be the larger of the two balanced plasmatic magnetic fields (Fig. 46 diagram 7). The second plasma will contain less of the pmtics of the initial fundamental plasma and mass and would be smaller (Fig. 46 diagram 6). The *larger of the two plasmas*, would *stay in the centre*, due to its mass and Magravs strength would become *the proton* of the atom (Fig. 46 diagram 8). The new smaller balanced plasmatic magnetic

fields released can be said to manifest itself as *an electron* (Fig. 46 diagram 8) of the same atom.

START OF THE DECAY OF AN INITIAL FUNDAMENTAL PLASMA

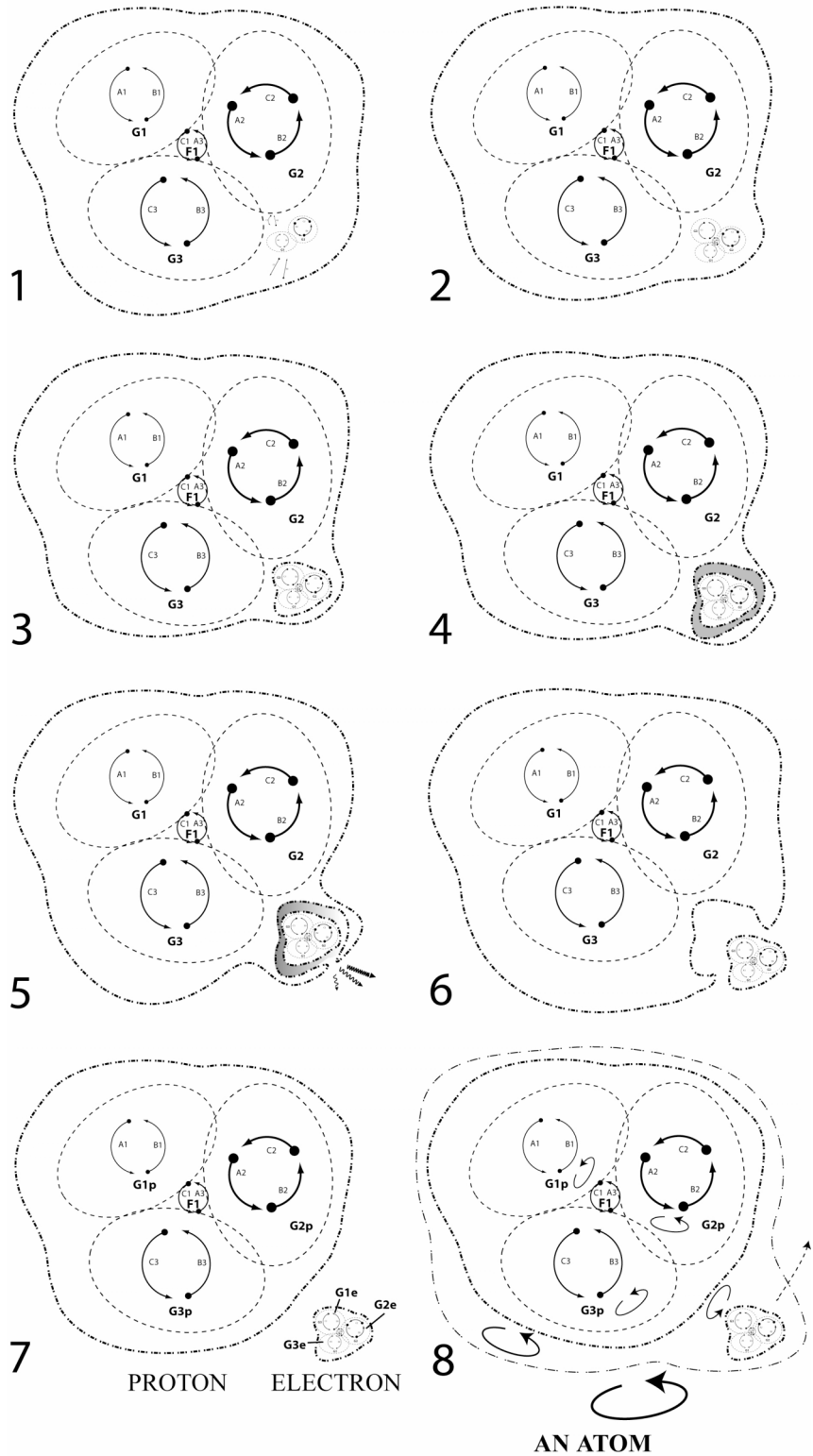


Fig. 46: The eight steps of the Neutron decay cycle to a proton and an electron and then an atom.

It is considered that the *pmtics of the Antimatter components of the neutron start the process of the decay* of the neutron. As the Antimatter is the main and the strongest of the Matters' of the initial fundamental plasma (Fig. 46 diagram 1), in comparison the Antimatter is the star in a solar system. Then the pmtics of the Dark Matter part of the neutron plasma splits simultaneously as the total balance of the Magravs forces of the plasma is disturbed (Fig. 46 diagram 1). This process is continued up to the point that, due to the cycle of separation of more and more of the two pmtics of the Antimatter and the Dark Matter, leads to splitting of the Matter part of the plasma (Fig. 46 diagram 4) as the plasma tries to keep its overall stability and equilibrium.

At this point, the pmtics fragments of the Antimatter, the Dark Matter, the Matter, and other pmtics within the plasma, through the dynamism of the plasma internal environment, are brought close to each other and then merge to produce a small and independent **mini-plasma** within the structure of the initial plasma.

Where this new embedded mini-plasma in the overall structure of the initial fundamental plasma becomes the structure of the initial fundamental plasma of the **electron** of the atom.

The plasma of the electron by this time is formed internally and has establishes its own balance Magravs zone and hence its own magnetosphere (Fig. 46 diagram 5 and 6). At this stage, the Magravs of the electron plasma tries to find and reach its own Magravs positioning balance in respect to the leftover pmtics and Matters Magravs of the initial fundamental plasma. At this point, as the two plasmas try to find their Magravs positioning in respect to each other, the electron plasma is pushed out-off the boundaries of the initial fundamental plasma (Fig. 46 diagram 7) environment.

At this point where the two plasmas find their Magravs positioning balance, this becomes **the gap between the proton and the electron**, or the ground energy level for the electron in respect to the proton' of the plasma. From this point on, the foundation for the final step of the making of an atom with contents of a proton and an electron is reached (Fig. 46 diagram 8).

Therefore the new balanced fields of the original initial fundamental plasma now becomes the components of the two newly balanced plasmatic magnetic fields plasmas of the proton and the electron of an atom (Fig. 48).

From this point on, the motion and rotation of the electron around the proton is set to follow, according to what is described in Chapter 19.

The similarities between the construction of the protons' plasma and the electron plasmas components of Matters, as both have started together quasi-independent life, from the same initial fundamental plasma mother (Fig. 47).

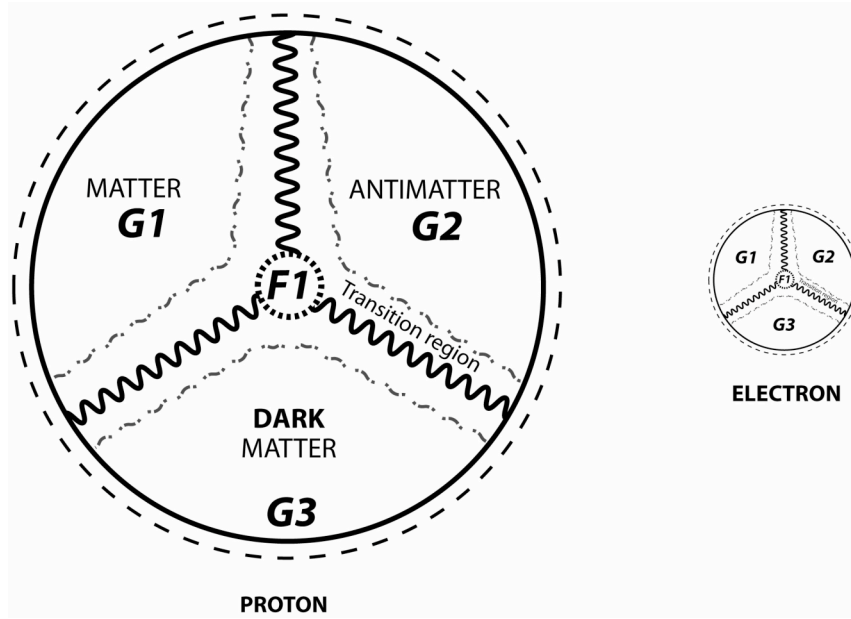


Fig. 47: Schematic similarities between construction of a proton and an electron (components of Matters).

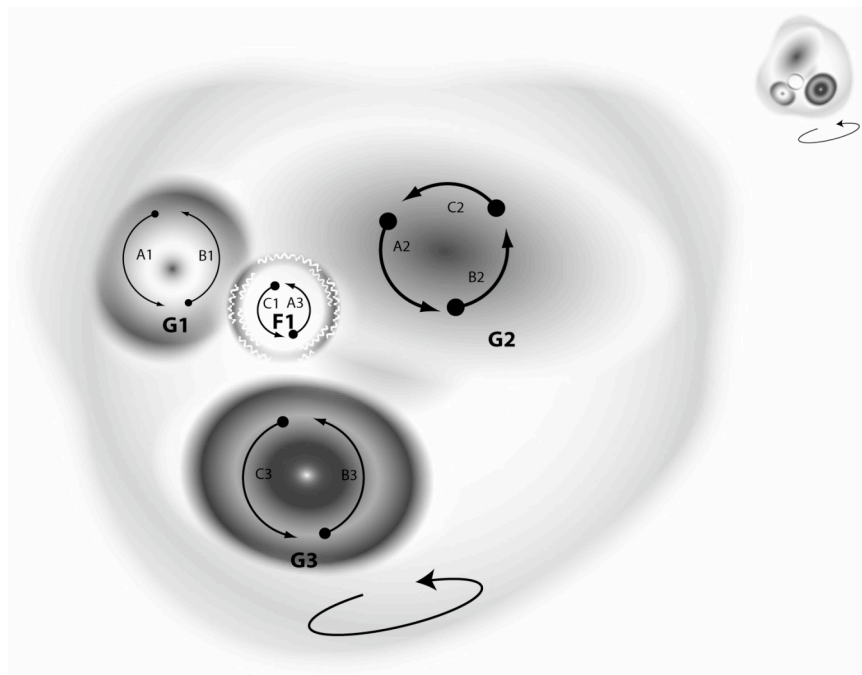


Fig. 48: Pmtics presentation of Initial Fundamental Atom (hydrogen).

As the initial fundamental plasma splits into two balanced plasmas (Fig. 46 diagram 1 to 8), this guaranties the total balance of the integrity of the complete original initial fundamental plasmatic Magravs configuration.

Thus, the splitting and decay of the initial fundamental plasma into the proton and the

electron (Fig. 48), called the *initial fundamental decay*, is a natural decay process as is the *nuclear decay* of heavier atomic structures into lighter atoms. Where as the plasma uses some of its pmtics to keep its position, motion and magnetosphere boundary, it needs to break up to smaller atomic substructures that can guaranty its overall magnetic and gravitational field structure, thus the term “*decay of the atom*”. This neutron division, to the substructures of a proton and an electron, is for guaranteeing the survival overall of what was achieved before for the creation of initial fundamental plasma (Fig. 48).

This method of the Initial Fundamental Plasma Decay to the proton and the electron is the reason why in atomic structures the number of the electrons and the protons have always been seen to be in *matching numbers*, as there is no alternative way in nature for the creation of proton and electron in the universe in general, however individual electrons can be produced from the pmtics in plasma dilution reactors.

In the construction of higher atomic number elements (Fig. 49), for the total balance in both Magravs of the nuclei and their respective electrons, these heavier atoms need to have more of the balanced plasma components of neutrons.

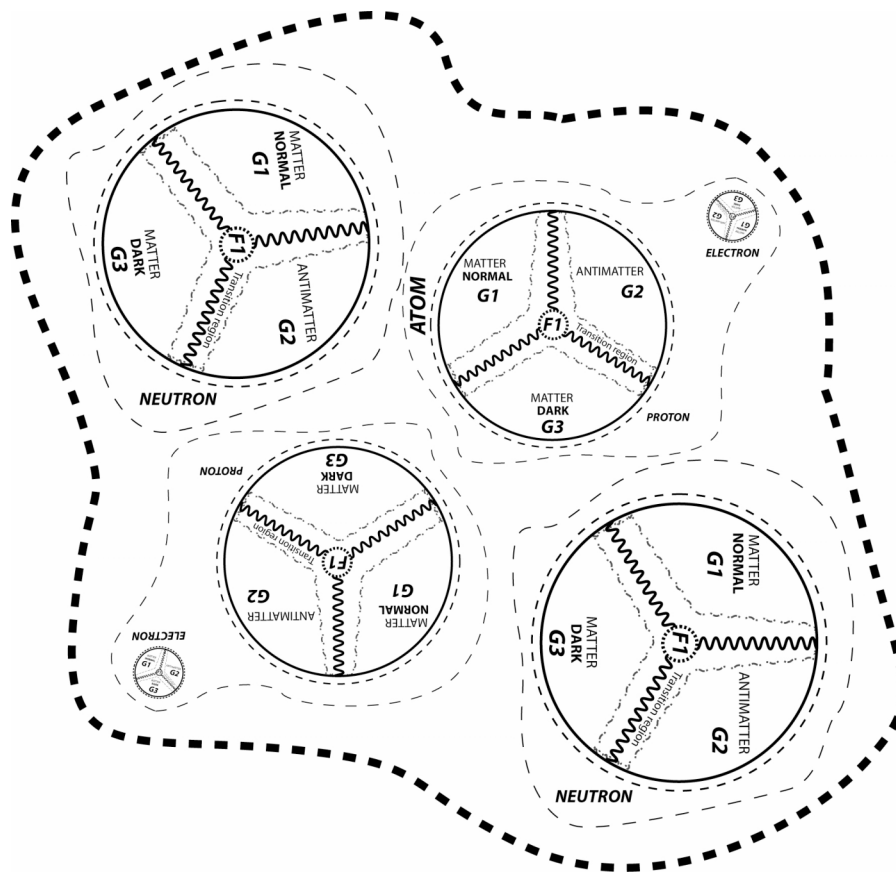


Fig. 49: Schematic of pmtics of a complex atom (like Helium).

Note: Through this simple configuration (Fig. 49), one can understand why certain chemical bindings and structure of some atoms and molecules of certain proton combination interactions in a given environment become possible.

In fact, the neutron, due to its balanced magnetic plasma or neutrality, and at the same time possessing its own Magravs magnetosphere, becomes the space gaps and space(s) needed for Magravs positioning of protons, in respect to each other, as much as magnetic fields equalisers or balancers in the construction of the nucleus of atoms with more than one proton (Fig. 49).

In the heavier elements, due to the tightness of packing, if there were not so many neutrons to create some magnetic and Magravs positioning balance gap, or what we call **gaps**, then due to the protons gravitational pulls, part of the nucleus would most probably clog-up, this being due to the interlocking of the Magravs of protons in the nucleus of the atom. In the majority of cases, this **clogging-up** would most probably lead to the explosion of the nucleus, due to *repulsion* of the fields or Magnetic fields of Magravs within the construction of the nucleus in being too close to each other's proximity. On the other hand without the existence of neutrons as a gap the nucleus would not be a gravitationally positioned stable configuration.

A configuration of the complex structure of the initial fundamental plasmas like an atom of the Helium and the positioning of its neutrons, protons and electrons are shown in figure 49. This shows the overall gravitational fields and Magnetic fields generated by interaction of these individual parts, in respect to the dynamic Matters and the fields each part produces both internally, and in their overall external boundary interaction of the plasmatic Magravs of the atom.

By a close observation of the proton and electron's Magravs balance, it is now clear how the *different **electron orbits** of heavier atoms* come to be created. That is to say, as the number of protons increases, the boundary of the Magravs of all protons in the centre of the nucleus increases, thus allowing and accommodating the next orbit for the motion and Magravs positioning of the next layers orbits of electrons. It has to be remembered that protons are *dynamic* entities, thus not more than certain numbers can revolve in the compact zone of a nucleus. So as the number of protons and their equivalent electrons are added to the nucleus, *more room is needed* for the *free* motion of these protons. Hence the only way a neutral zone can be created for the free motion of these additional protons for the structure of nucleus to be Magnetically and gravitationally in balance, is to add more balance neutrons to create an environment for the free motion of the protons and their Magravs positioning.

Thus as proton number increases, and the volume of the nucleus increases to keep all protons in motion, and hence more numbers of neutrons are needed. This is the reason why one sees a larger number of neutrons in the nucleus of heavy atoms. The more neutrons and protons are in the centre, the *larger the magnetosphere of the nucleus* boundaries. Hence, the accommodation of more electrons in *further distances locations* from the centre nucleus. Where all these electrons, protons and neutrons overall pmtics Magnetic field and gravitational field have to be at all times in balance.

It is fundamental to understand that “ the negative field charge of any magnetic fields is due to its Gravitational field strength or pull, and the positive charge of the fields due to the Magnetic fields strength or push of the Magravs of the Matter, like a planet.

In electric field charge and current flow, its to be understand that the **positive charge** is

the flow of the Magnetic field push of the Magravs, and the **negative charge** is the gravitational pull of the flow of the gravitational fields of the Magravs of the plasma and its Matters content. This in a way explains the ***Resistance*** and the ***Impedance*** respectively of the matters in the electrical section of physics. Where the impedance is the measure of the gravitational pull of the flow of the pmtics in respect to the matters' atoms and where the resistance is the measure of the Magnetic push of the flow of the pmtics in respect to the matters' atoms.

CHAPTER 19

Motion of the Electron around the Proton

The constant rotation of the electron around the nucleus of an atom indicates that the electron and the nucleus of the atom constantly maintain an overall balanced Magravs forces between and Magravs positioning, in respect to each other.

Within the structure of the initial fundamental plasma (the neutron), and through its sub-dynamic Matters (Matter, Antimatter, and Dark Matter) and at the same time, with all Matters of the plasma being in possession of their own independent internal dynamic plasmatic Magravs forces, they all exert dynamic and varying levels of Magravs on different constituent of Matters of plasma internally, which these field forces span beyond the boundaries of the nucleus plasma itself individually and collectively.

The total effect of these dynamic forces, from the nucleus plasma (proton) (Fig. 50), will affect the *path* of the *rotation* of the satelliteing electron around the nucleus.

Similarly, the *plasma of the electron* (Fig. 50) itself is *made of the same three dynamic plasmatic magnetic fields structures of Matters as of the proton in its nucleus*.

The effect of these **dynamic** plasmatic Magravs of different Matters in the centre plasma (**proton**) of an atom on the **dynamic** plasmatic Magravs of different Matters of the plasma of its **electron**, and their collective effect of each plasma on each other, is the reason why the electron does not have a constant and a defined path of motion around the nucleus.

That is to say, the electron plasma by itself is in possession of its own individual Matters' (the Matter, the Antimatters and the Dark Matter) Magravs forces' as well as their collective plasmatic Magravs forces of all the Matters of the electron, and the same applies to the Matters and the plasma of the proton.

As the Magravs of different Matters of the electron passes different Matter components of the proton, each of the facing Matters' Magravs forces within the proton and the electron have to interact with each other, plus the electrons' and protons' overall Magravs positioning in respect to that particular Matter in the proton and electron. Which, this type of interactions and Magravs repositioning between the two involved Matters of each plasma will keep on repeating on continuous bases as both the proton and the electron are independent dynamic entities. As the ever-continuous Magravs positioning between the two dynamic entities leads to the ever changing in position of the lighter by mass (the electron) of the two entities, to move around the proton, hence this chasing-up of the ever-repositioning movement becomes the "uncertain" position or erratic motion of the electron around its proton.

This giving the electron in that given configuration of interactions of the Magravs its *pulled closer to or pushed further away* from the nucleus. Then, immediately, the electron has to finds its new overall Magravs balance positioning, in respect to the

proton.

Then, due to the dynamism of both plasmatic Magravs of proton and electron, other Matters' fields in the two plasmas come into play and face each other and their Magravs of these two new Matters and overall Magravs have to interact again.

Therefore, the new facing Matter of the plasma of the electron Magravs have to find a new Magravs positioning in respect to the new Matter of the proton's Magravs and the overall Magravs of the two plasmas.

Further on, again, as both the proton and electron are dynamic, the electron has to find a *new Magravs positioning*, in respect to these new Matters facing each other from each entity interactions, this change of Matters facing each other takes place on a continuous basis, as different Matters and Magravs of both components and the overall structure of each atom come to exert their forces on each other and the overall balance distance of both the electron and proton position is to be maintained as every time new Matters in each entity come to face each other. We call this the ***Magravs positioning principle*** (or Magravs positioning).

The result of this continuous change of the Magravs positioning of the Matters of the electron in respect to the Matters of proton and their overall Magravs, causes and creates the motion of the electron around its nucleus.

The behaviour and interaction of the ever-changing of Magravs positioning of the proton and the electron Magravs in respect to each other, leads to the creation of an erratic, never duplicated path, and is the cause of the motion of the electron around the proton.

That is to say, as the electron rotates around the proton, its position and distance in respect to the proton changes, according to the overall position and balance of the gravitational pull forces and Magnetic field push forces of all three components of its Matters and their respective plasmas, in respect to the position of all three Matters Magravs of the protons' and overall Magravs of the proton.

Nevertheless, as the Matters, in the proton and the electron are both dynamic themselves, the rotation of the electron around the nucleus is changing by the principle of the Magravs positioning of the Magravs balancing. Where, this leads to the ever motion of the electron around the proton of an atom (Fig. 50).

As the overall strength of the Magravs of both components of the atom are the same, this leads to a minimum and maximum distance that can be attained by the electron field strength, in its position in respect to and from its proton. This explains why an electron appears to be moving erratically around the centre point, with a given minimum and maximum distance from the centre proton. This minimum and maximum is to be known as the amplitude (minus and maximum) of the distance of the electron from its proton.

In fact, as the Matters dynamic components Magravs of the electron interact with the combined dynamic Magravs of the proton, the electron, which is the less magnetically

dense of the two, has to try to find its position, in respect to all the components of the denser magnetic fields plasma of the proton.

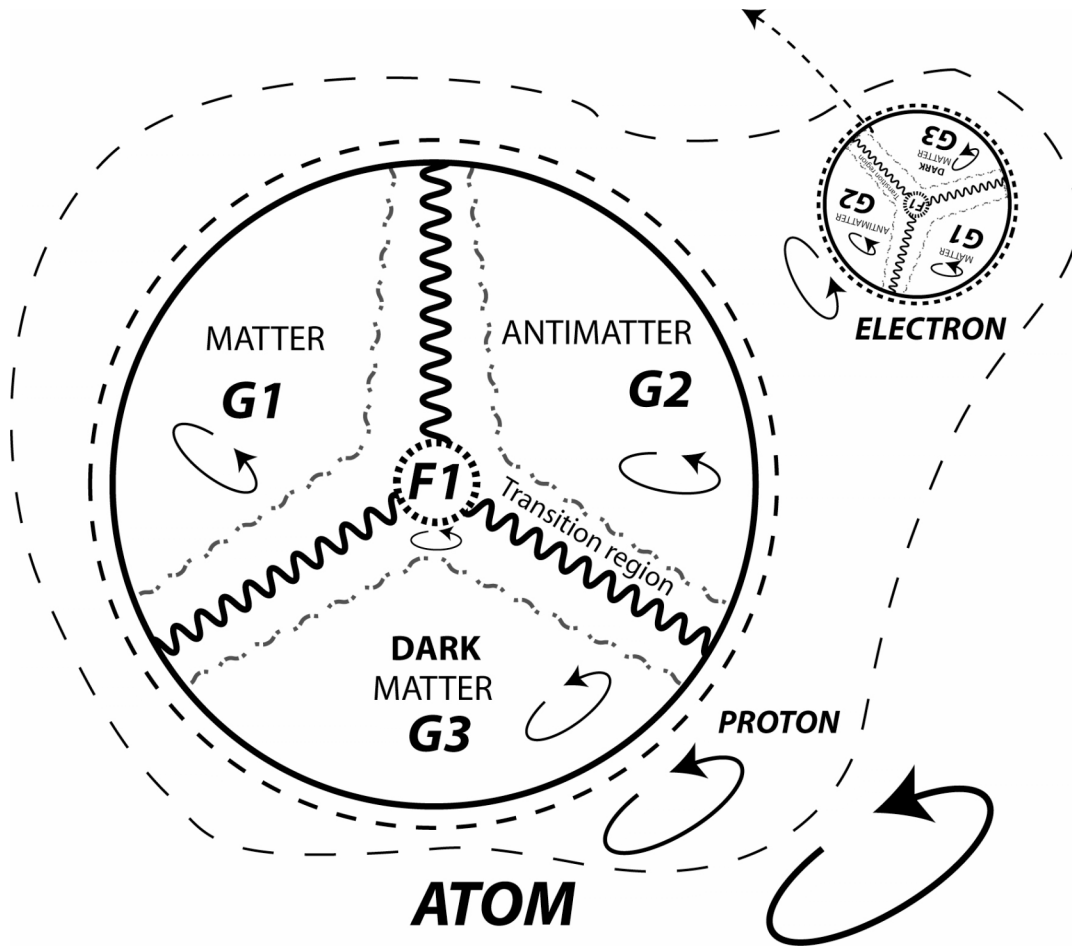


Fig. 50: Schematic of dynamic pmtics of Matters and fields of the proton and the electron and their interaction of individual Matters and their overall plasma and Magravs, leading to Magravs positioning and motion of electron in respect to its nucleus.

This continuous change in the Magravs positioning of the electron, in respect to the proton, leads to the continuous rotational motion of the electron around the proton (Fig. 50)

In fact, one can conclude “the proton and the electron are made up of composite Magravs of several different Matters by simply observing the erratic path of the motion of the electron around the proton”.

In principle it can be said that the magnetic fields strength of any magnetic fields or Matter is **position dependent** of the two parts of the fields from each other, which the field has been released from. This is how magnetic fields strength in principle are determined and created. (Paper: Creation of Magnetic fields).

For example, the interaction of the Magravs of the Dark Matter’s in the plasma of the electron interacting with the Antimatter’s Magravs in the plasma of the proton and their

overall Magravs of the electron and proton plasmas in respect to each other, decides the position and the distance of the Dark Matter of the electron in respect to the proton.

Universal Magravs positioning principle

The effect of the composite components of the proton and the electron's Magnetic fields and gravitational fields strength, changes the path of the electron as it approaches each Matter of the proton. In composite nucleus, the overall fields' strength of all the protons of the nucleus dictates the distance of the electron from the nucleus.

*All motions of objects and fields in the universe are due to the **overall** Magravs positioning of one pmtics of one object or ray, and so on, in respect to another.*

I call this dictation of position of an entity in respect to another entity, due to their Magravs positioning distance, the “**universal Magravs positioning principle**” for motion in the universe.

This Magravs positioning of Matter takes place within the constraints of Matters' possessing their own composite pmtics Matters fields' strength.

Universal method of motion

In principle, “the **continuous dynamic Magravs positioning** of one dynamic single ray or multiple Matters of multi-cores plasmas of an object in respect to another dynamic single or multi-Matters of a multi-cores plasmas of another objects, **leading to and/or can lead to and cause the motion** Matters, matters in the universe in respect to each other”.

I call this method of **continuous change in Magravs positioning** of one entity in respect to another causing motion in one of the two entities, “**The Universal method of motion**”.

Motions of atoms and their components interactions, the molecules, solar systems and galaxies in the universe, are all based on the **same simple universal method of motion**.

The dynamic plasmatic Magravs of Matters within the constituent structure of one entity dictates the position and direction and the path of the motion of one object in respect to another dynamic plasmatic Magravs of Matters within the constituent structure of the entity. Motion of components of atoms, motion of planets of solar systems and physical contents of motion of galaxies in the universe are all based on this principle.

The universal method of motion of any two gravitated objects in respect to each other is based on the dynamic plasmatic Magravs strength interaction and attraction of all of its complete composite components of Matters and forces within the object, **irrespective of the physical size** of the system. All universal gravitational objects follow the same

principle of motion as an electron around its proton, the same as is for the motion of Matters in the initial fundamental plasmas.

It is correct to say, “**motion in the universe** is totally and exclusively caused and is due to **Magravs strength positioning** of rays, fields, matters, Matters electron, planet, stars and galaxies in **respect** to each other”.

Thus from this point on it is clear that **one does not need to burn fuel** to create **motion, but use Matmags**. However, one only needs to create the right Magravs strength within any system to attain dynamic Magravs positioning in respect to another object, this being, a planet, a star, a solar system or a galaxy for the system to be in motion.

This method of utilising the plasmatic Magravs interaction for the creation of Magravs forces within a system, that brings about the motion of one object in respect to another due to Magravs positioning, is to be known as the “**Magravs positioning methods and universal principle of gravitational motion**”.

Thus, the Magravs positioning principles of motion are the future for the creation of motion for automotive, marine, air and space industry.

Through this method of Magravs positioning, there is no need for the burning of fuel in engines to move cars or use liquid fuelled jet propulsion systems to fly rockets into space.

When speaking about gravitational or Magravs positioning, this means the collective effect of gravitational field and Magnetic fields of one system in respect to another object or plasmas, Magravs of planets or stars.

It is important to remember that in the universal order of motion, the *plasmatic gravitational field* and *plasmatic Magnetic fields*, are *integrated*, thus simultaneously they co-exist and one cannot exist and operate without the other.

In the universe the **Magravs positioning of Antimatters** in respect to each other and their plasmatic magnetic fields does exist. Further, there exists the **Magravs positioning of the Dark Matter** in respect to each other and their plasmatic magnetic fields too.

The way the Magravs systems of the future will be set-up and operate will dictate in which gravitational fields strength and dimensions the crafts of future will travel in.

In man-made systems using the plasmatic magnetic fields of the Matters that, through their interaction with each other, create the Magravs needed for positioning: *simply by creating Magravs within a reactor*, and these systems will, by trying to find its new Magravs positioning balance in respect to the Magravs, for an example, in atmospheric area of the planet, cause the motion of the reactor system in respect to the surface of the planet.

The creation of motion through Magravs *positioning* can be used in an aircraft equipped

with gravitational reactors in respect to Earth, or with a spacecraft in respect to a planet(s), solar system or galaxy.

Methods based on the Grapos principle for motions are the future for the creation of motion in space, according and in parallel to the way the universe is operating for millions of years for its dynamic existence.

CHAPTER 20

Molecules

The creation of plasma and the way its plasmatic Magravs interact to bring about a balance in its overall plasmatic Magravs and their effect on each other, leading to further interactions and balances in different atoms and their components in different dimensions in atoms has been explained. This balancing and positioning of plasmatic Magravs in between different atoms of different Matters brings about how the final Matters, plasmas and atoms can be brought together, leading to how molecules are come to be generated.

That is to say, for the creation of a molecule, it is necessary that the plasmas of protons and neutrons of any nucleus of an atom, and atoms of different elements, need to have a total plasmatic Magnetic field forces and gravitational field forces positioning balance in a given environment so that these atoms can hold onto their total structure, for the molecules to be created.

Thus, by the same principle a molecule or a cell can only be created where, the Magnetic fields and gravitational fields positioning are in equilibrium in all its participant atoms plasmatic magnetic fields (Fig. 51).

At the same time, the whole of the structure of the molecules' plasmatic Magravs have to find plasmatic Magravs balance in respect to their surrounding environments Magravs for the molecules to be able to exist as an entity in a given environment. This in fact, explains why certain atoms and molecules, in certain configurations, can never exist in one environment, while they are prevalent in other environments, like planets, or galaxies and why different pmtics forces and conditions can apply to the same Matter, and Matter manifest itself as a matter in state of solid, liquid and gas.

Likewise, the same can explain why proteins of specific characteristics are created or maintained by certain cells in one part of the human body and not in other parts of the body (9).

In fact, if the same conditions of plasmatic magnetic fields are, or can be, maintained in any part of the universe, one can reproduce exactly all the Matters known to Man anywhere in the universe.

That is to say, when one can create the required balance and equilibrium environment in the total and overall Magravs of the atoms participating in the construction of a molecule, one can replicate and maintain any molecule. Therefore this explains that Van der Waals forces of **pull** and **push**, merely can be known as the **gravitational** fields forces and **Magnetic** field forces respectively operating between different molecules, irrespective of their binding structure with other molecules or atoms.

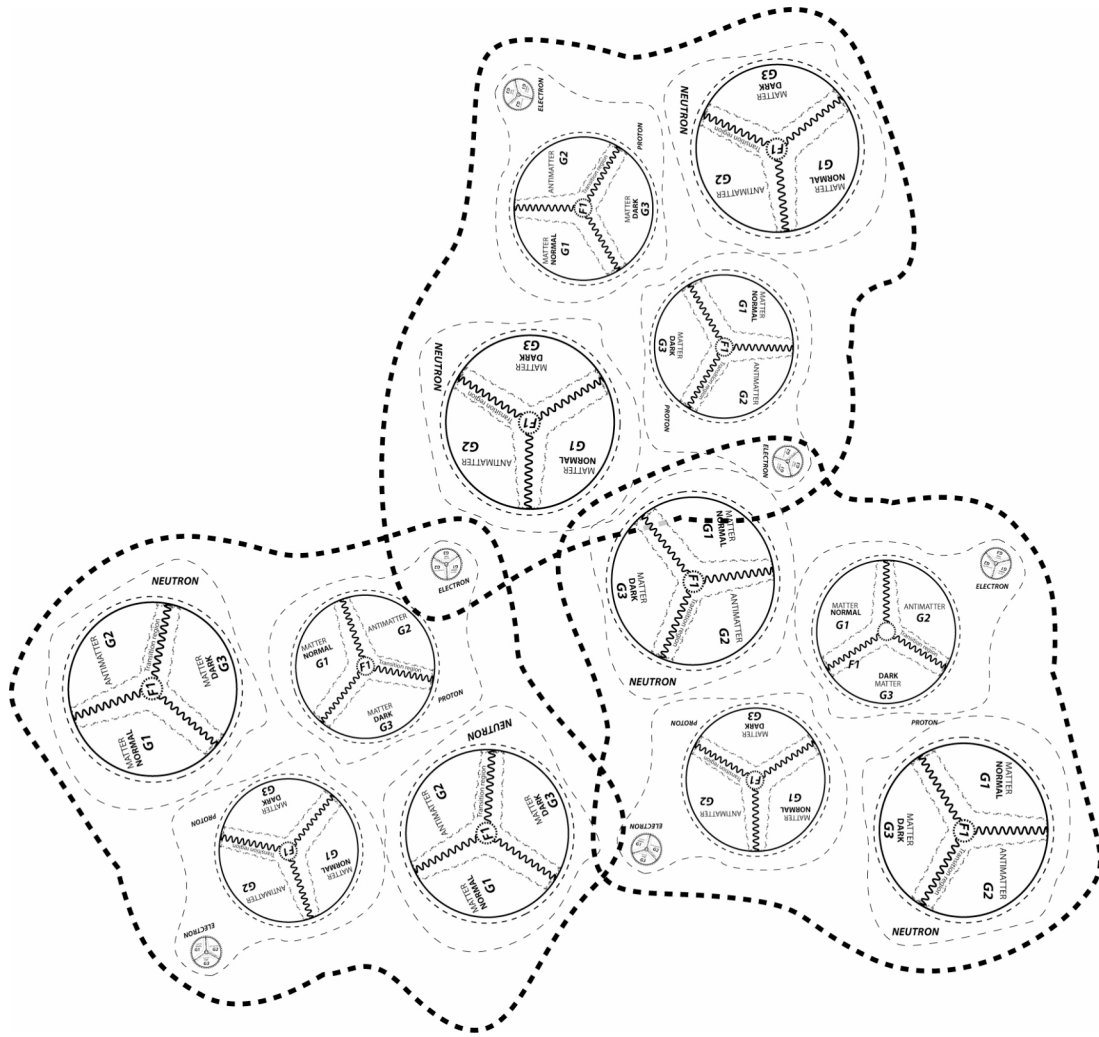


Fig. 51: Schematic pmtics of atoms gravitational (Magravs) positioning to form a molecule.

In the industrial Magravs reactors of the future, one can produce as many atoms as one needs by just absorbing the plasma from space or the environment, for any application and purpose like the production of the hydrogen molecules, carbon, nitrogen, oxygen for the production of proteins for food, air, water and so forth, by simply replicating the Magravs of the preferred molecules and allowing their positioning and interactions.

In the future, by giving a standard chart of Magravs strength and prevailing magnetic fields forces, temperature and pressure of plasma, atoms and molecules, one can produce and maintain any atom and molecule anywhere in the universe.

CHAPTER 21

Plasma Dilution Technology

The Plasma Dilution Technology is the new approach for the use of new gained knowledge for creation and control of plasma and its sub-Matters constituents Matters and their fundamental elementary particles.

The new understanding and insight into the construction and the structure of plasma and its constituent Matters and their magnetic fields, opens up new opportunities for the creation of energy and motion, production of new materials, for medical uses and so many other applications.

The plasma dilution technology allows the plasmas' Matters components to be diluted within a soup of Matters and their pmtics made up of exactly of the plasmas' own composite structure.

Through the specially designed ***nuclear reactors***, conditions are created within the structure of the reactor that the plasma is contained in a safe and secure way in reactors cores configuration.

The operation of these reactors can be controlled so that they do not release any radiation into the environment and they create no waste of any kind, this being the likes of radioactive materials or CO₂ waste, as has been the trend in the current nuclear and energy production industry.

Through the understanding and creation of a parallel environments, similar to the internal environment of the same weak plasmatic magnetic fields of the plasma itself, plasmatic magnetic soup environments are produced in these types of reactors, so that the plasmatic magnetic fields condition within the reactor cores matches the plasmatic magnetic fields of the binding forces (Coulomb Barrier) of the initial fundamental plasma, as the components of this plasma soup, this barrier is magnetically diluted and soften, allowing the plasma to open through the operation of the reactors, for the Matters of the plasma to become part of the dilution soup of Matters and fields forces of the reactor.

A soup of weak plasmatic magnetic fields

These plasmatic magnetic fields saturated reactors will allow components of any plasma introduced into the reactor to be loosened and, the Matter, the Antimatter and the Dark Matter of the plasma, to be free to move within the structure of the plasma soup, which has been created through specific setting and Matter combination. Matters once loosen from other Matters within the soup of the plasma, these are then free for their fundamental particles effects to be utilised to achieve any desired effects, like for fusion and production of new matters, lift and motion.

Reactors that facilitate such a dilution of plasma I call **Plasma Dilution Reactors** (Fig. 56) and their process of dilution as the **Plasma dilution principle** and their knowledge as the *plasma dilution technology* (Fig. 52).

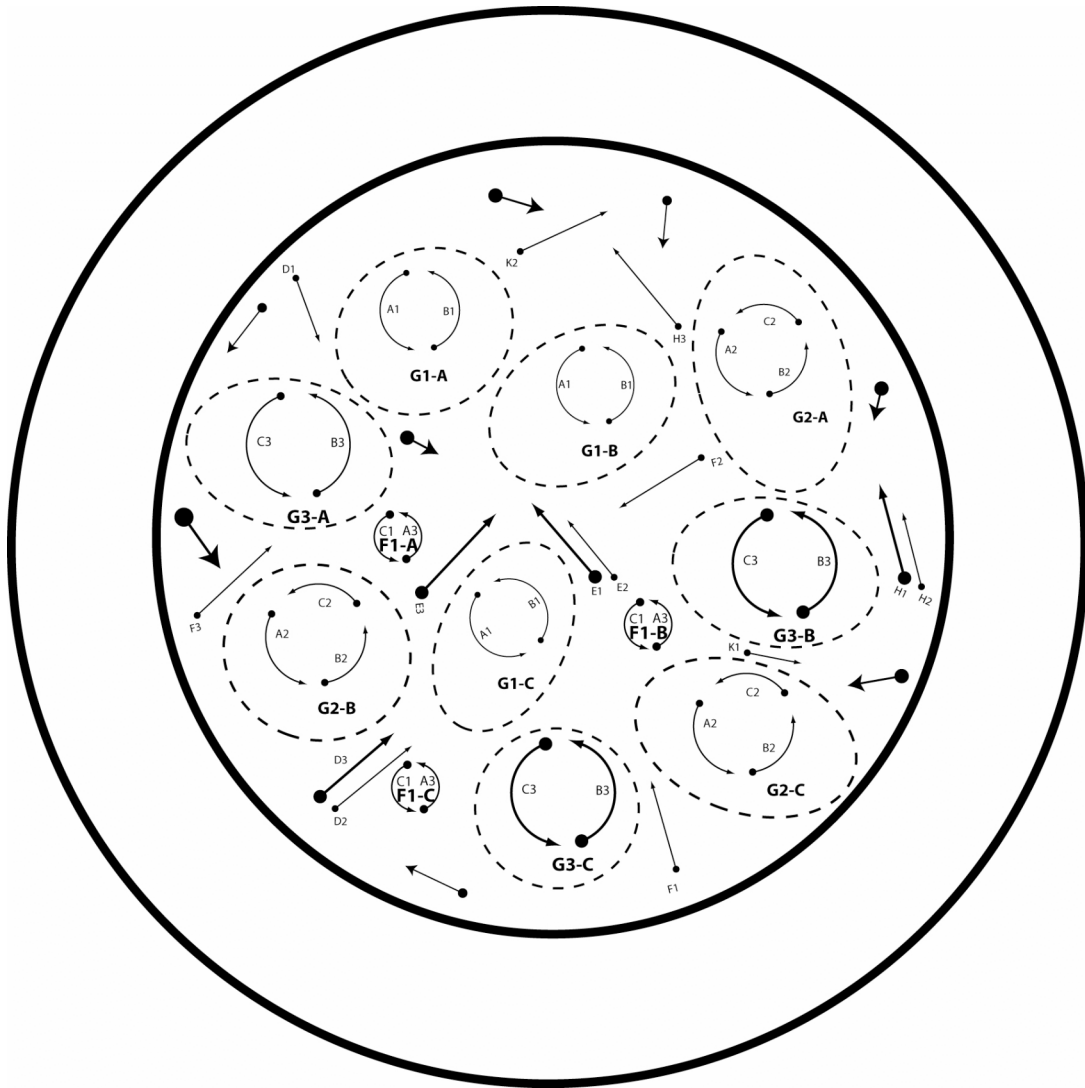


Fig. 52: Plasma dilution concept and technology.

Further interaction of the constituent principle plasmatic magnetic fields of the Matters of the plasma inside the cores of these reactors can create effects that can be used to achieve desired outcomes from their interactions with other Matters or matters and fields outside or inside the reactor's structural environment and this is exactly the way and the method that different entities in the universe function and operate to achieve certain desired effects and production of Materials.

Diluting the plasma in the larger pmtics environment of the reactor is another option in the nuclear world for achieving fission, fusion, production of new Matters, matters, for generation of energy and motion.

Disentanglement

Through the Plasma dilution process, once the new plasma soup is produced in the reactor cores, the weak interacting plasmatic magnetic fields soup interacts with the binding fields of the components of the Matters of the plasmas which are further introduced into the reactor cores, this allows the Matters of new plasma to disentangle themselves from each other (Fig. 53), if this level of dilution of new plasma is required.

In this process of plasma dilution, the sub-components of the plasma are allowed to loosen up from each other and not necessarily allowing the separation of all the Matters of the plasma from each other.

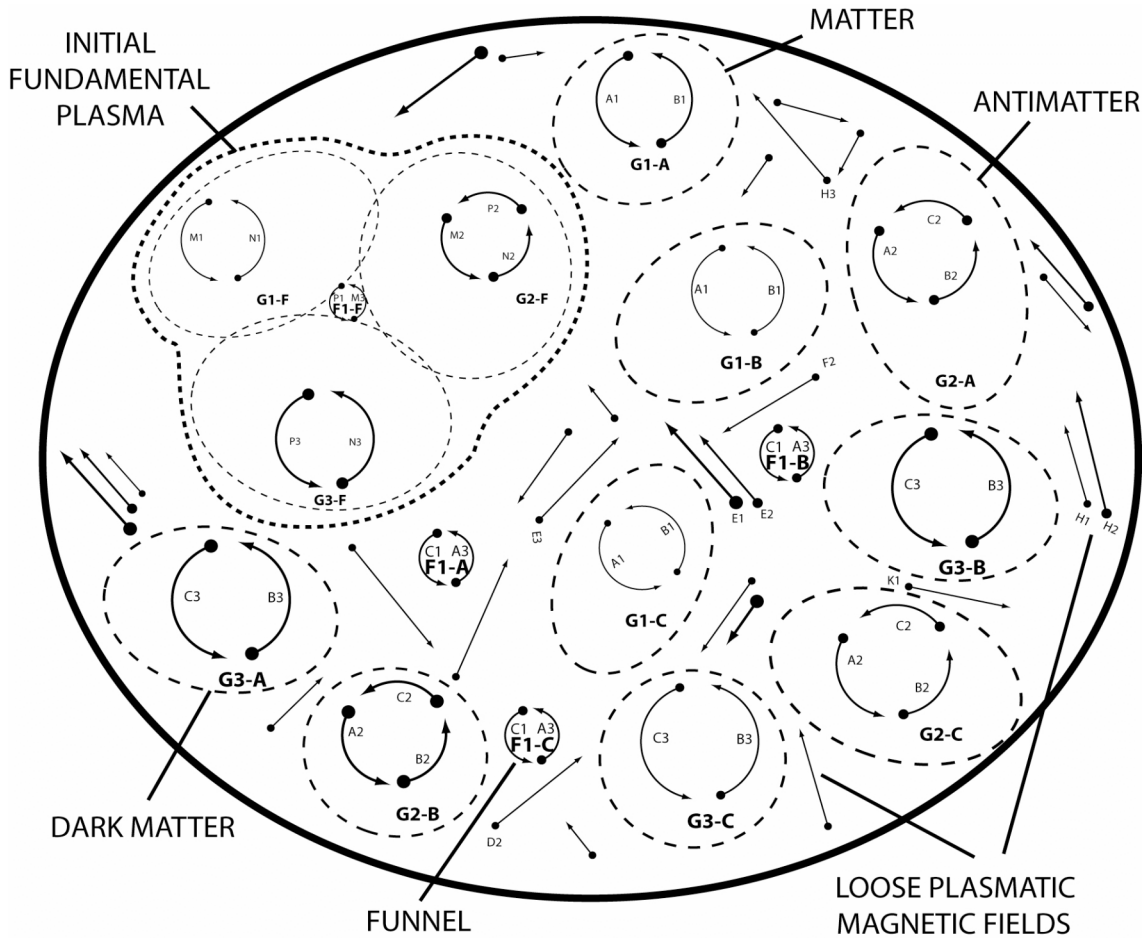


Fig. 53: Dilution process of initial fundamental plasma within a soup of Matters.

Through this method, different components of the Matters and fields of the plasma can be used for any purpose that the operator decides or that the system is pre-set to.

Hence, each sub-component Matter of the plasmas in the reactor can be separated from the plasma in any quantities of individual Matter within the soup.

while (6, 7 and 8).

In the same way, the plasma dilution reactors can be used in the fusion industry where, present technology uses huge enforcing magnetic fields to force the fusion of plasmas.

With the plasma dilution method, the components of the plasma are opened up, in a soft way, loosened, and then are allowed to be separated from other Matters in their surroundings, and into their specific sub-components, interacting collectively in the soup of the Matters for their use for any given specific purpose (Fig. 54), like for fusion of Matters or matter.

These reactors even can be used for fusing components of two plasmas together. If the Antimatter is needed to be separated from the Matter, this can be easily done, as by creating a weak plasmatic magnetic field, around the plasma, then, the Antimatter components of the plasma can be separated for the use of their plasmatic magnetic fields properties and effects for example for the production of powerful Magravs forces. Where, the rest of plasmas' components are then *left in the dilution soup*.

When one has used these freed Antimatter plasmatic magnetic fields for their effects they create, for the purposes that one needs, then the system-loading Magravs configuration and parameters can be altered to *change the dynamism of the reactor*, and gradually disassemble the dilution fields. Then the Matters of the plasma are allowed to return to their original Matters' components state of the plasma, and for the plasma to return its atomic structure and so forth.

All these reactions can be created and controlled without the creation of unstable or high temperature environments as is seen in the universal order of creation of Matters, energy and motion.

At the same time, there is no need to hold on to certain Matters and to run expensive holding systems for Antimatter as done for example by Fermilab at the present.

All these processes are carried out without any release of radiation or the production of new radioactive waste.

These effects can be created at room temperature and within portable safe nuclear reactors, which have been designed, developed and tested in the past few years.

There is conclusive evidence from tests, that the principle of the untangling of plasmas' magnetic fields binding forces through plasma dilution technology is a proven fundamental principle for the future of energy production and creation of motion for space travel.

That is to say, that we have seen the effects that Antimatter in being loose in the cores of the reactors to possess stronger fields and create stronger Magravs forces than the Matter components of the same plasma. We have managed to lift and reduce weight of reactor systems in respect to its environment, and we have create new matters, all at room temperature, in the recent past through the operation of plasma dilution reactors, as we have reported and applied patents for.

This stronger characteristics and effects of Antimatter are purely due to the fact “that at the inception of the plasma, the Antimatter components of the plasma were created by the stronger plasmatic magnetic fields to start with”.

Similarly, gravitational field forces of the Dark Matter components of the plasma can be used through the plasma dilution technology for the creation of high-speed motion without friction for crafts of the future in space technology, or these reactors can be used for the extraction of poison from a substance like water or air.

In testing for the production of the Dark Matter principle, systems have been twisted in their axel and damaged, confirming the enormous power of invisible, powerful, Magravs of the Dark Matter.

In general, it can be said, “The future is **bright**, the future is plasmatic magnetic fields based, through the production of controlled plasmatic dilution technology reactors”

CHAPTER 22

Matters and Magravs systems

The technology that uses the properties of the Matters of plasma to create motion and energy, instead of the present use of matter, I have called *the Magravs positioning Systems Technology*.

The fundamental difference between the **Matter** gravitational technology and **matter** propulsion and energy systems can be explained in simple way.

matter propulsion technology

The present **matter** propulsion systems in burning fuels have **to fight and to overcome** Magravs of the planet for **lift and motion**. This we see in the rocket propulsion space technology of today.

In the matter systems, like the propulsions systems, power stations and cars use the fundamental principles of *burning matter* to release its energy and convert this energy from one form to another to create motion and energy. This technology has always delivered *limited energy*, and due to its bulkiness of mass and weight of the fuel that have to be carried by systems to achieve their objectives, these systems are payload dependent.

The matter system uses the *Matter part of plasma*, the **weakest** and **least energetic** part of the plasma. By their nature as has been seen in the past, matter systems create different type of waste, like CO₂, nuclear waste, and so on.

Matter gravitational technology

The **Matters** Magravs system uses the *properties of the all Matters* in the plasma to create motion, lift and energy without destroying the characteristic of the Matters, and the system works **within** and through the **Magnetic field** and **gravitational field** of its environment to **attain position and motion**, one can achieve more working *within than fighting against* the Magravs of the planet.

In the present state-of-art technologies, always the matter components are considered for their physical **action and reaction**, and not their Matters field's components.

Matters used in the Magravs systems, uses the properties and interaction of all the initial fundamental particles properties of all Matters within the components of the fundamental plasma, "Matter, Antimatter and Dark Matter". There is no need to "react" as in the matter processes, since the system works' within and is part of the same

magnetic fields base system and works through the universal natural forces. Therefore there is never a need for reaction for motion, as the system always magnetically balances itself in respect to other magnetic fields forces.

These reactor systems are developed to function in the same way as the interaction of the initial fundamental particles leads to the creation of Magravs for the motion of Matters through the Magravs positioning principle in the universe.

In these systems, there is no destruction of Matter, since the system can use Matters pmtics properties for the enhancement of Magravs positioning, for the creation of motion and energy and so forth.

This method of the use of Matters creates heat, if it is needed from a system.

As it has been observed, stars create massive heat to create vast amount of energy and Magravs forces, through tests it have been proven that the creation of motion and energy by the use of Magravs forces, these systems creating effects which are *temperature independent*.

Used in the atmospheric conditions, the Grapos, through the principles of the creation of plasmatic Magravs within the cores of the reactor and their interaction with the plasmatic Magravs of the planet, this interaction of these two Magravs, leads to creation of a *magnetosphere* around the systems. Where, the interaction of plasmatic Magravs of the system and the planets Magravs always lead to *the creation of light* around the system. This light being created through the principle of interaction of two plasmatic magnetic fields as was explained in Chapters 7 (Fig. 29 and Fig. 31). This is exactly how the magnetosphere of the Earth is created in respect to the Magravs interaction of the Earth and the Sun, and the same principle as for the creation of the daylight as seen around the Earth.

The magnetosphere created around the Magravs system, can be a spherical or oval bright light in shape depending upon the speed of motion and protection chosen by the operator.

In the **Universal systems** like stars, **their Magravs forces** are *fixed* by their initial matters' contents in their inner cores at the point of the inception of the star, and the magnetic fields strength they generate for the production of their Magravs strength, once the strength of the Magravs is set for the stars, these cannot be changed arbitrarily to achieve different Magravs strengths for the stars.

Whereas in the **Grapos reactors'** developed for the motion of crafts, the **Magravs** parameters of these reactor systems *can be changed and manipulated* according to the position, speed, energy and so forth, as is desired of the system by their operators.

In these systems, the reactor-operator dictates the Magravs strength of the system, therefore he decides the speed and the position of the craft at any position in space in respect to another Magravs system, the like of the Earth surface or a given distance from the moon or galaxies.

Interesting enough, all these effects of motion are achieved even though the system uses the same fundamental methods and Matters as in the cores of the planet or star that the systems is operating within or aiming for.

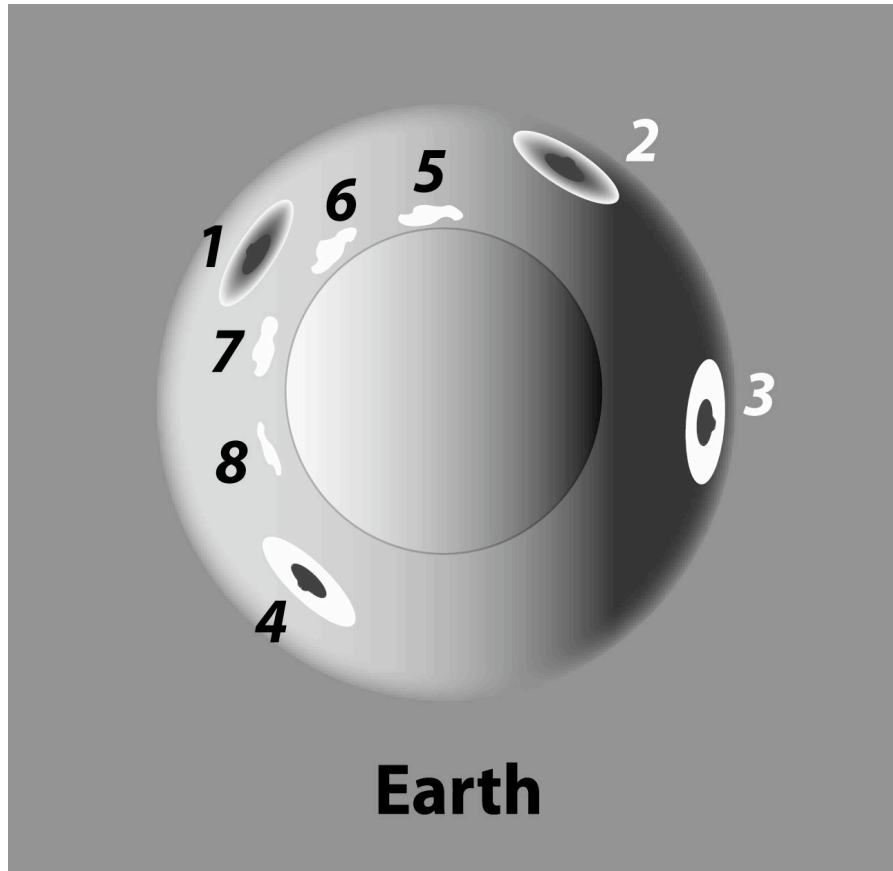


Fig. 55: Representation of interaction of four different pmtics strength of gravitational (Magravs) positioning systems (Grapos) in respect to Earth pmtics Magravs (1, 2, 3 and 4).

Note: Figure 55, numbers 5, 6, 7 and 8 show that the position of clouds in respect to Earth are pmtics Magravs strength dependent, and not size or volume dependent.

Thus, wherever the Magravs principles reactors are used for flight in a system, like in atmospheric condition of the planets', the natural outcome of the interaction of the two pmtics Magravs of the environment and the reactors Magravs is the appearance of and creation of natural light around these flying systems (Fig. 55 light regions of 1, 2, 3 and 4). Thus, the same Magravs positioning systems can be used, to produce lamps that can create light for years without needing to burn any fuel or consuming electricity.

Simultaneously, in a dense plasmatic magnetic fields environment, like the Earth, when the Grapos are used for motion and lift, due to the interaction pmtics Magravs, of the Earth and the system, these systems will produce their own magnetosphere around them. This magnetospheric light intensity is reactor Magravs' **strength dependent** and through the principle of interaction of two pmtics of plasmas as was discussed before, these magnetospheres will cause the creation of bright light around these systems in the

Earth atmospheric condition. As the brightness of the magnetosphere around the system in respect to its surrounding pmatics strength will be dependent on the strength of the plasmatic magnetic fields that are created by the Magravs positioning reactors, and in respect to the systems' position, considering that the plasmatic magnetic fields of the Earth is constant.

Thus, the confirmation of systems using Magravs positioning technology for motion in dense atmospheric condition like the Earth will be the appearance of bright moving lights (Fig. 55 lights 3 and 4) in the Earth atmosphere or any given atmosphere or medium in the universe. In dense atmospheric conditions, these Magravs systems will be appear to be a shining bright light floating in air, either with high speeds or seated stationary.

In some literatures, systems that use Grapos for motion and appear as bright lights from an unknown source in the skies have been called, the Unidentified Flying Objects, also called **UFO's** (Fig. 55 lights 1, 2, 3 and 4). Now that the method by which these bright lights in the sky are produced, their operation understood, and known, these crafts are not Unidentified Flying Objects no longer.

Nevertheless, in reality, it is now interesting to see who are the users of these systems. Whoever are the users' of these Magravs systems, this does not necessarily means that they are more advanced in scientific level than the human race in its present scientific and technological evolution. However, this simply means that they have managed to harvest the principles of the plasmatic magnetic fields, and the constituents of Matters, some time before the human race.

Now that the technology and the principles behind the plasmatic Magravs positioning fields are open to the human race, it is not hard to see that interaction with users of these bright lights will be inevitable and will only be to the Mans advantage, to help man to reach new levels of understanding about his universe.

In tests, the effects and bright light created by use of these reactor systems, which have been developed and tested for weight reduction and lift, has been noted.

The operation and interference with the radar and radio frequencies, through tests running of these Magravs positioning reactors have been videoed and recorded in August 2008. This confirms the origin of the motion of these systems to be on a plasmatic magnetic fields basis, as the system's Magnetic field operation interferes with radio waves, which radio waves are magnetic fields based entities.

NASA has done tests on these types of magnetospheric condition and motion system, on a miniature scale, in advance concept projects known as MINI-magnetospheric plasma propulsion project called M2P2 (40). They have achieved this by using the argon gas up to this stage. They hope to be able to finance the project to reach helium and then the use of hydrogen as base-material in years to come. They may then use plasma of hydrogen atoms later as they progress in gaining knowledge in 30 to 50 years and having the budget. However this is still one of the theoretical approaches for NASA.

Fermilab (6, 7, and 8) is looking for the Antimatter as the “fuel” for propulsion systems of the future space programs for NASA. If they redirect their attention into the properties and the effects of the Antimatters that they have gathered by now, they can achieve the same results as have been seen and tested in the recent Magravs systems reported on our Foundation web site and patents that have been applied for.

Through the understanding of the real forces in operation of the universe, the Magravs positioning reactors are simply years ahead of their time.

Our Magravs positioning reactors are not in a mini-scale dimension as NASA’s project has tested and envisages at this moment in time, but these are in several sizes, which can create controllable size magnetospheric conditions, as the operator of these simple systems sees fit the purpose.

In the near future, these Magravs systems will replace the propulsion systems that have been used for space explorations and air travel.

The advantage with the Matters powered Grapos is that these systems create a magnetosphere around the reactor system. This is the same natural magnetic protection barrier for the future spacecrafts as the magnetosphere around the Earth has been, protecting man from space debris and cosmic radiations for billions of years.

These systems’ magnetosphere protection capabilities can be used to protect the craft in deep oceans from water and the crafts to be used like the submarines of today, with the difference that these systems magnetosphere will allow these crafts to reach the deepest parts of oceans floors without any problem, as they can reach any depth in liquid planets in the universe.

The magnetosphere generated by Grapos will create *magnetic shielding* at Matters’ level of the plasmas that can be used to pass through materials like ice without melting their matter(s). But simply by diluting the ice Matter(s) at plasma levels as in the plasma dilution reactors. In these conditions the crafts will appears as the craft will come out of nowhere and with no holes indicating the position of the exit from the ice by the spacecraft. If observed from the distance these crafts will be like bright lights shining and jumping out from the ice-covered sea-surface.

These plasma dilution Magravs positioning systems, by the use of Matters, will be the only solution for plasmatic saturation, once these crafts will pass and go through cosmic dusts as they temporarily disentangle the Magravs of atoms and plasmas of these cosmic dusts by just diluting the components of the Magravs of the Matters of cosmic dusts with the Magravs of the craft protection magnetosphere, and the craft passes through the dust matters as if they were not there.

CHAPTER 23

Matter Pmtics in reactors for lift and motion

The utilisation of the Magravs forces of dynamic multi-core systems, in respect to each other, for the purpose of the creation of lift and motion is discussed in this chapter.

In multiple cores *dynamic plasmatic dilution Grapos* that have been developed and tested at room temperature, these systems have proven to have the capability to produce different plasmatic Magravs forces strength as strong as those of a hot centre core object, like the Earth.

Using the principle of the creation of dynamic plasmatic Magravs forces within the structure of a multi-core reactor, the system can be caused to find its own position in respect to the environment of a planet or any Magnetic field and gravitational field forces in space.

In developing and achieving the Magravs positioning of these systems, in respect to the planet's Magravs forces, on the surface of the planet, leads to the reduction of the weight of the system to start with. Once the two plasmatic magnetic fields of the planet and the system reach **the total balance or equilibrium**, the **zero weight** of the system, in respect to the planets gravitational fields at a given point and the position, is achieved.

From this point of **total equilibrium** any further change(s) in Magravs force strength of the reactor in the same direction and configuration as before, this leading to and causing the **free lift** and **motion** of the reactor system, in respect to the planet.

Principle concept of upward or separation motion

The upward motion of the systems in respect to the planetary fields or any other Magravs systems is simply due to the fact that the **Magnetic field of the planet** and the Magnetic field of the system is of the *same polarity*. Thus, the two similar Magnetic polarities **repel** each other, hence causing the upward or separation motion of the system.

It is fundamental to understand that: In the Magravs positioning reactors **“The repulsion of two objects or moving away from each other, like moving away form the surface of the Earth, is totally due to interaction of the two pmtics of Magnetic fields forces of the systems and of the planet.**

Whereas, any closeness or gravitation of the reactor system in respect to the planet is controlled by the pmtics of the gravitational fields between the system and the planet in respect to each other.”

This is how Magravs positioning reactors, in possession of dynamic cores, create up or down (lift and descend) motion in respect to another Magravs of an object, like the Earth.

In these systems by changing the strength of any of the gravitational or Magnetic fields strength within the reactors of a system, this system, necessitates the finding of a new balance position between the system and the planet's Magnetic and gravitational fields.

By changing the parameters of the reactors and for the reactor to find a new balance between the systems' own Magravs and the planetary Magravs, this causes the motion of the system as it tries to reach the newly desired balanced Magravs force position, in respect to the planet Magravs.

This is the universal method of **creation of motion *without burning an atom*** of any matter, and this is exactly how all the celestial objects find their position and motion in the ever-dynamic environment of plasma of an electron in an atom, solar systems, galaxy and universes.

The motion of the system is purely due to the phenomenon of **Magravs positioning**, of one system in respect to the other(s).

Simple, portable, plasma dilution nuclear reactor systems, can produce the required Magravs forces within its reactor cores on a continuous repositioning criterion bases that can cause the motion of the Magravs positioning system (Fig. 56).

In these Grapos, the individual pmtics released in the central core (Fig. 56) in their interaction with the compatible and matching pmtics' strength of other pmtics *in the same core* can then collectively interact with the same collection of pmtics created in the other cores of the reactor (Fig. 56), and interactions and interlocking of the same pmtics strength in *different cores* of the system leads to the creation of Magravs within and around these types of reactors simultaneously.

By referring to figure 1, 2 and 3 in the early chapters, then it can be realised that, what has been achieved in these dilution plasmatic Magravs positioning reactors (Fig. 56), is exactly what has been going on in inner cores of planetary systems such as the Earth, to create their Magravs for them to hold on to their components through their gravitational fields, and at the same time to protect their matters from other celestial objects through their Magnetic fields, and at the same time create positioning in respect to other Magravs, at the same leading to creation of motion of the reactor. These reactors are truly an all ***integrated system for flight and motion***.

At the same time, these reactors during their operation within a craft system creates' and maintains' an independent internal gravitational field forces within the reactor cores fields catchments' zone. For example these properties and effects can be used to maintain an earth, one-G gravitational field force within the confine of any spacecraft, independent of the position and speed of the craft where, this position in the universe might be.

These reactors in collaboration and simultaneous production of the Magnetic fields and

gravitational fields leads to the creation of a distinctive and separate magnetosphere around the reactor or the craft which, uses such reactor technology, similar to the Earth atmospheric magnetic field.

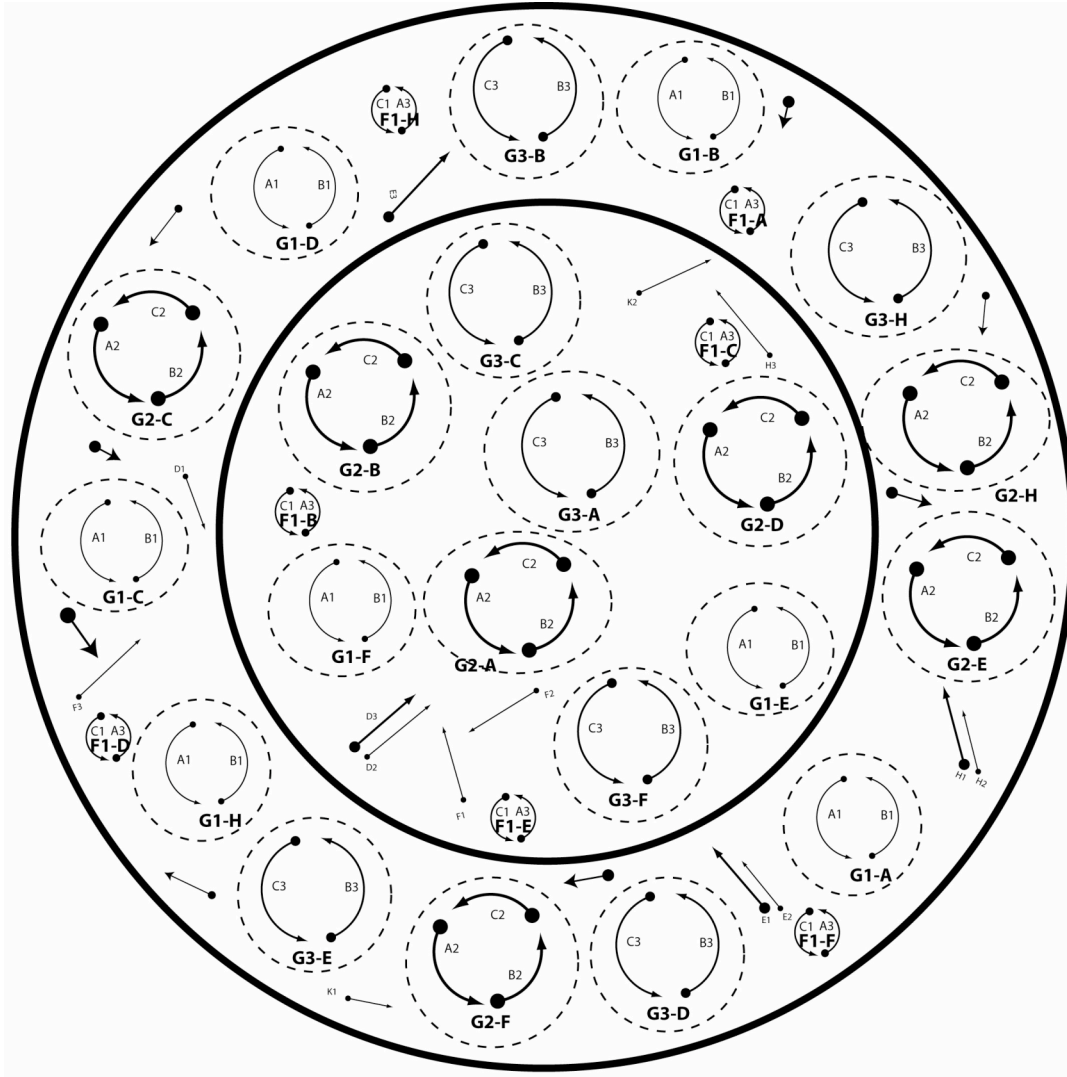


Fig. 56: The Keshe Model of Plasma Dilution and Magravs positioning reactor.

Thus, the Grapos are exact copies of the planetary Magravs producing systems. Similarly, they utilise the same Matters inside them, and the same principle of interaction to create Magravs between the systems and a planet. This being the same principle as, between the Earth and the Sun field forces and the Earth, and the rest of planets in the solar system and the same system principle as between electrons and protons. (Fig. 57)

Therefore, by changing the strength of the Magravs strength of Grapos, these systems can be positioned in any orbit or position around the Earth (Fig. 55, Fig. 56 and Fig. 57 c), in the solar systems or galaxies, with the use of Matters, rather than matters in the system.

In other words, the balancing of two Magravs' forces of the system, in respect to the planetary Magravs forces, leads to lift or descend of the systems. This separation only leads to a vertical up or down motion of one-system field in respect to the other systems' field. This means lift or descend of the system in a craft takes place vertically and not a 360-degree directional motion of the system.

In current physics, scientists call this the anti-gravitational field forces needed for lift and these systems are called anti-gravitational systems.

In reality, any motion of a system is not due to anti-gravitational field forces, but in fact is due to the total balancing of the gravitational field and Magnetic fields of the two systems of the planet and the Magravs positioning of a reactor, in respect to each other in a given position.

For directional motion, the same principle as vertical lift is used with the difference that in the directional case, the ratio of change between Magnetic fields and gravitational field created within the system are utilised, as the two field forces in the reactor of such a system have an opposite gradient of scale of strength with each other. That is to say, the control of the creation of gravitational fields increases with the same increment as the decrease in Magnetic field strength, within the interaction of the fields of the cores of the system, in respect to the planetary field forces.

The same principle of Magravs positioning can be used in space for motion, in a direction of motion towards or away from a planet, star or galaxy.

There is an alternative *method of motion*, which is by *compartmenting* each core of the reactor. This is a highly advanced technology and needs a full understanding of the creation and control of the magnetic fields' strength of magnetic rays and Matters mixtures and full control of the motion of dynamic Matters in a dynamic environment of the reactor cores.

As motioned before, reactors have been designed, built, and tested to confirm the effects of weight reduction and lift, and the results have proven the correctness of the principle of Magravs positioning reactors, rather than the anti-gravitational field assumptions.

It has been shown that the **system gravitational field and Magnetic field strength** are **independent** of the **size of the system for the mass that** they can lift.

In tests carried-out in 2008, a ten-kilogram reactor system was used to lift a 100-kilogram weight.

In early 2009, the system combination was used to reduce weight from 9 kg by increments of 100 grams. Then another system was use to reduce the weight of the system from 7 kg to 6.5, 6.3 and 6.1 kg and so on in increments of 100 grams. In some tests, the weight of the same system was increased by 100-gram increments also.

These tests were done to show the correctness of the theoretical principles and its practical applications in reduction or increase in Magravs forces of one system in respect to another like the planetary system.

CHAPTER 24

Passive Magnetic Fields

In the universe, there are two types of interaction in respect to plasmatic magnetic fields forces.

One pmtics force is called **active** magnetic fields force and the other **passive** magnetic fields force.

The *active magnetic fields forces* are the pmtics forces that can exert forces on other fields and components of other pmtics of plasmas causing them to move or vibrate, or receive motion or vibration from the pmtics. This is usually matter-based motion and creates tangible or physical motion of matter.

Active magnetic fields forces usually cause dislocation of the electrons in a cell or vibration of electron in conductive material, etc.

Matters of the plasma mainly produce the **passive** plasmatic magnetic fields.

Passive pmtics can deliver their magnetic fields forces as energies to another plasma of the atom, for them to increase their magnetic fields density or energy without dislocating any Matters plasma's.

Through passive magnetic fields strength, if the plasma is in need of the extra pmtics strength, it can receive the quantity that it needs *of the same pmtics strength* for it to return to its ground level pmtics strength level. Otherwise, the pmtics will pass the plasma without transferring any of its pmtics to the second plasma. At the same time the second plasma, if it has extra pmtics which it does not need, it gives the extra pmtics *to the passing pmtics*, if it needs the extra pmtics for both pmtics to return to ground levels of their original pmtics strength.

The passive magnetic fields do not cause the atom to move or be dislocated from its position but also cannot cause vibration of the electron of the atom as such.

Passive magnetic fields are pmtics used for delivering the energy levels of vitamins and minerals to atoms and molecules of protein chains and are **Matter pmtics orientated** and based.

It is important to note that each plasma carries' one pmtics strength pack in the majority of cases. Thus for human body to receive all its pmtics strength spectrum, the body need to consume different minerals and vitamins and proteins that can deliver certain specific passive plasmatic magnetic fields strength to cover all his cells' needs.

Where the **active pmtics** are **matter orientated** and create heat, motion, and vibration in the matter components of the plasma.

CHAPTER 25

New understandings and New Technologies

From the new explanation and understanding of the creation and control of initial fundamental particles (magnetic fields), and further in having access to the new knowledge and the technologies that to be able to replicate the same in small reactors and their systems, the production and the control of MATTERS and the initial fundamental plasma as in **the universal order of the creation of Matters** in these reactors have become simple and practically possible.

The world of science and technology can find new solutions and new sources of Matters for the production of energy, the creation of motion and other applications within the confines of these reactors and this technology will be developed further for these purposes.

In understanding the principles of the working of these reactors, one can make use of, and manipulate, the Matters and energies embedded in the initial fundamental plasmas for the production of new materials, motion and energy. One would be able to use the new understandings of the Matters sub-plasmatic structure for the release of magnetic fields and energies from these Matters.

Through progressive development of this technology, new and simpler methods are devised and developed further for the fission and fusion of Matters and their relevant technologies. Through these new understandings and developments of reactors, new ways and opportunities for the production of energy in the world of nuclear physics has become possible.

For energy production in nuclear fission of today, the state-of-the-art technologies use the *collision effect* of neutrons and atoms to break up an atomic structure and release its energy. On the other hand, in the world of nuclear fusion, the reverse methods are in use. Scientists in nuclear and physics laboratories use as *much force* as possible to fuse plasmas, and harvest the residual released energies from this process.

Through our technology new and simple reactors are in the reach of the scientific world for the disintegration of an atom, or for the fusing of plasmas through plasma dilution technology. This new approach is less energy consuming, much simpler, more practical and the resulting energies produced are easy to harvest.

The same is seen in the world of aircraft and space industry where, jet engines and propulsion systems are in use to force and displace matters like air to create lift and motion.

With this new knowledge and approach to plasma dilution technology as one integrated system, much simpler and more effective methods based on the universal methods for creation of motion are made available to the aircraft and space industry to move crafts within atmospheric or outer space (Fig. 57 C). Magravs positioning principle of an electron in respect to its proton (Fig. 57 A) and Magravs positioning of the planet Earth

in respect to Magravs system of its Sun (Fig. 57 B), these shows similarities between the principle of the use of the new Magravs positioning reactors and their universal parallel systems.

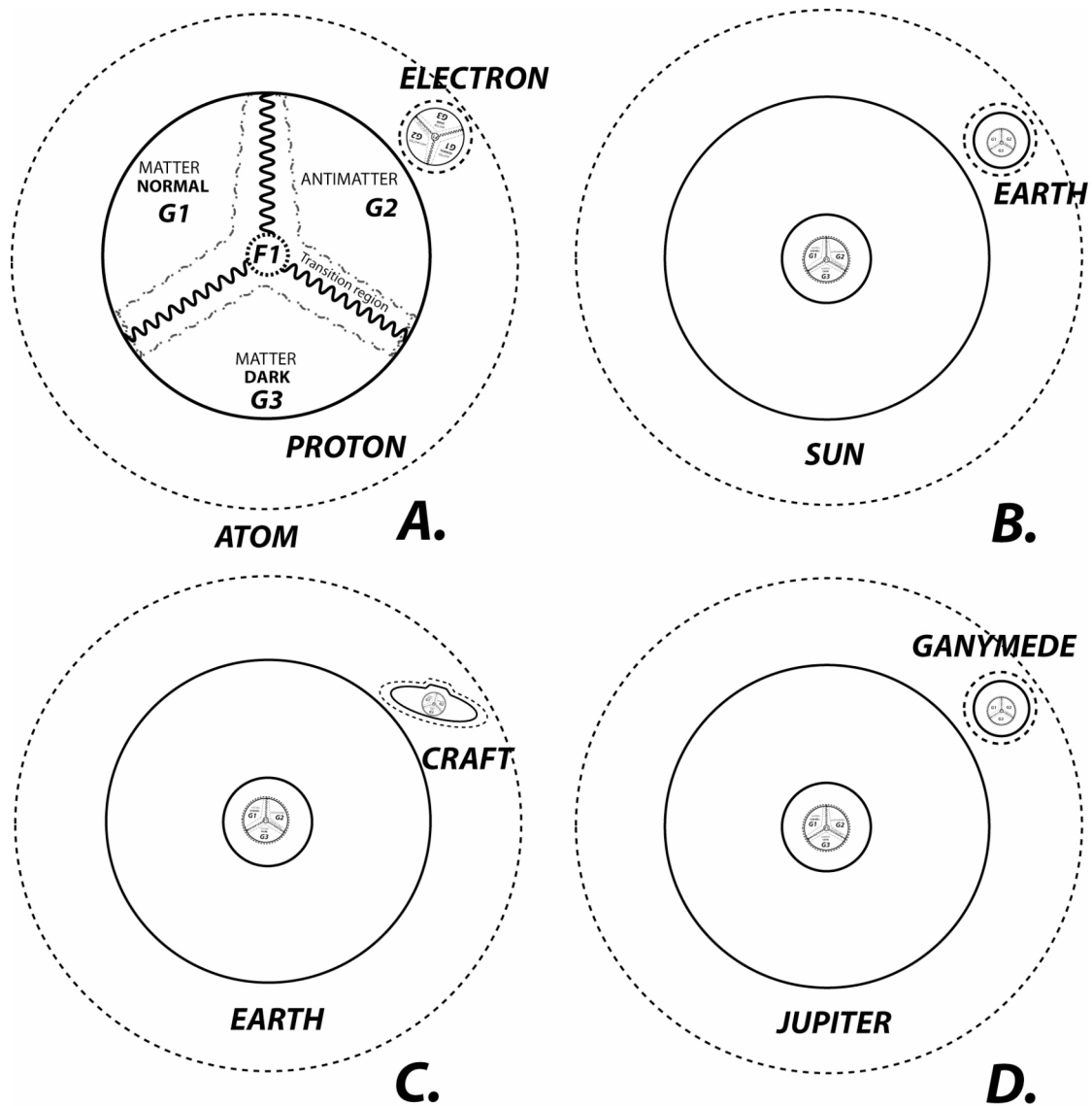


Fig. 57: Similarities between four different Magravs positioning principles and systems for motion and position.

*Note: Figure 57 D. shows that an independent plasmatic Magravs system can exist within another Magravs system, and have Magravs positioning in respect to each other, as the **Ganymede**, a moon of the planet Jupiter, has been functioning for millions of years within Jupiter's Magravs. To cosmologists the case of the Ganymede is the only known condition of an inter-gravitational planetary system positioning, and its operation within the Jupiter's magnetosphere could never be explained with present scientific knowledge. Similarly, Grapos reactors can be used in crafts for motion and Magravs positioning within the magnetosphere of the planet Earth, as shown in figure 57 C using the same fundamental principle as the Ganymede.*

Through the fundamentals of this new understanding of the creation and control of plasmatic magnetic fields reactors (Grapos), **craft systems do not need to burn Matmags to create lift and motion, but where, the reactor uses the Magnetic fields strength of the Matter (the Matmags) to create gravitational positioning.**

In the **Magravs positioning Technology reactors**, by the simple creation of the acquired plasmatic Magravs levels of the desired point in space, within the reactor's systems, the system is forced by its' internally produced Magravs, the need *to reach a new plasmatic Magravs balance* position between the system and the planet Magravs forces', this causing the motion of the system in respect to the Earth **without burning any fuel.**

The Magravs positioning technology once used in a craft, unusually these crafts become weight independent. That is to say, the systems payload compared to the power of the gravitational positioning forces of these reactors are so insignificant, that the payload mass becomes irrelevant.

This is how small cores size of matters in comparison, in the centre of the planet Earth, can create such strong plasmatic magnetic fields, that their interactions can keep and cause continuous motion of the heavy loads of matters of the planet, at ease, for billions of years.

The important point about using Grapos in aircraft systems is that the plasmatic Magravs and Magnetosphere fields' catchments area of the system has to pass the physical boundary of the craft itself during motion, in-flight and stationary floating mode or protection mode.

During the operation of plasmatic Grapos, magnetospheres are created around the system interface between system and the planet. At the interface of the magnetosphere of the system, due to the friction between two plasmatic Magravs of the system and the planet, only at the point of the magnetospheric interface of the system, this leads to the creation of visible light (Chapter 7).

In respect to plasmatic gravitational field systems, once the fields are allowed to pass beyond the physical boundary of the craft, this gives the craft being in possession and the advantage of having a dynamic magnetically based magnetospheric protection environment around the system. This magnetic magnetospheric zone around these crafts operates and functions exactly and similar to magnetosphere possessed by the Earth, which, the Earth has generated around itself by the interaction of its own plasmatic gravitational and Magnetic fields with that of its star and the pmtics around its environment in space.

This production of plasmatic magnetospheric shielding is a *natural protection* system offered by all celestial objects in possession of dynamic plasmatic Magravs for the entrapped matters within their systems.

Thus, by the use of Grapos in crafts nothing less than that is natural in the universe and a normal phenomenon for protection of internal matters and structure of the planet are offered.

Using this magnetospheric protection capability of Grapos, crafts of future will travel at speeds beyond the capability of the present technology in the aircraft and space industry. These crafts will travel without their outer-surface ever getting heated-up, or ever being in a position to be hit for example by birds in Earth's atmospheric conditions or in space by space debris. The reason for this is due to the fact that the outer surfaces of these crafts *never come to be in contact with other matters*, except its own internally created plasmatic Magravs.

The ***interface*** between the crafts' dynamic Magravs and planets plasmatic dynamic Magravs can be extended through the design and control of the Matters within the reactor cores of these systems, that their interface to be far enough away from the physical body of the craft, that there will be no contact or interface with other Matters and matters of physical body of the craft system. These matters outside the boundary of the system can be Dark Matter, air, liquid or others. These Magravs are needed for the protection of a system like this in space, as the systems cannot be hit or damaged by any cosmic dust or asteroid in the path of motion of the system.

The magnetosphere created around these systems, due to the dynamic characteristics of their nature, create plasmatic magnetic fields that will act and is a magnetic shield for the embedded craft within it. These dynamic magnetospheres around these crafts are naturally watertight systems.

If the plasmatic magnetic fields generated by the system, do not reach and pass the physical outer boundaries of the craft, these crafts can have the gravitational shearing gradient forces fields effects, enforced on it, half-way within its structure, rather than around its outer physical boundary; which partial structural cover of Magravs on the middle of the structure of the craft will end-up in the physical damage or in extreme cases the breaking-off of parts or the whole section of the craft at the point of interface between the system and the planet's plasmatic Magravs. This shearing-off zone is possible and can happen purely due to a difference in the two Magravs forces strength levels at the magnetospheric boundary of the reactor system in the middle of the structure of the craft.

At the same time the passengers of the future, using the Magravs positioning systems, will travel in gravitational field forces within the boundary structure of the craft in similar conditions as on the Earth. The passengers of these crafts can travel without the need for the present compression systems, in use, in the state-of-the-art aircraft industry. There will be no G-force changes inside these crafts during their flight due to the sudden changes in directional motion or at high-speed capabilities of these crafts. Using Grapos, in spacecrafts, this allows normal life and motion within the craft without the effect of weightlessness as is experienced by the space travels of today.

These crafts through their natural plasmatic magnetic fields interaction will always be rotating, as all celestial objects in possession of Magravs positioning field force do. This rotational effect can be facilitated through the design of the craft that the rotational motion can be transferred and be connected to the outer physical boundaries of these crafts, without affecting the working of the internal structure or passengers of these types of crafts.

This method of travel using plasmatic Magravs protection for motion for the future space systems is to be called the **Magnetically Originated Joint Habitation And Nutrition** (MOJHAN) system. The passengers of this **Man Originated Zone Habitation And Nutrition** to be known as “MOZHAN”.

These new names unify the human race by the use of the name of the technology and the method of its travel, through the Men’s collective effort to reach this point of scientific achievement over thousands of years, through their progressive evolution in science and technology. This takes away the national dependent names, like Cosmo- or Astro- and the rest from the unique and individual nations, for the collective effort and contribution by all of the inhabitants of the planet in different measures over the times to reach this point in Mans scientific evolution.

The use of Grapos will make national boundaries irrelevant except for tax and local laws. The Grapos will not need airports to land near too. These systems know no national or planetary boundaries and they have no need for fuel as such.

Thus, in the near future the nations will have to devise new ways of dealing with the Mozhans as they can land anywhere, without a need for a specific plot or landing strip. In reality however, these crafts will never even need to touch the ground.

Nevertheless, these systems can reach ground level, when their total reactor Magravs sizes are reduced to a safe planetary level, within a specific spherical zones cavity, allocated just out-side the boundary of the reactor systems but within the craft environment.

Pmtics reactors for production of energy

The creation of energy in the universe and utilisation of Grapos technology for production of energy in essence are based on the same principles.

In the universal order of production of energy like in stars, in these units, the principle of the production of current and energy is not on the base of electrons and their vibration movement. In fact, current and voltages on massive scales in these celestial objects are produce through their only ingredients, which are the plasmas and their creation of the pmtics of Magravs of their Matters within their inner natural cores.

In current state-of-the-art power production units like power stations generators, the rotational motion of magnets, and the magnetic fields forces within the confines of the copper windings, is used to create a continuous vibration of the electrons in the solid matters of the copper wire, to generate a flow of current.

We consider the flow of pmtics in materials like that of the **wind flow of pmtics** or what is commonly called the **current flowing through matters** like in copper wires. Where the plasmatic magnetic fields flow in matters like copper, the strength of the magnetic wind decides the rate of the vibration of the electrons of the atoms of the copper.

In understanding the new concept of the internal structure of an atom there are two fundamental points to consider.

First, the electron is the smaller and the weaker of the two components of an atom. Secondly, **the proton by order of mass is much heavier** and is made itself of greater amounts of the *same* plasmatic magnetic fields as **the electron**.

Thus in utilising the power of the plasma of the proton rather than the plasma of the electron, it becomes easier to produce the same levels of power with the use of a fraction of the material compared with the present power units.

This is to say; the new dilution plasma technology will bring into to play the ***use of magnetic characteristic of Matters of the plasma of the proton*** rather than the *vibration of the electron*.

To be able to separate the Matters of plasma of proton within the plasma dilution reactors, one needs to release enough dynamic plasmatic magnetic fields, in motion (energy), in the field strength level of the plasma of proton. These plasmatic magnetic fields can move the plasma of the matters of atoms with profound effects, rather than the electron of an atom.

This new capability and control of magnetic fields strength that can be released by the plasmatic reactors, brings into play totally new methods for energy production for any purpose.

The important point to note is that the production of energy through this method does not mean a change in the common use of electrical equipments. The beauty of this method is that the generators of the future will not be limited in their power production capabilities because of the material and size of the system. This means that even pmtics of plastics, nanolayers or any sort of matters can be used for current production and flow of current.

This changes the present power production capability, and gives the possibility of any generator's construction or any power levels at the point-of-demand, this being nano-amps or megawatts of power, through the operation of the same reactor, simultaneously and separately.

The other advantage is that the plasmatic magnetic fields strength of these reactors can be changed through the operation of the system. This capability of the plasma reactors gives a new insight into the power production capability of these new generators using the present equipments and tool.

New type of Generators

Through the control and power of the plasmatic magnetic fields strength **DYnamic Plasmatic Magnetic Flux Strength**, abbreviated to: **"DYPMFS"** that can be released by these new plasmatic dilution reactors, future electric power generators only need to

change their Dypmfs, or the dimensions of the **V**olume of the **M**agnetospheric **F**ield **S**trength, abbreviated to “**VOMAFS**” of the reactor, to envelop the generators’ winding using the coil winding method for power production.

Where, the Vomafs of the reactor can cover more of the same copper winding, to produce larger amounts of currents or the strength of Dypmfs of the reactor can be increased or decreased to change the levels of the current out-put of the same winding.

With these new types of plasma magnetic fields system there is no need for transformers, since the exact power input to the motor or engine can be produced by the plasmatic magnetic fields release at the point-of-demand.

For example: considering the present Power Station generating units (Fig. 58), it can be seen that, what has been used as fuel (coal, oil, gas, nuclear) to boil water, to generate steam, to turn the turbine and for the turbine to cause the rotation of the rotor, which is mounted with fixed flux strength magnets, for the motion of these magnetic fields cutting with the matter of the copper coil windings, to generate power, for this power to feed into a power grid.

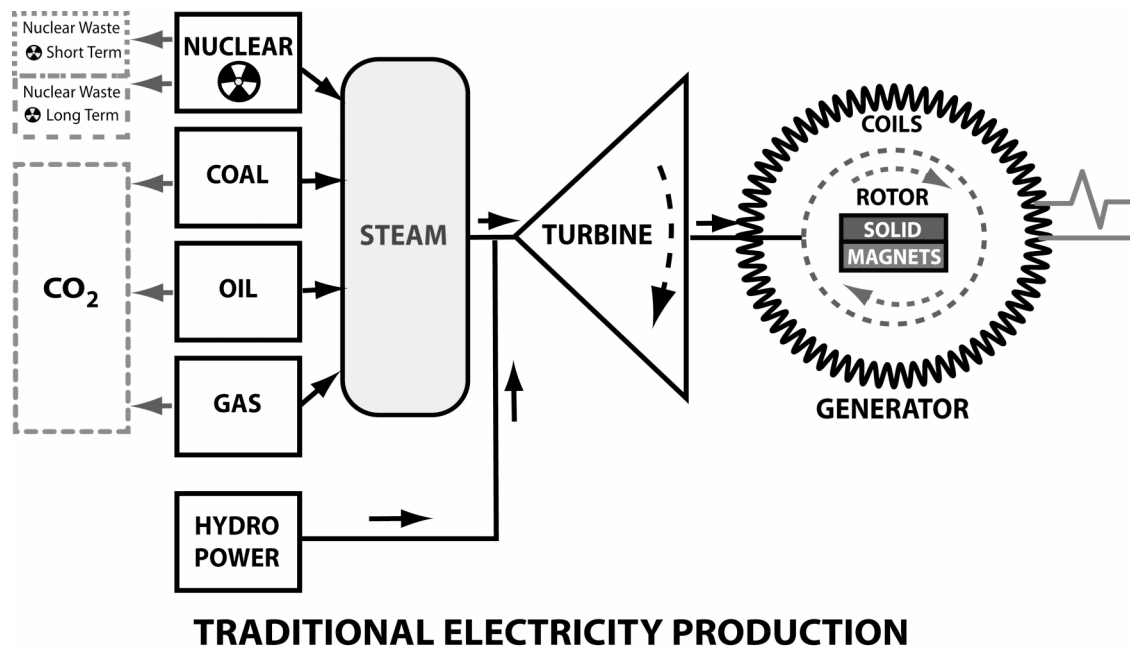


Fig. 58: Schema of actual electricity production

With the present power station generating units *one losses a vast amount of energy through each step of conversion* from solid or liquid or gas to steam to rotation, by all sorts of channels like different types of frictions, heat lost, losses through the grid. These systems usually need hundreds of kilometres of **transmission lines** to transfer the generated powers to the point-of-demand usually into cities. At the same time these types of generating systems using matter components of plasma, these always produce wastes like CO₂ or nuclear wastes.

In understanding the principle of the rotation of the Earth, through the interaction of two magnetic fields (Fig. 3) and the capability of the planet to create simultaneously the external dynamic Magnetic field (Fig. 1, similarly Fig. 61), with the new knowledge of the use of the plasma dilution Magravs positioning reactors with the ability to produce a **controllable, continuous, dynamic rotational flexible Magnetic field strength**, within the cores of such reactors, it is now easy to construct and produced new strong and powerful generators that do not need to burn any fuel (Fig. 59), to create rotating Magnetic fields, but, just by using Grapos nuclear reactor one can achieve the same and even more power than the present matter-based frictional systems. Even it becomes possible to produce varying frequencies of current output of the system from the same generator.

Grapos generators can produce power from kilowatts to megawatts in seconds, by just increasing the strength of the Magravs for the **Dypmfs** of the reactor or by increasing the **Vomafs** coverage of the Magravs. We have called this new generation of power generators the **Keshe reactor generators** (Fig. 60).

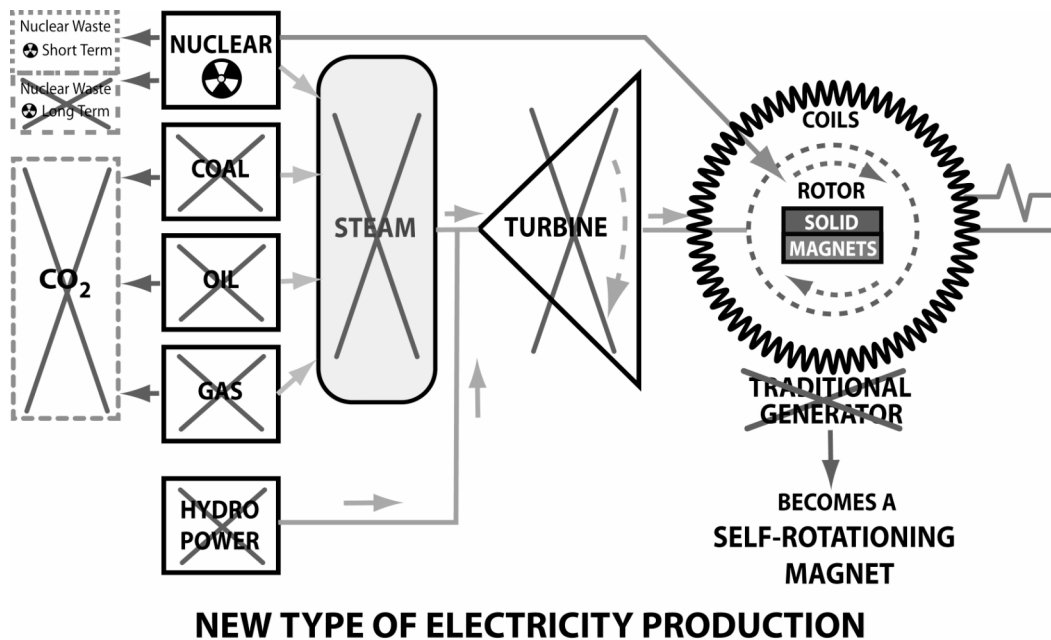


Fig. 59: New approach to generate electricity

The use of plasma dilution Magravs positioning reactor brings to an end the need for burning of fuel (Fig. 59), to create rotational motion of the rotors' for production of electricity as it happens in the present generators.

Our new approach puts an end to the production of greenhouse gasses (like CO₂) through the burning of fuels (coal, oil, gas) and finally an end to the habitual burning of matters to generate motion and energy. This also bringing to an end the current production of dangerous nuclear waste by running the present nuclear power stations.

By purely using the effects of interaction of the Magravs of the Matters, within the cores of these reactors, motion and Magnetic fields, for production of any amount of

electric power can be achieved in one all-integrated nuclear-based unit without creating any waste of any sorts.

In a way this is how all plasmas, atoms, planetary systems, stars and galaxies create their own motion and Magnetic fields (Fig. 60 and Fig. 61). Why not for the man to take advantage of this new knowledge of clean source of supply of Matters for new energy production technology through the real universal method of workings of magnetic fields of Matters?

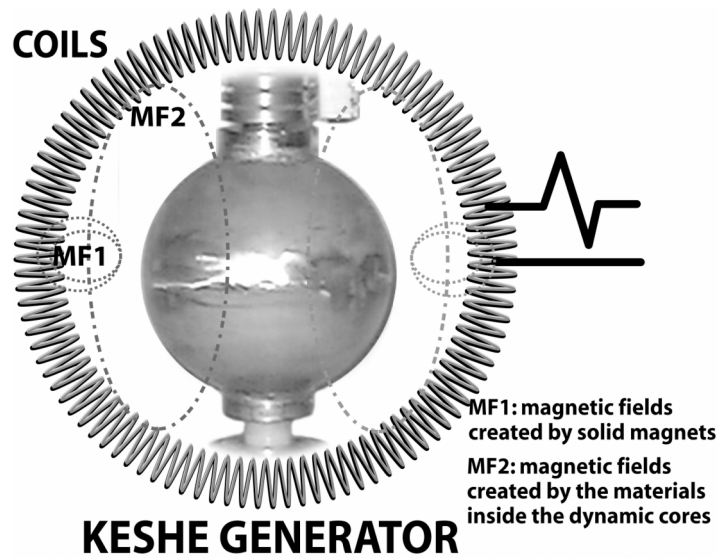


Fig. 60: The Keshe generator, which rotates for years in a coil structure.

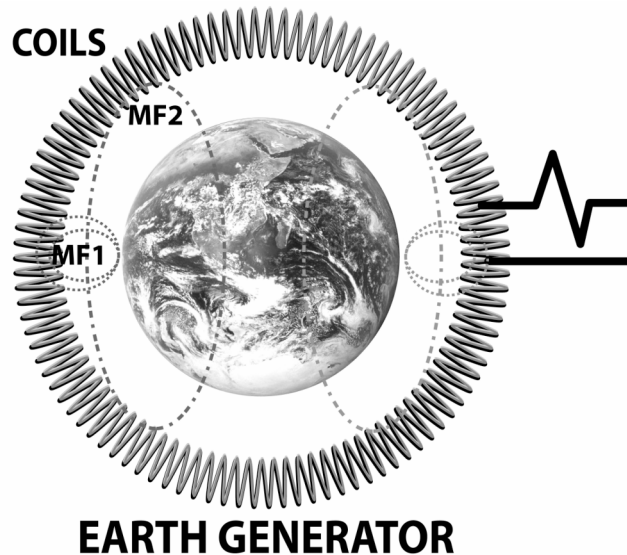


Fig. 61: The virtual Earth generator, which rotates and generates Magnetic fields (MF1 and MF2) for millions years, and could generate electricity if there was a copper coil around it.

Similarly, using the plasmatic magnetic fields reactors can **eliminate** the need for

generators and **transmission lines**, due to the fact that the pmtics needed for production of a given current and voltage level can be created at the point-of-contact of the system. Even the structure of the matters electrons or plasmas can be used to create current for their use in the same equipment. This means that one can produce current from the atoms and plasmas of a silicon or plastic cover of a microchip, to meet the components energy needs.

One possible use for a small reactor is to produce the right plasmatic vibration of electrons or the plasma of matter, within any given environment to generate light and power.

Prototype reactors have already been made and can be further refined that only need to generate plasmatic magnetic fields within their cores, that the interaction of the pmtics generated by these reactors with its surrounding matters, creates a *magnetosphere* at the point of the interface of the two pmtics of the system and atmosphere, that leads to the release of pmtics in the range of visible light of any colour and ray. This will be how future light producing units will be manufactured.

Similarly, in a given environment, in such as a craft, the operation of reactors can produce Magravs, that the interior of such crafts would always be lit due to the principle of the interaction of the surrounding Vomafs of the reactor and the dynamic plasmatic magnetic fields of the particle content of the air within the confines of these crafts.

The strength of these Dypmfs generated by the reactors can be set to produce any colour rays of any magnetic wavelength, be this red or orange light, and X-rays or gamma rays. We have seen this effect in laboratory tests and have measured the radiation fields.

The power generating units of the future, using the plasmatic magnetic dilution technology, will be a departure from the present power and light production technology.

Grapos, due to their ability can create rays at any frequency, can be used for example for disinfection of any give environment and materials, by the production of Ultra Violet lights for matter and Extreme Ultra Violet for Matter in space.

The same principle, for generating matching plasmatic magnetic fields for the production of proteins in these reactors have been tested and proven to be correct. These tests were carried out in 2008 and the production of proteins by the use of nitrogen from air through this technology was proven to be simple and achievable.

In separate tests conditions, the hydrogen atoms of water were used to transfer the right plasmatic magnetic fields to the right pmtics strength of plants and human cells for the pmtics of the cell to gain nourishment or recover to their original level of plasmatic magnetic fields' strength.

This technology has been used in trial cases for helping volunteers with different vitamin deficiencies, or cell plasmatic deficiencies, to recover from the disorders produced by the deficiency, and people to live a normal life after years of suffering.

Alternatively, this technology can be used for production of new materials for coating

or new processes of coating.

At the same time, through simple magnetic plasmatic reactors, the lattice structure of matter can be changed so that the nano-components of the matter can be realigned to change their lattice formation to another. The change of characteristics and properties of one element to another has been tested and confirmed to be correct by independent organisations. In these tests, the nano-matter of an element was captured and then its lattice formation, through the right plasmatic magnetic fields conditions, was changed to attain new properties from the same matter. This was carried out through several tests, at room temperature and pressure, where *atomic carbon* was initially released from a C-H bound matter. The carbon was then allowed to deposit itself on a layer of copper. This deposition was dependant on the presentation of the right plasmatic magnetic fields at different points on the same copper Matter. This copper surface was then tested and proven to have sections of nanolayer coating in the form of sp², and on the same layers and same condition the lattice structure changes the same material to a diamond lattice structure, or what is known as sp³. Where, sp² is a two-dimensional nanolayer, and sp³ is a three-dimensional diamond-lattice nanostructure.

The plasmatic magnetic fields' of reactors can be tuned to similar frequencies' as the plants pmtics, to generate certain vitamins and minerals. These single or multi-plasmatic magnetic fields producing reactor sources can and will replace the fertiliser industries of today's technologies in space for food production, once scientists grasp the method of their use.

In tests, seeds of herbs were grown by being feed using water treated in these reactors, the parallel seeds, which were grown normally with rainwater, died in early October. The herbs that were watered from reactor system were still green till March of the following year, because the molecules of the water were structured through the reactor system to act as fertilisers. Similar tests are in progress.

In this section, it has been shown and explained some of what has been tested and achieved through this new understanding. Scientists and users of this new technology will find their own ways to expand and will add their own new knowledge to our disclosures.

Seed of thought

Where, in the present time the majority of the nations in the third world due to the lack of funds to purchase fuel even in having power stations, or being able to afford to build generators at the cost of tens of million of dollars, they cannot afforded to run these generators to provide power for their nationals. Secondly, there is not enough production capacity to build new power stations and power grids. Therefore local alternatives can be in the range of windmills and solar cells, but these will not solve the incredible lack of electricity in next decades.

Now, through the use of **Keshe generators reactors**, which can cost as little as a new car, these governments can provide electricity and clean water for their nationals.

Where, these governments do not need to pay for fuel as these reactors run on hydrogen extracted from their environment. These reactors can be placed at the *point-of-demand* in a village or in the cities without the need for transmission lines or for any expertise to operate these reactors. Where through the production of electricity, purification systems which are part of these reactors integral operations will allow fresh clean water supply to every child, woman and man on this planet. This new energy source and clean source of water, given opportunities to third world nations to rise above and from poverty and reliance upon foreign aids and charities organisations. Where these nations can produce food and warmth for their nation as the rest of developing world without the backbreaking debt to other nations.

According to a *United Nations report* (Energy Challenge for Achieving the Millennium Development Goals 2006), "*Currently, at least 1.6 billion people do not have access to electricity for lighting, refrigeration, mechanical power, telecommunications and other beneficial uses. ... Moreover under today's policies and investment trends in energy infrastructure, 1.5 billion people will still lack access to electricity in 2030*". (42)

Of course this is not acceptable. It is clear that humanity is not capable to deliver fundamental care to all of its members, even not within next twenty years!

Man is not complete and healthy if parts of it human structure suffers from pain of self-inflicting disability, this is the same for the human race as whole. This race is not complete until all its members have and can exist and have the privilege to live the same standard of the development as the rest.

“The future is bright, the future is plasmonic magnetic fields based, through the production and control of plasmonic dilution technology reactors to bring peace and comfort to the human race.”

CHAPTER 26

Matters Experimental results and observations

Tests for the proof of all the concepts have been carried out over some years. The direct results and observations made in some of these tests have already been mentioned in some other parts of this book and now will be brought under one chapter collectively and will be discussed in general.

The reason for writing this book is to disclose the theoretical new first principles of our technology; because most of our test results are so groundbreaking that they cannot be explained by actual knowledge. Actual science is partly based on a number of mainstream accepted assumptions about fundamental interactions and particles and matters, where these assumptions have become almost “laws”, and do not consider the true occurrences of real events in the universal order of creation of particles, plasmas, matters, energy, gravity and motion as they take place in the universe.

Where, the major processes in the universe are based on fusion and fission of Matters and plasmas, and the transformations and conversions of matters from one form to another. In this book we explain how such conversions and transformations can be reached in plasma reactors, and by this insight we were able to attain such amazing results. Where some people don't feel comfortable with them, or a priori reject them because these new findings and their applications counter their school of thought and their financial gains.

For example, one of the major obstacles in the world of nuclear fusion has been to overcome the Coulomb barrier for fusing two plasmas, and this problem has not been solved for the past sixty years by all scientists in this industry, even though billions of US Dollars and more has been spent by different nations in laboratories and fusion reactors testing to overcome *the weakest of the weakest of magnetic fields interactions* in the world of creation, which this is a magnetic barrier, also known as the Coulomb barrier, where this barrier is exactly the Magravs of the plasma, and as now we know how it is created, we have found the solution not to fight and force to cross this magnetic magnetosphere barrier, but the solution is how to create an environment matching the magnetic fields strength of this magnetosphere of the plasma for it to open-up and unveil its real constituent Matters. As the environment of the whole reactor becomes in magnetic fields strength equal to the magnetic fields strength environment of the plasma. Therefore, through this method, there are no barriers to overcome, and fusion of matters of plasmas or the use of the Magravs of the Matters of the plasma becomes a child's play.

For the first time in the world of energy and motion, we offer through dilution reactor technology, at low costs, to open the plasma and dictate the strength and the resistance of this Coulomb barrier to realize the dream of fusion.

Similarly, to achieve lift and motion where, the present space agencies are only able to

deliver a limited payload into space, and the burden and the costs of such launches of crafts and personnel, cannot be met by one nation easily. Where, Magravs Grapos reactors can lift much larger payloads at low costs, without limitation on passengers and no weightlessness conditions in space.

Radiation

During tests in 2008, radiation detectors in the surrounding environment of a test reactor detected high levels of magnetic fields radiation. These high-energy magnetic fields have been measured more than 1.5 meters away from the plasma reactors. Where, there were ***no neutron sources*** in the laboratory or in the building. Through known physics or theories, these radiations should have not been in the environment.

These strong radiation fields were tested and looked for and were not present in the laboratory at any other times with other different testing configurations with the same reactors, using the same radiation measuring detectors.

Such high levels of magnetic fields radiations could have only been due to the release of the magnetic fields that had been entrapped in the Matters of the plasmas, which the system was set to produce. These releases of components of the plasma were achieved during the specific pre-set configurations of loadings of reactors. These strong magnetic fields were released by the operation of multi-core plasmatic dilution environment reactors and at no other time they were detected in the laboratory.

Most of the reactors, mainly built and tested for lift and weight reductions, are made of different simple parts, which some part have materials like plastic rings, and PVC, thus these systems do not and could not have been operating at high temperatures.

In other tests in 2008, and in repeats of the same tests in January and February of 2009, the same results have been achieved, all of which have been recorded on video.

In these tests with the use of a less than ***one gram of mixture of matters*** in the similar multi-core dilution magnetic fields systems, fundamental plasma separations were created through the same method as before. These tests were done using five different reactors, each having a different set of internal configurations.

In all test settings of the reactors, different loadings of materials and different dynamics for the reactors were used.

Weight reduction, motion and lift

In all cases, when the dilution of the plasma and the subsequent untangling of its Matters in the reactors were achieved, then the effects of the disassociations of Matters were observed through the effects they created internally in the reactor and externally through lift and motion, and jamming of radio-frequencies and so on.

In the early original reactor tests, full lift was achieved so fast that the effects of free motion were noticed a while after it was clearly apparent and were in progress, through the replay of the video recorded sessions of the sessions of tests. Through video replay of the recordings of tests, the motion of the system freely on the floor of the laboratory could clearly be seen prior to physical observation of the lift of the reactor system. These reactors have no protrusions, are not equipped with propellers, or portholes, which could cause the lift of the reactor by air repositioning means.

In one configuration and loading of the system, control of the system was lost, so the reactor had to be caught by hand in mid-air, that it could be brought under control before it was damaged.

In one configuration, two reactors with different external bodies and two different internal settings were used next to each other. These systems were kept about thirty centimetres apart from each other. These reactors were entirely different in design and had different settings and loadings. In the two-system loadings that were adjacent to each other, the systems' interacting fields pushed one reactor away from the stronger Magnetic fields of the two systems. With the same systems and different configurations of loading one system was attracted by and was pulled by the stronger gravitational fields strength system, where physical force was used to keep the two systems away from colliding with each other.

“These systems have no portholes, and no physical means of interaction with the outside environment and no aerodynamic systems to cause them to propel up or move side-ways through the air, and they have been no solid magnets or electro-magnets for repositioning or for motion, for them to move the total collective weight of 15 kg of the two systems. There are no external systems and tracts used to help causing the lift or motion of the system in the laboratory. Thus the motion is ***not due to propulsion or aerodynamic design and movement***”. This is the conclusion of independent expert appointed as observer for the validation of the results of the tests.

During other tests systems weighting several kilograms, their weight were reduced in a controlled manner at increments of one hundred grams and two hundred grams per setting of a reactor and these tests were all videoed and recorded. For reduction of weight in these increments, the systems needed less than one thousand^{ths} of a gram of a new material combination as Matmags, even in some tests no new material was introduced and by just adjusting some internal parameters of the reactors reductions were achieved.

With the use of such a small amount of physical mass of matters used, creation of such lift and the reduction of system weight seven kilograms, has been said to be impossible without any external energy or equipment.

Through the understanding of the principles of the plasma dilution methods of disassembling the plasma components to utilise its sub-components, systems were designed to achieve these effects in simple ways. With the interaction of the disassociated Matters components of plasmas in different parts of the system, then the scene was set for creation of profound effects such as a *reduction in weight* with respect to the Magravs forces of the planet.

The interaction of the strong Antimatters' of the plasmas components, which were released in the different cores of the *plasma dilution reactors* and the interaction of the fundamental magnetic fields of Antimatter upon each other, was observed during different tests. The interaction of pmtics of Antimatter leads to the creation of the strong Magravs in the vicinity of, and within, the reactor cores.

Through the control of plasmas and by being able to separate the components of Antimatters and utilising their constituent magnetic fields in reactor cores, this led to the creation of Magravs forces that initially led to a reduction in the weight of the whole system. In following on with this process there was a detachment of the system from the ground as the system found a new Magravs positioning in respect to the Earth's Magravs force strength.

When looking at the effects and results achieved, there is no doubt about the powers of the interaction of the magnetic fields of Matters, which were diluted and their fields were allowed to interact in these reactors' cores. These effects were attained by allowing a number of the pmtics of the Antimatters of the plasmas *to integrate in one core*, and allowing these fields of Antimatters to interact with the same and similar fields *integrated* through the same principles in *other parts of the reactor*. Where, the interaction of the pmtics of the components' of Antimatters in different parts of the system with each other, led to the generation of strong specific plasmatic Magravs. The reactor facilitates for these stronger Magnetic fields to interact and generate strong plasmatic Magravs in the reactor cores, with allowing these Magravs created in the reactor cores to interact with the Magravs forces of the planet, and due to the strength of the fields produced in the reactor, this causes' reduction or increase in the weight of the system in respect to the planet's Magravs.

The new Magravs created within the system, pushing against the Magravs of the planet at the boundary of the systems fields, causes the variations in the weight according to the combination and configuration of the Grapos loading. The produced Magravs forces *within the confines of the system* are independent of the external planetary gravitational fields. In numerous tests, it was observed and recorded that the changes in the *internal* gravitational field forces of the system, did not necessarily change the weight of the system in respect to the Magravs of the planet. The interacting internal pmtics forces clearly showed to be generated independently by increase and decrease through internal electrical measuring components set in the system for the detection of these types of changes.

It has become clear that it is the interaction of the Magravs of the planet and the system that have brought about the reduction or increase in the weight and lift or descend of the system in respect to the planet. In some tests, these increases or decreases in the weight of the system have been without any addition or withdrawal of physical matters from the system.

In continuing with the same processes of creation of varying Magravs in the system, weight reduction was managed and followed to such an extent that the total balance of the interaction of Magravs of the system and the planet, in respect to each other, eventually zero reading on the measuring scale system. The point was reached where there was total physical detachment of the system from the table or floor first, and then

the upward motion of the system, away from the surface was achieved.

Some call this the anti-gravity principle but in fact, this interaction and new balance in Magravs forces in between the system and planet, is due to both gravitational and Magnetic positioning of the reactor system in respect to the planet, as both objects are in possession of *active dynamic plasmatic Magravs forces*.

In a specific reactor, set for weight reduction, internal gravitational field reduction and zero-gravitational field force were disturbed, where the human touch was applied causing the change in the magnetic interface between the fields of the system and planet. This gave a tingling feeling on the tip of fingers after repeated tests.

In numerous tests over years, where the equilibrium state of internal Magravs strength between cores were achieved, the whole system, including internal physical dynamic parts, came to halt, sometimes for up to thirty minutes or more. Then, the dynamic motion of the systems re-set by itself and the system restarted. This *re-setting* has been due to losses and reduction of one Magnetic and/or gravitational field strength in respect to another within the cores of the reactor.

A number of times, *external power sources* were used to try to restart the system. In some cases measured energy of up to three, four and eight times the normal operational energy was continuously applied to the internal systems to try to push-start the system, but to no avail.

This shows that the power generated by a countable number of Matters of molecules, was so powerful that additional systems built in the reactor cores could not overcome the kinds of powers produced by so few Matters magnetic fields interactions.

These tests have shown the creation of independent Magravs in separate cores of the reactor. They show the creation of independent plasmatic Magravs within the system boundary, and then the combination of the same Magravs prevailing around the outside or beyond physical boundary of the reactor as magnetospheric or cosmic radiations were produced, which these types of fields are prevalent as have been observed in space around stars and planets.

Indications are that these radiations created in these system, due to their characteristics, do not shown any side effects in the human tissue of the operator up to this moment, years after having been involved with these fields tests.

These fields around the cores are considered to be due to the interaction of plasmatic magnetic fields' of Matters of plasma and environments' Matter or matter, and are independently created in different parts of the cores of the system.

This technology opens up new opportunities for the industrial development and manufacturing of systems that have different gravitational conditions inside the system for living, and have different gravitational conditions compared to the outside and around the physical boundary of the craft. This allows for having a one-G gravitational field force for the normal habitation of Man inside spacecrafts, or in a dome outside and around the crafts for habitation. While the conditions outside the craft can be zero G to

tens of G's. The passengers of crafts using Grapos can walk around the craft, or in and around the dome created by the extension of Magravs of the systems, on any planet surface, as if they were in Earth's gravitational field force environment.

No high temperature core environments or sudden surges of heat were recorded in any tests. The reactors were in some cases opened immediately after operation for new settings, in a normal lab environment. There was no physical damage ever noticed to the internal parts of the system. This includes melting and twisting or destruction of any parts due to the presence of Matters.

Even though we lost a full system by pure enthusiasm to catch, lift upwards, which the jumping on the systems after several times cracked the structure and the systems was lost. We have kept the reactor casing for further analyses of matter lattice changes, and another reactor was damaged when a Black hole condition was replicated.

On only one occasion, where a specific setting was used, a black spot was noted on one of the external sides of the reactor core wall. This is supposedly was due to an energy surge during the test. The effect of the black burn was not removed for further analysis.

Production of matters

In different tests, a new orange and gold coloured material was noticed on two occasions in a reactor, and samples were collected for further testing to show the material production capability of the system.

This method of the production of Matter can be used by manipulating and changing the plasma's and rearranging them for the production of oxygen, hydrogen and water from collections of initial fundamental particles found in space, for human deep-space travel and colonisation. Where, the components of plasma absorbed from the cosmos are loosened by producing the right pmtics strength in the reactor for production of the first two atoms of hydrogen. Using further plasmas from space, in the matching gravitational fields as of the atoms of oxygen in the same reactor, this element can be produced. Then through the same reactor's operation, this allows the combination of the two elements, of hydrogen and oxygen, which was produced from the space plasma, this allowing the ***production of drinking water***.

In the future tests, one can attempt to combine the gravitational effects of the systems for production of energy, material production and other capabilities of the technology all simultaneously in ***one reactor***. We have achieved this much but there is a lot more to learn.

These reactors are truly an integrated system, which can produce and attain several effects and properties, like production of Magravs, creation of matters and so on simultaneously.

Dark Matter technology

The system using the Dark Matter in travelling through the Magravs of the planet creates no magnetospheric conditions, friction, or pmtics force resistance, between its pmtics Magravs and the planet pmtics Magravs. Thus, zones around a craft can be created that there is no magnetospheric field between the craft's magnetic interface and the planetary system's. Hence, a craft using the Dark Matter ***cascading*** can travel within a stronger pmtics, like that of the Earth, *without detection* since the system can create no interface magnetosphere, as there would be no visible light to be seen with this method of motion.

Through this method of using the Dark Matter for transportation, high-speed motions can be attained for spacecraft in planetary systems, solar systems and galaxies.

Using the ***Dark Matter principle for transportation***, the environment between the systems and the planet is **saturated** with the dynamic plasmatic magnetic fields of the system and the planet. This zone appears to possess energies but they cannot be linked to any source. Even though the source of the dynamic pmtics, in motion around the system or so-called energies of the pmtics, is set in the centre of a strong plasmatic Magravs systems inside the crafts and centre of the planet. Such Dark energy fields give the appearance and confirm the existence of dynamic energies, which have no explicit source of origin. Where, the source of energy or the dynamic pmtics is the hidden gravitational source in the centre of the Matters reactors and the planet.

This new technology is a radical breakaway from the hold that physical matter have had on the destiny of Man on the Earth.

With this new understanding of the methods of how Matters are created in the universe, it is possible for Man to use the real Matter sources for energies and powers available to him in the universe for his future scientific evolution.

CHAPTER 27

Discussions and Conclusions

With this new understanding, the elementary particles have become to be the ‘magnetic fields’ and their interaction leading to the creation of Magravs, this leading to the creation of Matters, as the state of each Matter depending upon the strength of the magnetic fields which have led to its creation in respect to their environment fields strength, which the Matter appears as the Matter, the Dark Matter or the Antimatter, where the collective interaction of the Matters Magravs, leads to the creation of the Initial fundamental Plasma (the Neutron), where the environmental magnetic fields forces conditions, around the Plasma, dictates the physical appearance states of the Matter part of the plasma as matter, this being solid, liquid or gas.

It is obvious that the universe will never stop creating new Matters and matters and their effects, and their interactions, as the universe is a soup of dynamic and ever-changing conditions, created by the Magravs positioning of plasmas, dynamic Matters, matters and their components and effects.

Man can learn how to create the same conditions as the universal order, and to rearrange these fundamental particles for his use, in a much simpler way than he has chosen up to this point in his path of technological and scientific evolution by the use of matter(s).

In the present state-of-art technologies for the production of energy, scientists have chosen the path of force and *destruction of atoms and molecules* to overcome barriers. In the universal order of creation, one works within the magnetic fields forces to achieve the same and even better results.

This ethos of ***burning and destruction*** has been the fundamental focal point for Man’s survival in his environment, due to what he has been conditioned to in his evolutionary path on Earth. He has seen the power of fire, from fires in forests, and he has used this knowledge to keep himself warm and so he has learned to do the same using the same methods and materials. By perfecting this art, through the burning of wood and oil and so on, he has managed to create energies for cooking and warmth and running industries.

Then he saw the birds and understood the concept of motion in air and so he used the concept of fire to create propulsion and jet engines, still burning one form of fuel or another to achieve flight, still based on the principle of ***matters repositioning and conversion***.

He has seen death through disease, so he has produced other elements to destroy the germs that can cause and bring an end to his uncertain and fragile physical life.

If man would learn to work within the structure of **the universal order of creation of**

Matters and the method and principle of their use, he will learn that he does not need to burn or destroy anything to keep himself warm or feed himself, or even to overcome diseases.

He can very simply change the characteristics of the plasmatic magnetic fields of the elements that caused the misbalance in the first place, leading to his ailment, without swallowing a single tablet in his lifetime.

We have developed and tested such simple systems in the past years and have seen their amazing results.

For example people suffering from Fibromyalgia for thirty years or more, within 3 months of drinking water through these systems, have started living a normal life without any signs of their disease. Follow-up over 18 months has shown a total eradication of the ailment.

We have tested this technology on other forms of illnesses and viruses and the results are amazing. However, this is what is to be expected with the use of the true knowledge of the creation as has been disclosed in this and future books.

With this new disclosure, man in the future will learn to live and operate in the real universal order of creation of Matters and their existence in the universe for his life. He will never destroy any Matter or matter, but he will learn to work within their structure. He will learn to achieve more, with less use of the resources in his environment. This is an improvement on the past, whereby at the present by the use of destructive methods, he has brought himself to the point that the abuse of the matters is now endangering his future on his own home planet.

Man has to learn to work with the real elementary particles and elements and their functions in the universe, such as magnetic fields and their interactions, for him to be able to produce what he needs irrespective of where in space he might be or would want to be.

Maybe this knowledge and the proof of its pleasures will change the ingrained ethos of destruction for the survival for man. One could even hope for a change in his animal instinct of killing other people and other creatures of god to survive.

Additionally he can change his habits and the instinct to want more since through the understanding of this technology he can have whatever he desires from his materialistic world.

In this disclosure, some theoretical nature of the universe has been spoken about, but the real physical aspects can be created to achieve the same conditions as in the universe as we have shown through our tests.

Man will be able to carry on with his life, but at the same time will be able to live in a balanced environment.

The reactors we have developed, which in real terms are *miniature universes*, that can provide man with all his needs, such as water, food and medicine for him to survive and enjoy the beauties of creation.

The conditions in these reactors are soft and gentle environments and the methods of their use for control and creation of mans' needs are based on working within the universal structure, and not destroying to achieve, as has been the principle of the past for the Man.

For example, when the principles of the creation of Magravs are applied to the lower orders of creation, like the interlocking of atoms to make molecules, there are explanations as to why certain types of Matters are attracted to the reactor, and why certain molecules are, or can be, produced in certain ways and combinations, in certain parts of the universe.

The same applies in the even lower orders of creation, that one can explain and produce certain magnetic fields and their interactions that can lead to the creation of present fundamental elements in the centre of the proton, plasma, an atom and finally the man himself.

The world of science has to understand the conditions by which the interactions of initial magnetic fields can lead to the creation of an initial state, for the creation of the Matter, matter, plasma and finally atom.

Then there is a need to understand and demonstrate as is done in this book the way Matters and matters are created in vast spans of the galaxies.

Scientists have studied over centuries the structure of matters and the atom, and their interactions, in their material and tangible *states of matter*. However, the structure and method by which the atom is created, maintains and guaranties it's existence has not been fundamentally fully understood, due to the lack of overall overview of workings of the universal order of Matters. Even the construction of protons with its sub-components (quarks, gluons), up to today, is based on assumptions and indications by the use of particle accelerators and plasma reactors, by *only looking at matter components* of the proton and some Antimatter parts. So the present scientific world looks for an answer in the construction of the proton on the *matter-to-matter* level.

By the present science, the existence of the Matter, the Antimatter and the Dark Matter are largely considered to be independent entities in different points in space, and have never been considered to be as *one collective and all being integrated parts of one system* making up the plasma, up to this disclosure.

Mass of the Matters and Mass of the plasma

In the new knowledge we consider the three different quarks of a proton, *as the three different Matters* (Matter, Antimatter and Dark Matter) *of the plasma*.

Where each Matter is *created* through the interaction of at least two different magnetic fields or pmtics, where through the interaction of these two plasmatic magnetic fields of different strength, initial gravitational and Magnetic field for creation of different Matters of the fundamental plasma are set to start.

So that the interaction of *at least two pmtics of each Matter* creates it's own Magravs forces. What we call the interaction of the Magravs strength forces between and in respect to each other of these three different Matters of the proton.

Where, through the understanding of the method of creation of different Matters of the plasma, due to interaction of at least two magnetic fields and the creation of gravitational and Magnetic fields, this confirms that *each Matter* irrespective of its environment Magravs *possesses an independent mass of its own*. In the present science this is called the mass of the quark. In fact each Matter, Dark Matter, Antimatter and Matter, has its own individual mass in the plasma. As each Matter is created by the interaction of at least two different magnetic fields strength, the *total mass of the plasma* is the mass of the three Matters plus the total interaction of Magravs interaction of the overall plasmatic magnetic fields within the plasma. Consequently the *total mass of the plasma* is always considered to be *larger* than the *total mass of its three Matters'* components.

Due to the dynamism of the interaction of the two initial pmtics, leading to the progressive creation of the Magravs of each Matter, *each Matter* is always in a *dynamic rotational state* within the plasma. Where the *speeds'* of the dynamic rotation of the different Matters in the plasma are not the same and they are independent from each other, since their speed of rotation is set by the strength of their initial magnetic fields interactions. Where in the present science the observation of this natural phenomenon of rotation is called the *spin of each quark*. One can compare this, in cosmological sense, as the *independent speed of rotation* of the Sun and Earth, in spite of that they are within the same solar system. Where the initial plasmatic magnetic fields strength, which leads to the creation of different Matter(s) in it's interaction with it's environment pmtics strength, leads to the creation of an individual magnetosphere of a specific field strength for each of the Matters. Where the intensity of each magnetosphere creates *different light intensity* in its environment.

Now we understand that the interaction between the pmtics of the magnetosphere of each Matter of the initial fundamental plasma leads to the release of different pmtics strength fragments in the range of visible light (Fig. 18).

Due to the interaction of the plasma of each of the three Matters with each other and the release of light or energy, these interactions in parts reduces their strength and the pmtics content of each Matter, where due to these reductions in Matters quantity and strength of pmtics, different colours are attained by these interactions for each Matter during the cycle of the life of each Matter.

It has become clear that all states of Matters are the same in their nature of their creation with only differences in their field strength. What does differentiate these Matters from one another is in principle the strength of their fields and their position(s) and

interaction(s) with other particles in their environment and in respect to each other.

Thus, Matters are Antimatters and Dark Matters depending on the point-of-observation and the field strength of the environment of the appearance at a given point and position, but they are all made of the same entity at source, which is the magnetic field.

The front-cover image of this book has been chosen specifically to emphasise for the scientific world to reconsider their assumptions.

The Matter can change to, or appears as the Antimatter and the Dark Matter and vice-versa, if the right conditions and the right plasmatic magnetic fields forces are given or taken away from the particles of the Matter.

In this disclosure, we have explained in a simple way that magnetic fields are the *new* initial fundamental particles, and the **magnetic fields** are the new elementary particles *instead* of what has been assumed at present as *quarks*. So, the magnetic fields and their interactions are the **creators** of these quarks and so on, in the plasmas.

Then we have explained how the Matter, the Antimatter and the Dark Matter, and the relevant energies of the Matter, the Antimatter and the Dark Matter, are all decided, dictated and created at the inception of the creation of the first stages of the creation of the initial fundamental plasmas of these Matters.

In this disclosure, we have discussed the results and shown how the three states of the Matter, the Antimatter and the Dark Matter are created, but through *real tests conditions*, we have confirmed the co-existence of these three Matters and their respective energies.

For example, in tests there have been the very strong magnetic wavelengths of cosmic gamma-like radiations levels, which have been detected *for meters* around the system, *where there has been no physical source of such radioactive materials ever being present*. Whereas, it is a known fact that alpha and beta rays cannot travel that far in room condition environment. These levels of radiations could only be created through the interaction and the creation of strong magnetic fields in the reactors cores, which in their interaction with the particles of matters in the room environment have led to the release of these gamma-like radiations. This is exactly by the same principle as the Magravs generated in the centre of the stars in their interaction with the plasmas of matters on their surface, generate lights and high-level cosmic radiations.

An **atom** is considered to be “a collection of different densities and strengths of magnetic fields interacting with each other, in different magnetic mixtures and levels, in, and under, the same physical rules of the existence as the rest of the Matters, matters and bodies in the universe”. The atom is nothing more than a collection of the lower order energy magnetic fields strength in motion in the universe, that always come together in the same specific pattern of dynamic particles and strength.

The question is, that, is it the collections of magnetism, which created the MATTERS' of the plasma, or did the existence of the MATTERS of plasma create the magnetism?

At this point, the existence and understanding of the Dark Matter becomes important, since the human eye and the physical machines of today can only observe what is in possession of visible and detectable energy fields.

The **Dark Matter** is created by interaction of magnetic fields which create and are in possession of intense fields of gravity and magnetism, and at the same time, and it is void of visible light in respect to their given environment magnetic fields strength. On the other hand, the existence of the Dark Matter is position dependent and pmtics strength balance dependent, in respect to its environments pmtics' strength.

Through the operation of hundreds of static and dynamic tests we have very strong indications that the universe is indeed made in the normal conditions and of packages of dynamic pmtics.

From our observations, we can say with a large degree of certainty, that the dynamism of the whole universe is constantly maintained through the principle of the interaction and attraction of different pmtics, according to their strength and positioning in respect to their neighbouring rays, fields and plasmas. Where magnetic fields of different strengths are locked to each other by the principle of their **Plasmatic Magnetic Energy** (PME) and **polarity**. These causing the first stage of the creation of the magnetic attraction or what is called the **Magravs force** for the creation of the first Matters and plasma and further on of the first atoms, molecules, matter, stars and galaxies.

Through the above disclosures, it is clear that these components of plasma themselves have no solid parts, but are merely *a collection of energy and fields, trapped or interlocked in different magnetic fields strength of the other parts*, according to their strength where, they can appear as the smaller components of these parts or near to visible as the physical state of matter.

These dynamic pmtics or energies on their own in the universe are not that influential, but as they *gather with other collections* of dynamic pmtics or energies of the same levels, they appear as part of Matter, the energy constituents of an electron or the Matter parts of matters, that they show and exert their influence.

When the pmtics binding principles are fully understood, the world of creation and the understandings of the origin and working of the universe will become much easier to work with.

Why, only a part of the pmtics levels is visible to Man is not a mystery, but the reality is that Man has the habit of only looking at things in physical terms. If Man looks for the real existence of the effects of the energy levels, he will open his eyes to a new horizon in the world of creation.

The question is if one can develop the **pmtics** as in the universe and manage to release part of these plasmatic magnetic fields from initial plasma as energy, then, one can manage to control the level of these pmtics and their interactions that are needed to create and replicate energy combinations that can lead to the creation of the Matter and then matters. This in time will be done and depending upon the openness of Man to accept the realities of his owns creation and his existence in the midst of others.

In developing reactors, which have been openly disclosed, and in understanding their modes of operation, which are discussed, these reactors will not only be used as future sources of energy for Mans energy needs, further, these reactors will become the incubator for the creation of the energy levels, which can lead to the creation of the pmtics, which will lead to the creation of Matter and matters, like oxygen, food, water and so on.

Through the use of the plasma dilution and gravitational reactors systems of the future, one can and will experience the Black Hole concept and the reversibility of the polarity of planets (12), as we have done in our lab tests and become aware of their pleasure and dangers.

In these plasma dilution technology reactors it is not only the fusion of Matters that is possible, but also the fusion of Antimatters and Dark Matters and their real application in the production of Antimatter and Dark Matters atoms and molecules that will become part of daily use. Where, these will be used for the production of energies and effects, which are above the levels of the Matter components strength.

The beauty of the application of these universal reactors will be the opportunity for the creation and manipulation of the much weaker and smaller energy levels that can lead to the creation of electrons and protons.

These weaker strength magnetic fields for the creation of Matters will be noticed and can be collected at the *outer boundary of the plasma*, but not on the edge of the plasma in the reactor. This is due to the fact that the edges of these reactors are dynamic and are violent areas in which temperature interfaces will not be so suitable, but can allow creating the conditions for weak energy levels to be maintained and to manifest themselves. These zones are good to create the conditions for the creation of electrons' plasma, where loose plasma conditions are needed for fine-tuning of the fields in these reactors. This is due to the fact that electrons, in their foundation, are made of low energy levels bindings and interacting with each other, largely in a dynamic volume as compared to the protons, and in possession of weaker binding energy than protons.

To create conditions for the production of the protons, there is a need for the same energy levels, but tighter and stronger magnetic fields plasma conditions are essential and the size of the plasma and the mixture of energies available in both conditions are important.

The techniques for the use of the ambient temperature reactors to perform fusion or the production of new and heavier atoms can be learnt through the development of initial fundamental plasma dilution technology, which is very much different from the mode of operation of the present fission or fusion reactor technologies.

In the present nuclear fusion industry, the most important point in the world of creation, the *presence of controllable gravitational field forces*, has been absent and totally ignored by scientists.

In **dilution plasma technology**, as in the universe, **gravitational field forces** within the

systems are the *cornerstones* of the operation of the reactor.

This is a unique method of the creation of new Matter and the creation of energy, which has been explained in the operation of dilution plasma technology. This is exactly how Matters are created in the universe.

In the right conditions and mixture of initial fundamental particles, the use of plasma dilution technology will lead to the transformation of the *initial fundamental plasma* into protons' and electrons' to create the basic matter and simple atoms like *hydrogen*. With the right method of application of the plasma dilution technology, hydrogen atoms can be used for the production of the heavier elements.

It is important to note that, in an atom, "The interaction between the two *pmtics* of neutrons and protons Magravs are in fact the source of the **double magnetic fields** of the atom and consequently the creation of the Magravs of the whole atom.

Even though **neutrons** are supposed to be *balanced pmtics entities*, the magnetic energy of the nucleus can be *increased* up to a limit *without the disintegration* of the inner gravitational forces of its constituent parts for its components Matters field strength to attain the plasmatic magnetic energy of a higher strength or new *pmtics* element.

In his progressive evolution, Man has learnt to use what has been available to him, like wood to create fire, steam to create power, the use of oil for engines to create motion, and in the recent past the breaking of the atom and joining of plasma in nuclear reactors for energy.

Through the understanding of the creation of the initial fundamental plasma, the energies of not only the Matter parts of the plasma are used, but this technology allows the utilisation of all Matters of the plasma, that is the Matter, the Antimatter and the Dark Matter and their energies that these possess and can produce, that come into play and can be used.

In the other words, we welcome the Man to *the real world of creation*.

CHAPTER 28

Insight into the Future

Using the new acquired knowledge from above chapters, one can look into the future and say that the struggles of the past will bring beautiful fruits of creation for the future of the man.

From understanding of the operation and relation between magnetic fields within any structure, this being an atom, molecules, and even a star, different types of life in all corners of the universe can exist in all forms, and through other matters than the nitrogen based protein chain of the human race, which other lives through their different pmtics can operate through the same principles as the human protein chain. These creatures through the balance of their pmtics criterion do and can exist in the spans of universe. In fact, their protein chains with different matters than nitrogen could be more efficient in its use of passive pmtics than the humans' protein chain in using pmtics from the soup of the universe.

These Beings might have different colour of liquid distribution medium than Mans' red blood, but not necessarily this mean that they are any different from the Man in essence.

For example, if the liquid of life for these creatures of god have the potassium as the base element instead of nitrogen or mixture of the potassium and the nitrogen, then this liquid can function as good as, and even better than nitrogen-based protein of the human blood for converting and the use of Matters and matters in the universal soup of supplies. Even these Beings' protein-based cell can be more efficient for the conversion and the use of the passive pmtics of the Matters of universe. This efficiency can mean more and different comprehension, intelligence, and brain structure, etc.

Thus difference in these creatures and the Man will, and could be only the colour of their medium liquid system in their bodies.

The Potassium, in combination with pmtics of matters like the hydrogen and the oxygen mixture, in vacuum condition of systems in the Earth atmosphere, creates a silver greenish pmtics magnetospheric interface colour. Which, to mans' protein mixture, in the light absorption spectrum, these creatures with potassium-base proteins can be different in colour. Thus the liquid of life of these creatures in its interaction with Earth's atmosphere pmtics will create blood of different colour than the human red blood. Even in their external appearance they might be, or having to be reflecting the colour of their blood (9).

In reality as different planets have acquired different matters due to their Matters Magravs strength as their base materials, at their inception in their galaxies, rather than nitrogen or potassium as the base for what is called their protein for cell production to sustain life in their medium, in mans' journeys into deep space to these planets and

zones, he will come across different intelligence, colour, sizes, transparency and shapes creatures.

Man has to understand that the level of intelligence, colours of skin or blood and shapes of these beings in the universe, can and is, intriguing as is in his home base with his red blood of the Earth to them.

What is important is that these creatures, with their pmtics balance protein chain could have a different viruses tolerance passive magnetic fields levels than to the Man in the Earth atmosphere pmtics condition too.

From this point on in the journey of the Man in the universe, the prejudices of colour of skin, and the nationhood will have no meaning. From this point on the colour of the blood is only the means of indication of the origin of point of life reference and nothing more and nothing less.

In the short-term for the future one can envisage:

The implications and applications of the transition of Matters will be the key to the survival of Man in the hostile environments of the universe. If this technology is understood fully, Man will be able to conquer the control of most of the forces within the universe and use them to his advantage. The use of the *transition states of Matters* are such a powerful tools for science for the future, that if their applications are harvested in full, most of diseases of the present and future can be eradicated. Through the appropriate use of this knowledge, Man can use the pmtics strength to free himself from most ailments, by producing the right pmtics strength equal to his protein level configuration, to *reset the cells in his body* to their right and original pmtics strength of operation without swallowing a single tablet.

For example, Man can produce **enough food** from the initial plasmas of the universe, without the need for soil, by simply converting the initial plasma to the atoms and molecules of the proteins and vitamins that he requires, at the point-of-demand, anywhere in the universe. As the food, itself is made of and is from the conversion of different dynamic pmtics strength. Where, the planets and animals do the conversion for man, for them by absorbing the pmtics strength of the Sun, and converting these different pmtics strength to vitamins and proteins for mans consumption for his survival. Where plasma dilution reactors can do the **direct conversion** of what animals and plants do for production of pmtics strength in levels that can be used by humans, and have the same effect and gives the same pmtics amount and strength needed by the different cells in the human body.

At the same time by the use of plasma dilution reactors, there will be no need to carry all of Man's physical needs with him into space, like oxygen, water, food or matters for his colonisation of planets, and space. Man will be able to convert *Matters-to-matters* through the fusion technology using plasma dilution reactors in space as he travels, and produce what he needs at any given point in space (Fig. 56).

Man can produce **any material** from the initial plasmas absorbed from the environment

of space, he can produce any Matter or matters at the point-of-demand, this being an atom of hydrogen, oxygen, water, protein molecules, leafs' of gold or sheets of steel. The crafts of the future will not need to carry any raw basic materials for the production of parts into space. Man can produce materials for the construction of permanent habitation zones at any point in space and any planetary environment, through the use of dilution plasma and Grapos reactors.

Systems can be developed, which even in possession of the Dark Matter gravitational field forces, the same system can produce balanced pmtics strength in respect to its environment, for the system to appear as the source of Dark energy.

Systems can be developed, which have the ability to produce internal Magravs forces that can be tolerated by the human body. However, at the same time, the same system is being able to generate a balanced external pmtics strength in respect to its surrounding environment, these pmtics created by the system can be matching to the environment so that they do not have to interact with other systems pmtics forces (like those of the planetary systems' magnetic fields forces), so the pmtics around this region of the craft can have the appearance of systems that can produce Dark Matters and Dark energy.

However in one instance, by creating the balanced pmtics in respect to its environment, the systems that have been physically visible in one position in the given space, without a change of position, suddenly become dark or translucent in respect to their environment. In these systems and condition of operation the interaction between the balanced pmtics strength of the system and the fields of the planetary system can be brought to be matching without the system ever moving, this giving the impression that the system has moved to another position.

New systems can be developed that can produce *instantly* as much *energy-on-demand*, at temperature and pressure independent conditions, anywhere in the universe.

In possession of this new knowledge and Technology: ***Man can free himself from the shackles of the Earths gravitational field forces.***

Through the understanding of the ***methods of creation and control of pmtics***, Man can produce its own controlled *protection Magravs* magnetospheric conditions within and around the crafts, with the use of the plasma dilution Magravs positioning reactors, these magnetospheric field forces strength will be similar to the Earth Magnetic field strength (Fig. 62) or similar to the magnetosphere of an electron around its proton (Fig. 63). Where, the Matmags of transport for the crafts of the future can be gathered from the plasmatic magnetic environment of the universe.

The Magravs positioning systems (Grapos) can be used as much in a plasma, on Earth, in Space as they can be used in deep liquid environments, and galaxies, irrespective of the pressures and temperature around the craft.

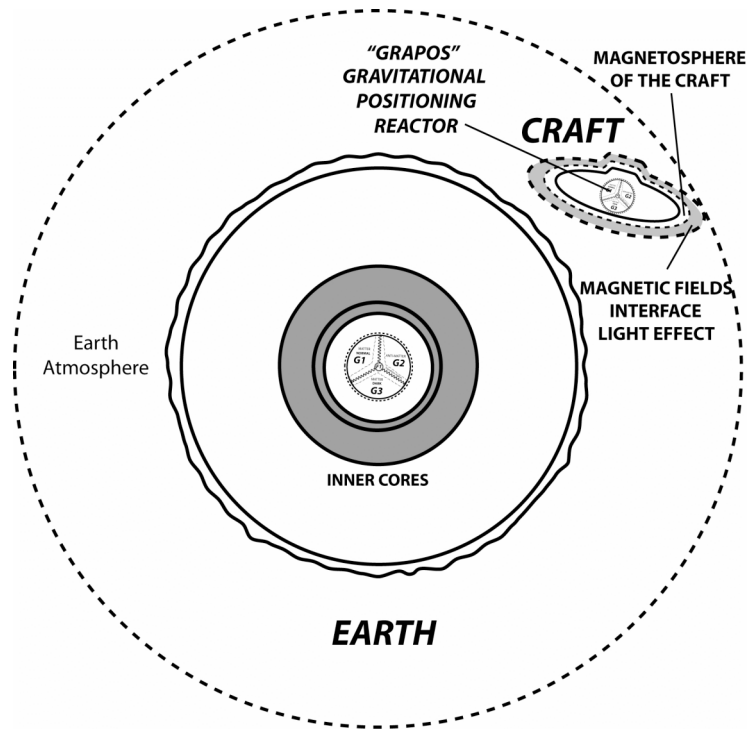


Fig. 62: The plasma dilution Magravs positioning reactors used in a craft due to the interaction of their plasmatic magnetic fields can lead to the creation of shining silver light in the atmosphere of the Earth.

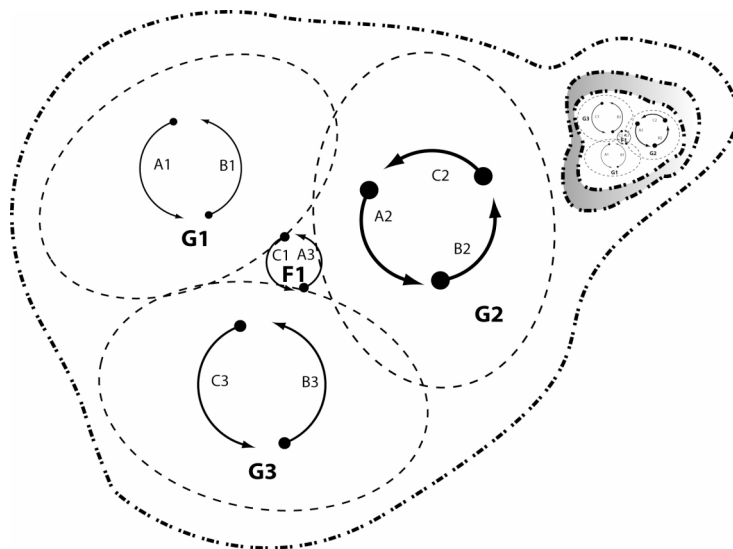


Fig. 63: Initial fusion process for the production of matters and creation of bright magnetosphere of the electron as it approaches' and is amalgamated into the plasma of the proton of the atom.

Our hope, is that this technology cannot and will not be allowed to be utilised for destruction, killing and damage to any environment or against any of God's created

Matters and creatures, whether in possession of intelligence or not.

God help Man with this knowledge so that Man will find peace within himself and others.

As Mans weakness, his greed and his hunger for power and control, soon he will come to be thought the lesson that there is no forgiveness for the ones' whom misuse this knowledge and the technology for harming others.

By understanding in totality this new knowledge and what it can bring, maybe now Man will understand the meaning of that there are balances in the overall construction of his initial fundamental materials and that their lives always have to be within their limitations, of these balances.

Mans' fundamental construction of his initial state magnetic field structure, is always the same in force and energy and specific in its initial components, as the initial fundamental components of Matters, or matters of the universe ***cannot take more than what they need*** to be constructed of the pmtics of the universe and balance enough to share their inner constituents pmtics to pass on what is needed by others' configurations for them to exist, even if this giving can mean and can bring about their own demise.

Thus every creation, in its essence, has the attributes of its creator. Therefore, with this new knowledge and the reality of its existence, maybe Man can strive to understand the truth about himself and purpose of his creation in the universe.

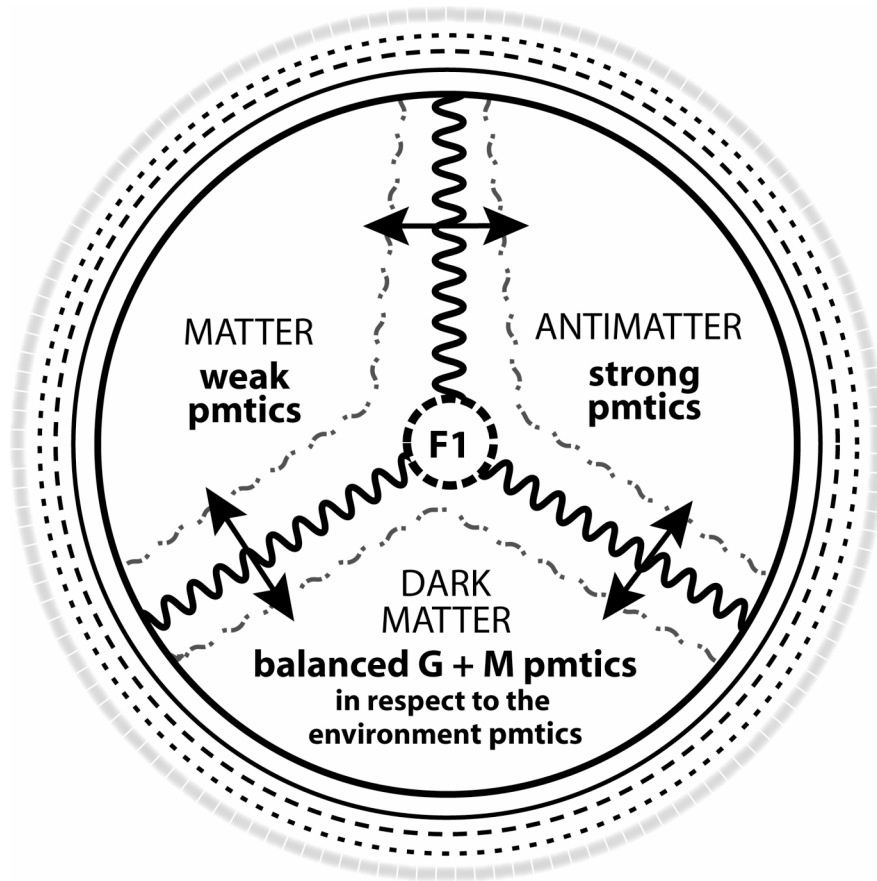


Fig. 64: The fundamental insight.

In general, I can say,

**“God has been the creator of All,
and Man the converter of some”.**

References

1: The inner-inner core of Earth

Don L. Anderson*

Seismological Laboratory, California Institute of Technology, Pasadena, CA 91125

<http://www.pnas.org/content/99/22/13966.full.pdf>

2: Researchers confirm discovery of Earth's inner, innermost core

Public release date: 10-Mar-2008

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The work was funded by the National Science Foundation

3: The innermost inner core of the Earth: Evidence for a change in anisotropic behavior at the radius of about 300 km

Miaki Ishii* and

Adam M. Dziewoński *Department of Earth and Planetary Sciences, Harvard*

University, 20 Oxford Street, Cambridge, MA 02138

The National Academy of Sciences

4: The inner inner core of Earth

D. L. Anderson

Proc. Natl. Acad. Sci. USA 2002 99:13966-13968

5: Robust Normal Mode Constraints on Inner-Core Anisotropy from Model Space

C. Beghein and J. Trampert

SearchScience 2003 299:552-555

6: Fermilab

<http://www.fnal.gov/>

7: Fermilab Finds Antimatter Clues in Quick-Change Particle

<http://www.particlephysics.ac.uk/news/news-archive/2006/new-clues-in-Antimatter-mystery.html>

8: Fermilab probes Matter- Antimatter transitions

<http://physicsworld.com/cws/article/news/24639>

9: The universal order of creation. (Written 5.7.2006)

10: Cosmic Rays (Release date 24.3.2004)

11: The Airborne reactor (Release date 25.3.2004)

- 12: The seed of the Earth** (Release date 25.3.2004)
- 13: The creation of Black Hole** (Release date 25.3.2004)
- 14: Magnetosphere** (Release date 9.6.2004)
- 15: Correction to the Einstein equation of Relativity** (Release date 15.6.2004)
- 16: Introduction to the new system** (Release date 2.7.2004)
- 17: The rings of Saturn** (Release date 2.7.2004)
- 18: The creation of gravity** (Release date 11.7.2004)
- 19: Death of a star** (Release date 26.7.2004)
- 20: Fusion** (Release date 28.7.2004)
- 21: Life of a Cell** (Release date 28.11.2004)
- 22: The Atom** (Release date 19.12.2004)
- 23: Magnetism** (Release date 8.1.2005)
- 24: The creation of the magneto-gravitational force** (Release date 5.2.2005)
- 25: The core of the Earth** (Release date 20.4.2005)
- 26: The electron-atomic welding** (Release date 3.5.2005)
- 27: Shutdown and safety of the reactor core** (Release date 6.6.2005)
- 28: Reactor Start-up** (Release date 9.6.2005)
- 29: The energy balance of the reactor** (Release date 29.6.2005)
- 30: Nuclear decay or half-life** (Release date 20.7.2005)
- 31: The decontamination system** (Release date 10.10.2005)
- 32: The difference in atomic and molecular structure under gravitational force and pressurised conditions.** (Release date 15.8.2005)
- 33: The Defence and shielding system** (Release date 4.9.2005)
- 34: Method of creation of an atom or nano Matter** (Release date 11.10.2005)

35: The relationship between Gravity and Mass (Release date 21.1.2006)

36: The Dark Matter The Fifth state of Matter (Release date 21.1.2006)

37: The inter-atomic fusion (Release date 3. 5. 2006)

38: The conductivity of the Matter in the vacuum of the interplanetary mediums
(Release date 21.1.2006)

39: The production of Graphene (Release date 25.7.2006)

40: Mini-magnetospheric plasma propulsion (M2P2)
(http://en.wikipedia.org/wiki/Mini-magnetospheric_plasma_propulsion)

41: Inner-inner core articles:

A: Professor Guy Masters Scripps institute of Oceanography
(<http://www.solstation.com/stars/earth.htm>)

B: BBC Earth inner inner core
(<http://www.news.bbc.co.uk/2/hi/science/nature/2290551.stm>)

C: Radioactive potassium may be major heat source in Earth core
Work founded by National science Foundation and department of energy
<http://www.physlink.com/News/121103Potassiumcore.cfm>

Published and unpublished works by M. T. Keshe

There are a number of unfinished articles that are to be converted to full disclosures when completed, like Antimatter method of energy releases, Nano space technology, relation between the creator and the created, space communication system, deep space defence technology, dynamic magnetic fields force regions (wormholes) construction and control, creation of magnetic fields, and so on.

Some of these works have already been published through different channels and some have not yet been released.

In the following section some of the works done by the same author are mentioned, with a brief disclosure of their contents.

Some of these papers can be purchased and obtained through direct request and access through specific links.

A number of papers with * and ** marks are not for public release due to their sensitivity of information and only available to relevant commercial and governmental organisations for peaceful applications of the technology.

The universal order of creation (5.7.2006)

In this disclosure the main construction principles and the method of the link and control in the universal order of the existence of living cells, like the function and operational method of any matter based on so called proteins chains, as for example in human cell are explained in detail.

REF 9

The author considers this paper as one of his most important and fundamental works to be published and to be added to the sets of disclosures written by him.

Cosmic Rays (Release date 24.3.2004)

This paper explains the source and the origin of cosmic rays and the way these work within our cosmos, their function and their benefits.

REF 10

***The Airborne reactor**
(Release date 25.3.2004)

This paper covers the total design of airborne reactors for space technology. This covers all aspects of operation, design and control of such reactors.

REF 11

The seed of the Earth
(Release date 25.3.2004)

Some extracts from this paper:

The theory that the heat of the core of the Earth is due to inertia of the material piled on top of each other is completely dismissed through this new disclosure.

The author M T Keshe believes that this centre core is made of hydrogen, other gases and a mixture of liquid and solid Matters, which were in the vicinity of the centre of the core of the Earth at the time of its inception in the solar system.

Through this new understanding of the new inner cores of the planet, this brings to play the fact that the old inner core of the Earth that is already assumed to be made of a solid piece itself becomes a sealed container for the new inner core.

The author through design of a parallel system has set to confirm the validity of this assumption, that the centre of the Earth possesses a *semi- fusion atomic reactor* and not a fission reactor as has been assumed by other scientists.

This theory of hydrogen in the centre of the planet is in line with the physical reality of the creation and the present situation in the physical construction of the solar system.

By the laws of physics all the gases in the solar system should have been in the giant gas planets at the outer layers of the solar system, like in Jupiter and Saturn.

The physical reality in the solar system, is that the lightest of all these gasses, the Hydrogen, has taken its place right in the centre of the solar system in its star, the Sun.

It has to be recognised that the centre of all planets in possession of gravity due to the centre cores heating, are always in possession of two Magnetic Field Forces in their inner sanctum (M. T. Keshe " The creation of gravity").

In the case of the Earth up to now and with the present knowledge there has been acceptance of only one inner core and one magnetic force.

As it is explained in the paper titled "the creation of gravity", there is an inner core in the inner core. This inner core, due to its physical content, motion and position in the centre of the Earth, creates and maintains its own magnetic field force, independent of the magnetic force which has been known to be created by the interaction of the inner core and the outer core of the planet.

These two magnetic fields interact to create the planet's own double magnetic fields in its centre. The interaction of these two magnetic fields forces upon each other leads to the new concept of the "DOUBLE MAGNETIC FIELD EFFECT", where the interaction between these two field forces in the centre of the planet leads to the creation of the gravity and the magnetic forces of the planet (Paper: The creation of gravity).

This new second core is the seed core of the planet, the mother seed of the planet

positioned in this new inner core.

REF 12

The creation of Black Hole
(Release date 25.3.2004)

In this paper it is explained that the Black Hole is created out of a natural sequence of events, and that the existence of the Black Hole in a galaxy is a normal event. Further it is explained that a Black hole is created in similar ways to the Dark Spots on the surface of the Sun. In this paper for the first time, it is explained how the Black Hole is physically created and what function it plays in its galaxy.

REF 13

Magnetosphere
(Release date 9.6.2004)

"The shape and the strength of the magnetosphere of a planet is exactly what a fingerprint is to a man. It is unique to each planet, star and galaxy. It is a tell tale of all its attributes, and it reveals the hidden mysteries of the internal materials' structure".

REF 14

Correction to the Einstein equation of Relativity
(Release date 15.6.2004)

In this paper the physical reality of the Einstein equation is considered, and efforts are made to bring this equation to the real conditions. Even Einstein considers this equation applicable for very small mass, and not in real three-dimensional multi-Magnetic and gravitational conditions, which are external and have nothing to do with the theoretical object's mass and speed, but have effect on the speed and the mass of the object under consideration.

REF 15

***Introduction to the new system**
(Release date 2.7.2004)

In this paper it is written "It is essential to understand that, with the application of this system of motion, one cannot bring into play the solid, liquid and gas fuel method to create motion, as is used today. What is offered in this system is in simple words a fully integrated plasmatic magnetic energy system. Which creates within and around the core environmental conditions as known to man in the universe, like creation of gravity and

magnetic field protection the same as the magnetospheric protection condition of planets and motion through interaction of magnetic fields as planets and stars do in their given environment".

REF 16

The rings of Saturn
(Release date 2.7.2004)

One of the oldest puzzles in the world of astronomy has been the existence of the rings around Saturn. How did these rings come to exist the way they are now? How did they come to appear and behave the way they do? These questions and much more about the creation of these rings are all answered in this paper.

REF 17

The creation of gravity
(Release date 11.7.2004)

In this paper it is explained that "the source and the creator of the magnetic forces and the gravitational forces are due to the interaction between the same materials in the same region of the planet."

Further it is explained how the gravitational field force can be created, replicated and controlled within a nuclear reactor. Further it is explained how this property can be used for the motion of a system within a planetary or solar system.

Now by understanding the principal of the creation of gravity, in this paper it is further explained that "the gravity in reality is the effect of the interaction of **two plasmatic magnetic energy fields** of any two object in respect to each other."

REF 18

Death of a star
(Release date 26.7.2004)

In this paper the death of stars is explained, "The death of a star and the creation of a supernova is in reality the same as the half-life cycle energy step-down of an atom. With the difference that this show is in a larger scale, and more spectacular, in all aspects of its dimensions".

REF 19

Fusion
(Release date 28.7.2004)

In this paper the physical and scientific problems with present fusion technology is considered. Where it is written, "nuclear Scientists, with the fusion reactors of today, are trying to create fusion in the opposite way to the known laws of physics and their parallels in the universe". Further in this paper it is written, "if the present path for creation of fusion is followed, with the present scientific knowledge of physical materials for construction of such system, then following the present path of development to create energy from current fusion systems *will be a distant dream*".

REF 20

Life of a Cell
(Release date 28.11.2004)

Extracts from this paper; "The reality of the transportation and transmutation of a cell is not far from the reality of the life of an atom or a star. Where the life cycle of the cells are slightly more complicated, as they contain other Matters like acids, which have their own magnetic characteristic of their on chemical structure. For this reason the control and replication of the energy of the cell is very much complex, but very simple to achieve".

REF 21

The Atom
(Release date 19.12.2004)

The content of this paper explains how and where atoms in the universe are originated from and how the construction of atoms in a cold plasmatic nuclear reactor can be replicated.

REF 22

Magnetism
(Release date 8.1.2005)

In this paper it is written, "The question is where did the Magnetism come from? This is the Secret of creation. The world is made of one thing and only one thing and that is Magnetism. Its combination and interaction with its own different strength fields makes it appear as different Matter. The rest of creations are the outcome of these interactions of different strength of this thing called magnetism and the forces it creates. Magnetism is the origin of existence and the real singularity in its full meaning".

REF 23

***The creation of the magneto-gravitational force**

(Release date 5.2.2005)

The creation of magneto-gravitational field force is and will be fundamentally independent of temperature and pressure, proviso to the fact that as long as a homogenous free floating PMF within a Matter is created.

REF 24

The core of the Earth

(Release date 20.4.2005)

One of the original assumptions in developing the new Magravs system some thirty years ago by M.T. Keshe was on the basis that the centre of the Earth possesses addition cores, which create the necessary gravitational conditions of the planet. After some twenty years of space technology and through Earthquake seismological data's this assumption has been shown to be correct and after over twenty years, it has been scientifically proven that the inner core of the Earth has an inner core of 600 km. Professor Guy Master in 2002 ref 24 nuclear planet. The centre of this core is assumed to have an inner core of 8 Km, this he thought to be made of the plutonium or other nuclear materials

But the developer of this new plasma reactor technology has proven through physical dynamic cores that these cores possess a mixture of hydrogen plasmas and the process of the heating of the centre of the Earth are due to a semi-fusion chain of events.

REF 25

***The electron-atomic welding**

(Release date 3.5.2005)

Some extracts from this paper:

"The electron atomic welding or atomic welding principle is the phenomenon that atoms of the same material, through a common shared electron, become a magnetically balanced molecule of the same Matter, with the difference that the shared electron will create a balanced PMF in the molecule".

REF 26

***Shutdown and safety of the reactor core**

(Release date 6.6.2005)

In this paper the safety parameters in the operation of the gravitational and energy

reactors are simply explained to avoid the loss of plasma and gravitational field forces created within its cores.

REF 27

***Reactor Start-up**

(Release date 9.6.2005)

In this paper the systematic start-up of the dynamic reactors for the creation of gravitational field forces and the production of energy are set out. The start up of these systems are totally different then the prior arts known in the nuclear industry.

REF 28

***The energy balance of the reactor**

(Release date 29.6.2005)

Some extracts from this paper:

The energy balance of these types of reactors is not as simple as might look in the first instance. The energy creation is simple. But the heat leakage and dissipation through the deliberate inherent material design are and can be zero. That is to say the system not only can hold on the heat it creates. At the same time due to the close circuit feed operation will become self-sufficient but long lasting.

In planets, the loss of heat through their surface creates the variation in the central core condition over several billions of years. In this reactor as losses can be literally negligible, the system can operate at low energy loss temperatures. Even the boundary of the body could be made through the right combination of material in the chambers, so that the body of the reactor will be colder then its surrounding boundary. So the system will not only lose energy to its surrounding, but it can be made to absorb heat in the negative temperature gradient from its surrounding, so that there are no losses.

REF 29

Nuclear decay or half-life

(Release date 20.7.2005)

Extracts from the paper:

"The nuclear decay always has the same or near the same time duration. This is due to the fact that the all neutrons and protons, from their inception, carry a predetermined level of plasmatic magnetic energy. This energy is continually used for the motion and vibration of different elements of the nucleus in respect to each other and the surrounding Matters of the atom. As the space and dimensions of a nucleus of an atom always obeys the same principal of the magnetic separation and magnetic attraction. Protons or neutrons can and will need to use or consume the same energy before they become weak enough that the splitting or decay becomes a clockwork job. The nuclear decay is the natural levelling done of a nucleus' energy, due to the energy consumption

and heat dissipation for the motion of the elements of the nucleus for its remaining plasmatic magnetic fields energy necessarily needed for them to hold one together".

REF 30

***The decontamination system**
(Release date 10.10.2005)

"What this means is that, for example in trying to recycle the CO₂, by the use of the right Matter in one of the cores of the reactor, the system will then use the O₂ to produce H₂O, in the form of pure water, and C in the form of atomic or molecular carbon, or even by feeding this back through certain operational compressions and gravitational interactions within a small core, to create industrial diamond or graphite, for different industries."

The use of the reactor for this purpose has been proven to be correct and Raman spectroscopy has proven the concept and physical reality of the separation of Matter in atomic level after separation in the same system from a composite Matter.

(See the graphene on the technology web site)

REF 31

**The difference in atomic and molecular structure
under gravitational force and pressurised conditions.**
(Release date 15.8.2005)

In this paper is written that "the atomic and molecular structure of Matter is totally aligned and positioned in a fundamentally different configuration where it has come together due to gravitational forces, than when Matter has been brought together by the means of pressure. This has a fundamental effect on the behaviour of the structure and properties of the Matter which is created in either way". Where this is explained and utilised to develop a new method in creating graphene and Sp³ atoms and walls in a simple core made of a coca- cola bottle.

REF 32

****The Defence and shielding system**
(Release date 4.9.2005)

Some extract from this paper:

The design of the side open system for lunch of high saturation magnetic plasma package is one of the most effective technologies for defence of the reactor and the

craft, which is in possession of such a system.

It is essential for any space technology in the open environment of the universe, if the craft is to keep a straight line of motion and to be able to protect itself from any solids or Matters in its path in the cosmos.

This technology can destroy any object by the principal of plasmatic magnetic energy saturation of the incoming object at a molecular level, that object will disintegrate in the form of magnetic vapour and not atomic level destruction, before Matter can damage the craft as debris, and before the craft ever becomes in touch or near these space Matters.

This technology can also be used to protect Earth from the collision risk of NEO's (Near Earth Objects), like comets and asteroids.

REF 33

Method of creation of an atom or nano Matter

(Release date 11.10.2005)

The manufacture of an atom of any density, this being of the simplest form of nucleus or a full atom of hydrogen, or even heavier elements in the universe, all follow the same principal.

Atoms are created in the soup of the cosmos from collections of very weak plasmatic magnetic fields, which for their existence cluster and share their energies with the magnetic fields that are not far from their own plasmatic magnetic field strength.

REF 34

The relationship between Gravity and Mass

(Release date 21.1.2006)

Extracts from text of this paper:

"A planet like Earth possesses a combination of both gravity and inertia. Where the gravity comes from the interaction of plasmatic magnetic energy fields from the processes within its core, and the inertia comes purely from the collection molecules PMF of Matters which has built the physical body of the planet.

Any object, being an electron, atom, molecule or even a human body, is a collection of plasmatic magnetic energy fields of different strengths and their interactions between each other, which in total decides the total or collective magnetic field possessed by that object where this is the mass of the object.

Where the mass of an object is a collective package of plasmatic magnetic energy field tightness of a given object and will not change as long as the object is intact as one entity in its overall atomic or molecular or collective molecular appearance.

Which plasmatic magnetic energy of a physical body (so called the mass of the body) in interaction with molecular or atomic magnetic field (this being gravitational or inertia) of another object will determine the weight of the two object in respect to each other in each others environment".

REF 35

The Dark Matter
The Fifth state of Matter
(Release date 21.1.2006)

Extracts from text of this paper:

The existence of Dark Matter is not questionable,
Proving its existence, and its effect on the energy balance of the universe, in all Matters
as small as in the heart of an electron or in a solar system needs to be created, replicated
and its effect measured.

The theory of Dark Matter does not and needs not to be considered as complicated, if
one understands in real terms the plasmatic magnetic energy of the Matter in the visible
and invisible dimensions of the universal work.

The Dark Matter has two distinctive characteristics, which makes it totally apart from
the visible Matter.

The Dark Matter possess mass but not visible light, where its existence can only be
determined by the weight of the its hidden mass, which could be substantial due to its
internal gravitational field.

REF 36

***The inter-atomic fusion**
(Release date 3. 5. 2006)

Extract from this paper:

"The fusion of two or more atoms has been the pre-occupation of nuclear physicists for
past years.

Conditions to achieve fusion of two hydrogen plasmas in the TOKAMAK reactors have
taken years to teach scientists a lot about the behaviour of plasma and their fusing.

The reality about the fusion in someway has to be reconsidered as, if the scientific
world is trying to amalgamate the contents of two plasmas to release energy. There
must be a simpler way to achieve releases of similar energies.

The fundamental principal of the inter-atomic fusion is a much simpler way to achieve
fusion. If this principal is applied to the atomic condition of fusion, then fusion will be
attained in a simple but in a much more physically realistic environment.

The explanation for the inter- atomic fusion is very simple and direct.

In the fusion of two plasma of proton of hydrogen atom, the physicists try to fuse two
large plasmas, and by doing so, they try to release a large amount of energy. Where in
this process enormous amount of magnetic field forces and currents are needed to bring
two plasma in close proximity, so that the energy barriers in between them can be
overcome for them to amalgamate or fuse.

In the inter-atomic fusion the overcoming of energy barriers does not exist, as in this method of fusion, the electron of the atom which is circulating the nucleus of the atom and is of the same origin will be encouraged to return into and fuse with the nucleus of its atom".

Where this is a more practical way to create and release manageable energies and there is no need for elaborate systems where even if the energy release will be small compared to dreamed up fusion systems of today.

With inter-atomic fusion method at least small and practical systems can be developed to handle low temperatures of the fusion process.

REF 37

**The conductivity of the Matter in the vacuum
of the interplanetary mediums**
(Release date 21.1.2006)

Some extracts form this short paper "Therefore plasmatic magnetic energy field of elements within the interplanetary medium will cover the space given to them in their environment. Where due to their motion and their electric charges even in eV levels, they become perfect conductor, and in turn, due to their motion on their environment, they become plasmatic electromagnetic generators.

REF 38

The production of Graphene
(Release date 25.7.2006)

Repeated experiments and tests in simple static reactors, and tests in more complex dynamic reactors, prove that atomic separation and recombination of Matter like carbon and hydrogen can be reached at room temperature and at atmospheric conditions.

We have now indications - through static and dynamic tests in our reactors - that the universe was made in normal condition, which was originally nothing but packages of plasmatic magnetic fields of different strength, which were themselves nothing but areas of plasma or collections of loose magnetic fields energies. Where magnetic fields of different strength in locking to each other, by the principle of their **plasmatic magnetic energy (PME)**, have caused in the first stage the creation of fundamental particles, secondly atoms, then molecules and then Matter, clouds and asteroids and then stars and galaxy's".

The big bang theory conditions have no room in the reality of the creation of the universe.

REF 39

INTERNET LINKS

Web site: www.keshfoundation.com

Large images of this book on the web site:
<http://www.keshfoundation.com/book/images/>

Links on the web site to YouTube movies: <http://www.keshfoundation.com/youtube/>

Forum: <http://www.keshfoundation.com/forum/>

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In this book nuclear engineer Mehran Keshe discloses in a very logical way that the initial fundamental building blocks of the universe find their origin in a **cosmic magnetic soup** that contains an uncountable number of magnetic fields of different strengths. In this soup magnetic fields of similar or equal strength can meet, interact and entangle into a larger dynamic spherical pack. The interaction between different dynamic packs, leads to the creation of Gravitational and Magnetic field effects and properties in their given environments. Due to the differences in their magnetic field strength each spherical pack will possess a different strength, which each magnetic field strength will be in the order of magnitude of the **three basic types of Matters** (Dark Matter, Antimatter and Matter).

As these three Matters being made of magnetic fields, they also interact, inter-balance and can interlock with each other, these interactions of three Matters results in a larger integrated dynamic system, called the **Initial Fundamental Plasma**, or the **Neutron**. By the natural decay of this plasma, the proton and the electron come to be generated and to co-exist, where plasma of each proton and each electron still contains **the Trinity of the three Matters** of the original plasma.

The discovery of these new first principles in physics will open for mankind a large number of benefits, since the various type of interactions of the three basic Matters and their field forces in their environment leads to the **creation and control of matters** (solid, liquid and gas).

In this book, new first principles and criterions for the creation of Gravitational and Magnetic field forces of the planet Earth are explained. Similarly it is explained how safe, simple, nuclear reactors, which have been build to replicate the structure of the planet inner cores, confirm the Keshe theory of creation of gravitational fields of the planet, as these reactors can produce fields which can cause reduction in weight, cause **motion and lift** of the reactor system, and produce an independent magnetosphere around such reactors. The interaction of the dynamic plasmatic magnetic fields of the magnetosphere around these reactors with the planetary magnetic fields creates light around the reactor. These **light-effects** confirm the Keshe's theory of creation of light through the interactions of plasmatic magnetic fields. These systems will open new ways of **Space Travel**.

By this knowledge it became possible to design, develop and test new low cost reactors that can dilute plasma and achieve **fusion of plasmas** in a simple and affordable way. So it now becomes possible to create vast amount of energies (like **electricity and heat**) and motion **without the need of burning any fuel and without creating any waste**. These reactors can create at any point-of-demand matters like air, water, food, medicine, and new materials, also at nano-level.

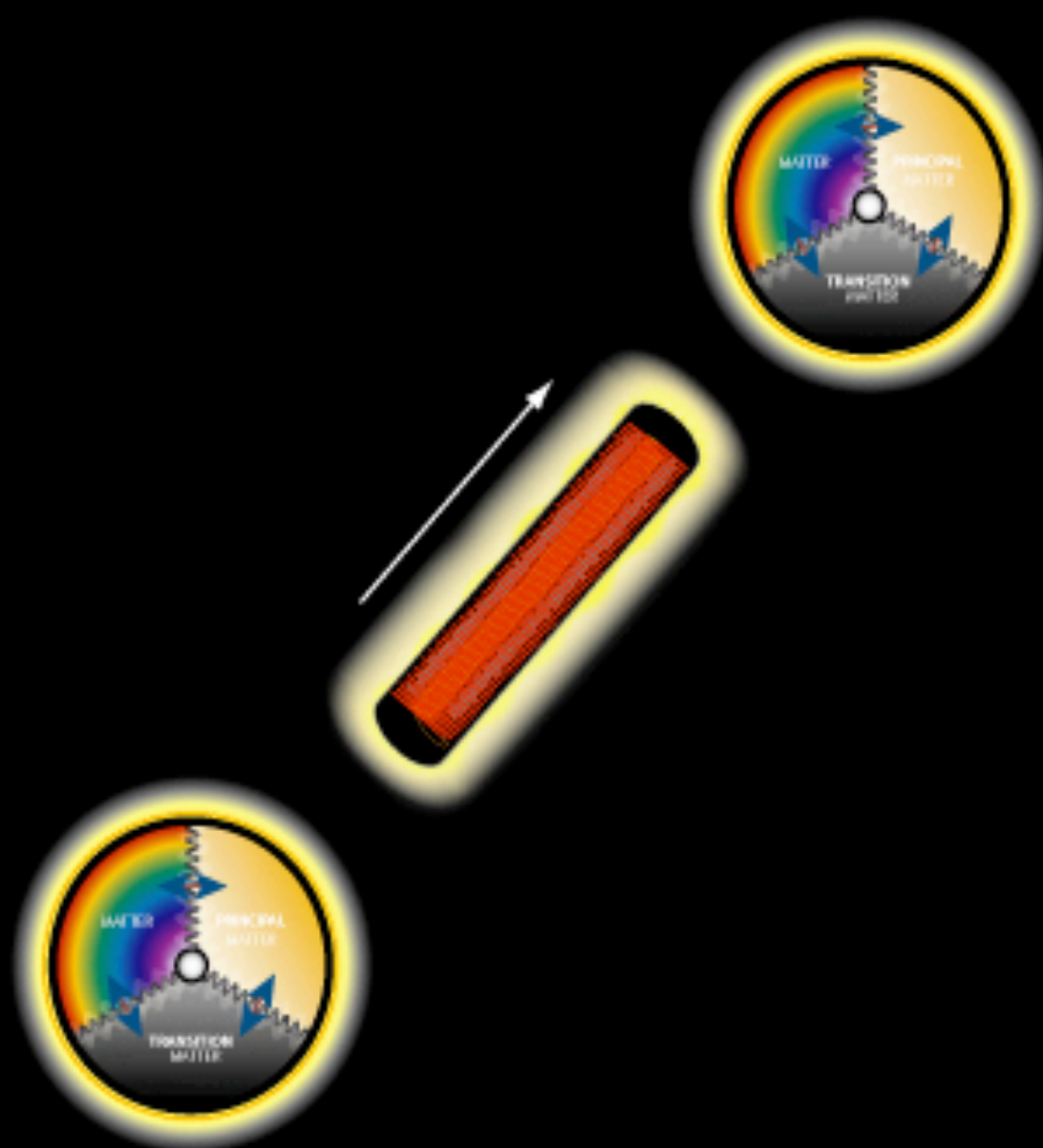
This new revolutionary technology can help to solve a number of **global problems**, like of the climate change, since Keshe reactors can be build to attract greenhouse gasses like CO₂, or the global issue of water shortage and water pollution since it becomes now possible to create water and to attract hazardous elements out of the polluted and contaminated waters.



The Keshe Foundation is an independent non-profit and a non-religious organization founded by nuclear engineer M.T. Keshe, aiming to bring new scientific knowledge and new technologies to mankind, and to bring new solutions for the major global problems, like famine, water shortage, shortage of electrical power supply, climate change, illnesses, by the use of new types of plasma reactors, and to give Man the real freedom to travel in Space.

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The Structure of the Light



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THE KESHE FOUNDATION
(The Netherlands)

The Structure Of The Light

ITNOTGOG

Reflection

The light has plasmatic structure the same as the plasma of the proton and electron and it is made of mixture of magnetic fields strength with difference that the light has dynamic composite magnetic field strength spiral helixial cylindrical composite matter mafs plasma structure rather than the dynamic composite mafs spherical structure of the matters the like of the plasma of the neutrons.

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Forwords

All knowledge gathered and learned in every fields of science by man in his cycle of scientific evolution from his beginning of time and up to this point, these are like of the speck of dust of the universal wisdom in comparison to what man will enjoy from the knowledge which is to be revealed in this disclosure.

This shall not be all that the man has to know about his creation and the creator but through this new knowledge man will become close to realise how much more he needs to discovered and learn more about the created bigger universe, and our hope is that we have managed to bring man to his ultimate point of maturity about his world and the world of other creatures of universe through what is to be disclosed in this book.

In these new series of disclosures including this we will open the world of science into the realisation of the real working of the universe and how man can advance his intelligence and that this new and up to now unknown science can clear the way for bringing peace to the Man's own wondering life and other intelligent beings in the universe.

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Introduction

With the present knowledge in the plasma technology and the new understanding of the internal structure of the plasma, the light is and can be considered to be a cylindrical version of the spherical plasma like of the proton and the plasma of the light is in possession of all three magnetic fields of the matters of the plasma (1).

The ray of light is in possession of Magravs and hence its own gravity, mass and Magnetosphere, and due to its dynamism this plasma of the light possesses momentum and hence can carry and transfer this momentum as energy to other light rays, tangible and non-tangible entities.

As the plasma of the light is moving from one dynamic magnetic field strength spherical in shape plasma to another and as each matter's mafs of the plasma of the light interacts with its surrounding environment's plasmatic magnetic fields in any matter environment, then the appropriate matter mafs components of the light and its ever present environment come to interact with the same and different matters and matter mafs in strength of its environment, this leads to less losses of the plasmatic magnetic field (pmf) contents of the mafs of the matters of the ray of light and hence allowing the light to travel in any environment at the speed of its given environment plasmatic magnetic fields strength with less friction and maximum speed in that given pmf strength. Then in matter mafs and matter magnetic fields strength environment, this property allowing the ray of light to have a speed of light in matter environment strength as is observed by man, and where in antimatter environment the antimatter light travels at antimatter magnetic field strength environment, which the speed of antimatter light is far higher than the speed of light in the man's matter plasmatic magnetic field strength environment.

Thus the speed of the light in the matter environment is not the ultimate speed of matters in the universe, but the speed of light is dictated and controlled by the environmental magnetic field strength which the light operates in.

It is possible to attain faster speeds than the speed of light in a matter magnetic field strength environment by using the magnetic fields properties of the antimatter plasmatic fields.

Once understanding this criterion and concept then at this stage one will face the magnetic strength barriers to overcome as one does in the matter environment with sound barrier.

Therefore: One has to understand the truth about the real construction of the light and its movement in each plasmatic magnetic field strength environment for the man to be able to travel the spans of the universe with pleasures of being able to observe and learn all the truth about the creation in all pmf strengths which operate in the universe.

The re-naming of matters and conditions

(Advice: Skip this section unless you need to refresh or reading for the first time or read it after you have read the chapter 1, 2 and 3 as this section can be confusing and distracting you from the main body of the book).

(Point of reference: The following section is and to be added to all disclosures for the ease of understanding as most of these have been disclosed in the book (1), and it is added here for the ones who have not read the book and are not familiar with terminologies in the works of the author).

In this literature, when using the term “mafs” for example in form of the antimatter mafs this means and refers to the magnetic fields (mafs) which this entity is made of and it is considered to be as a plasma of magnetic fields, and where the term “antimatter” is used on its own this meaning the physical tangible or detectable entity of the same. This usage of mafs similarly applies to physical matter and Dark matter too.

Further, the difference with Antimatter and matter is only in their plasmatic magnetic fields (pmf) strength and compactness of their fields. Thus, what is the magnetic fields (mafs) of antimatter they become magnetic fields of the matter as antimatter magnetic fields unwinds, loosens up, weaken in their field strength through their interaction with other magnetic fields and matters and become matter mafs and in plasmatic magnetic field strength of matter environment the matter mafs becomes tangible and become matter.

Therefore the antimatters are a more compact strength magnetic fields entities of the same of the magnetic fields of the matter, and due to their tightness of their fields, these magnetic fields of these mafs of matters they create stronger gravitational and Magnetic fields and hence they have stronger Magravs and hence upon their unwinding, they release magnetic fields and pmf which are faster, higher in strength and hence they look as to be strange strong and fascinating matters.

This means that antimatter entity of for example ten centimetres in diameter once unwinds in structure it becomes a matter of several thousands of meters in diameter entity in matter magnetic field strength environment.

Inevitably one should call the term antimatter the start matter and therefore antimatters should be renamed the Principal matter. Therefore there is nothing anti about these matters mafs and matters at their pmf strength as has been assumed in the world of science.

The Principle mafs matter itself has different degrees of strength by itself and not all magnetic fields of the Principal matters have the same magnetic field strength. Where, the principal mafs plasmatic magnetic fields strength has a spectrum of field's strength too.

As the magnetic fields of the principal mafs unwinds, it releases and loosen in its environment these magnetic fields (mafs) of the principal matters disperses into their environment, then they lose their strength through contact or interaction and friction with mafs' of matter and matters, and hence these principal mafs matters pmfs go for through magnetic fields strength of the Dark mafs matter strength first before through further reduction in strength, the dynamic pmf of mafs of the dark matter in motion reaches the pmf strength of the matter mafs level and hence becomes visible in matter pmf strength environment and becomes matter.

Now that the essence of existence of dark energy or dark matter can be explained in its realistic manner, and that is what has been called dark matter is in fact this is a magnetic field in transit from

the principal mafs matter and matter strength to matter mafs strength and matter.

Then as energy has been defined as “magnetic fields in motion” then the dark energy in fact is transition mafs matters in motion, or what is called the transition energy.

Then the dark energy can be called the Transition energy instead of the Dark energy, as the pmf in motion as this magnetic fields from the mafs strength of the principal matter in motion to reach to mafs strength of the matter level, this is only a Transition pmf condition, and transition mafs matter phase only.

Where, the interaction of mafs of transition matters with other of the same leads to and creates the Transition gravitational and Magnetic fields of their own or create what is called the Transition Magravs and in some cases this condition leads to creation the transition matter (dark matter) and consequently sometime interaction of mafs of transition energy leads to appearance and become transition matter (dark matter) in the cosmos.

Therefore, the magnetic fields strength which makes the **dark matter** is to be renamed as the mafs of the transition mafs matter and the dark matter as tangible matter becomes the transition matter, the dark energy to be renamed to transition energy.

The plasma of the principal mafs matters exists everywhere in the universe. This being in the centre of the universes, galaxies, stars, planets, plasma of proton and even in the centre of the plasma of the electron and in the lower order pmf strength environments which have been undetected up to now by man.

In reality in the centre of what is called a black hole in the universe, there exist and is the home of the principal mafs matters and principal matter. Therefore the *black holes should be called **the principal stars*** in the centre of galaxies, stars, plasma of protons and other entities like these.

The choice of the term star for principal centres of matters is correct as these principal matter concentration centres are like a star in the centre for the matter world like solar system, and the Principal stars are the place for the mafs of the Principal matters and the principal matters which their fields radiate outward into their surrounding as it does with the stars. Thus from this point on in this disclosure we call the black holes the Principal stars in the universe now that we understand the real source of their mafs of this matter(s) and its principal matters.

It can be understood now that where the intensity and the strength of stars and planets come partially from the existence of the principal mafs pmf strength which has been released by the Principal stars in the galaxies. This is to say that the seed of the pmf of the galaxies and matters needed for the creation of stars in principle are from pmf of the mafs of the Principal matter. Where, *the interaction of the pmf of these mafs’ of the Principal matters* leads to *creation of initial strong Magnetic and gravitational fields* needed for the creation and attraction of mafs of matters of plasmas of matters, the mafs of the transition matter and transition matters of the same region of the galaxies, plasma of stars, plasma of the proton and other entities of the same structure in the universe.

At the same time when using Magnetic with capital “M” this means the like of the Magnetic field of the earth, which itself is the plasmatic environment created by the interaction of at least two magnetic rays and indicates the outward flow of the magnetic fields from a plasmatic environment the like of the earth.

Similarly, when using magnetic field with small “m” this simply means the magnetic fields as in what we observe at the end of a solid magnet as magnetic fields of the object without its interaction with other fields.

Chapter 1

The light

The initial assumption which has been made by Einstein that the light is energy and travels with the ultimate speed of acceleration in the world is nothing but short of the lack of the understanding of the scientist about the real truth about the real different composition of dynamic Magnetic fields strength which the light is made of.

It is really unthinkable that the light in matter environment can be considered as energy as has been done by Einstein, as he has even proven that the light tends to bend when it passes near large objects like stars.

This bending of the light should have indicated to Einstein that, when energy tends to bend in and around any objects like a star, this by itself indicates that the light is and possesses both a Magnetic and gravitational entity structure. He should have understood that only Magnetic fields or the gravitational fields, which both are magnetic fields based, that these two entities can only attract or interact with other magnetic fields based Magravs entities and then in finding their position in respect to each other, this causing the positioning and not bending of the light in respect to the star and hence light bypasses such large objects by manoeuvring around them and gets or give the appearance of bending near the object as it position's itself in respect to large objects Magravs.

Hence light is not energy but a physical plasma entity like the plasma of a proton or an electron. Therefore, the interaction and Magravs positioning of two physical dynamic entities, which leads to observation of what is called the bending or lensing of the light near large objects the like of the star.

Whereas this was not so and light was an energy, and as has been explained before energy is when plasmatic fields (pmf) are in motion, then light would have been absorbed by the Magravs of most stars into their magnetic fields based atmosphere on the way of them passing through cosmos and as has been observed the light would have been absorbed by the other entities in the cosmos, and the light ray would not find its position in respect to star and bend around stars and large dynamic entities in the universe and the light ray would have never been able to cross the universe that one can now see the emitted light of stars from far corners of the universe.

Therefore as light tends to react and bend near objects like stars this by itself indicates important points that the light is a composite magnetic field based entity and if one can attract and interact with any composite magnetically based entity, then the entity has to have both Magnetic and Gravitational field forces.

When two or more plasmatic spherical magnetic fields Magravs interact then this can lead to release and creation of cylindrical Magravs of the light, which ***this transitional Magravs entity*** possesses both **mass and gravity**. Therefore, as the plasma of the light possesses gravity and Magnetic fields, hence this entity due to its structure possesses its **own mass** and its **own magnetospheric environment** too.

Where, this magnetosphere which is created by the interaction of the two the Magnetic fields and gravitational fields of the light in its interaction with other pmf of Magravs of a given environment, this leads to and creates the visible light in matter mafs and matter environment when the outer matter content of the light is in matter environment.

Hence the interaction of the plasma of the light and its environment's magnetosphere leads to

release of pmf in the human protein Magravs strength, which manifestation itself as the visible light.

That is to say as the magnetosphere of the light interacts with the magnetosphere of its given environment, due to friction of the two fields, *residual magnetic fields leftover* are created, which they are manifested as visible light or other wavelength of magnetic fields according to the human eyes protein cells plasmatic magnetic fields strength levels in earth environment Magnetic fields condition and in comparable environments.

Chapter 2

The structure of the light

As an entity in possession of Magnetic and gravitational fields moves from one spherical plasmatic magnetic fields environment (for example the plasma of the proton) to another plasma, the plasma Magravs motion in between these two spherically dynamic plasmatic entities (transition plasma magnetic fields (pmf) stretches' to and takes the shape of elongated cylindrical Magravs entity rather than a spherical shape.

It can be considered that the tangible or detectable pmf are of dynamic spherical in shape entities and they possess the pmf Magravs of their own and as the pmf moves from one dynamic spherical entity to another dynamic spherical pmfs Magravs environment then the plasmatic magnetic field Magravs in transit between the two spherical Magravs due to interaction and its composite Magravs configuration and the Magravs composite of its environment becomes elongated pmf in shape from the Magravs of the spherical plasma and takes and become narrow and elongated and hence spiral cylindrical in shape.

It has been explained in detail that the plasma of dynamic spherical entities like plasma of the protons' is made of three main components of mafs of the matters, the mafs of the principal matter and the mafs of the transition matter and mafs of the matter (1).

Therefore the elongated plasma of the same must contain the same mafs and matters but in a different structural positioning configuration.

Hence the dynamic cylindrical shape plasma of the mafs of the matters in transit from one plasma to another will have the same quantity mafs of all matters of the dynamic spherical plasma and therefore the plasma in transit possesses and it is made of the same mafs of the principal matter (Fig.1, 2), mafs of the transition matter (Fig.1, 2), and the mafs of the matter (Fig.1, 2), hence the plasma of the light contains the same mafs of the matters as the plasma which is manifested from.

This dynamic elongated cylindrical plasma once in motion due to its new shape it can penetrate and move faster in its environment as it has less frontal interface and creates a lesser friction as if it was spherical in shape, this allowing faster speed to be attained by the plasma of the light in transit from one matter mafs environment to another irrespective of the plasma matter mafs of the light being in the principal mafs, transition mafs or matter mafs mediums pmf strength environment.

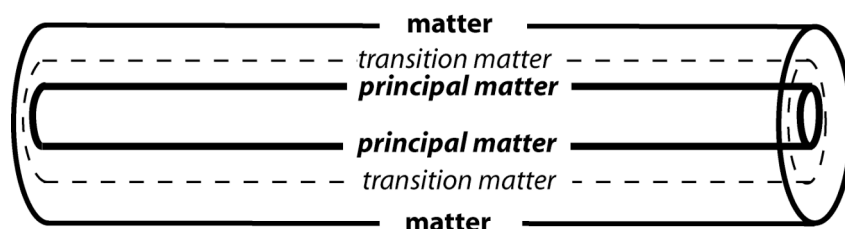


Fig.1 The schematic mafs of the matters components' of the light

This internally dynamic cylindrical plasma of the light in its motion creates friction between itself and the Magravs of its environment, which this friction at the point of their interaction and due to friction of the two pmf Magravs at this point of interface releases plasmatic magnetic fields, which are in the man's protein pmf strength detectable magnetic spectrum. Through biological structure of the humans protein pmfs strength visionary sensors' which can detect this interface interaction pmf strength then these sensors become aware of different pmf strength, its position and condition and

this information is passed to the brain, where this method of interface interaction of two Magravs of the rays of the light and the protein has become the method for man to be aware of his physical surrounding in his environment pmf strength and the man has called this matter interaction conditioned wave length the light ray.

The light ray in its interaction with the surrounding magnetic fields in their environment leads to creation of magnetic field in range to man visible light according to the human protein pmf strength of the universal Magravs spectrum, where the shine or the visibility of the light observed become and it is at the boundary of the magnetosphere of the plasma of the light.

The structure of this dynamic cylindrical plasma of the light ray, which creates its own Magravs, is initially consisted of, in the centre, the content of mafs of the principal matter, then the next layer to the principal mafs is the mafs of the transition matter and then the layer surrounding this, is the matter mafs strength magnetic fields components of the light.

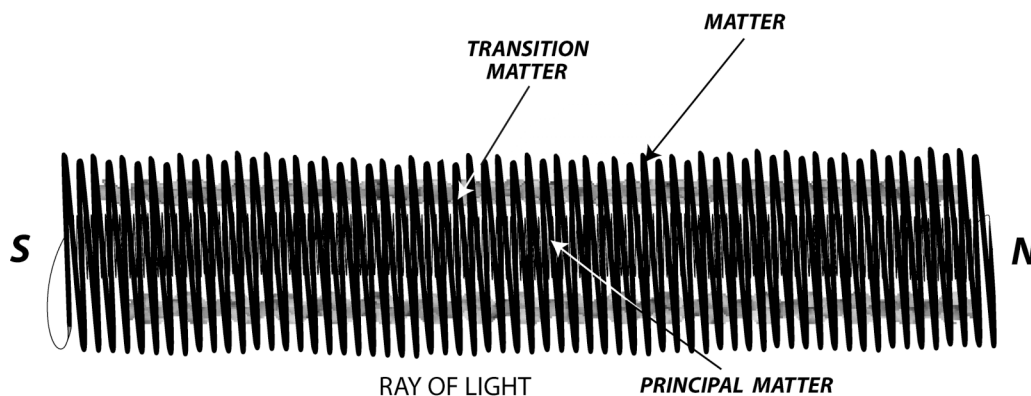


Fig. 2 The mafs of the matters components' of the light

These dynamic plasmatic magnetic fields due to their proximity to each other, they have to interact with each other as all magnetic fields in close proximity with each other do and by the same universal principle laws of physics these magnetic interactions leads to creation of gravity (1) and creation of Magnetic fields within and around this dynamic cylindrical plasma, where these magnetic fields interactions leads to creation of internal and inward magnetically initiated gravitational fields force of the light and the outbound Magnetic fields forces of the light. Therefore due to interaction of different constituent magnetic fields of different mafs' of the matters of the light, the light must create and does possess its own Magnetic and gravitational fields, and due to the interaction of these two plasmas of the fields of the gravity and Magnetic fields, this leading to creation of the mass and the magnetosphere of the ray of light (1).

Hence the light by natural laws of magnetism possesses mass and magnetosphere and similarly not all lights have the same mass and by the same laws and principles lights of different intensity and lights which can travel longer distances possess a larger mass. Where, their mass is primarily dictated by the strength of the pmf of mafs of the principal mafs of the light components'.

The interaction of the mass of the light and the environment of the medium that the light is traveling through, then the light acquires weight in respect to its given environment fields strength.

The mass of the light has different weights according to the gravitational environment which it is passing through or being produced or arrive at. In understanding the construction of the ray of the light then the mass of the light has to be measured along its total length and not across its width.

Most rays of light possess anticlockwise spiral longitudinal rotational motion for their constituent

fields and not spherical rotation of the fields as for example in spherical dynamic entities the like of plasma of the proton.

Rays of light as in the case of matter plasma of protons the light rays mainly possesses and maintains a clockwise directional motion.

Due to composite structure of the light's mafs, if one looks' at the cross-section of the light (Fig. 3), one should be able to observe a tighter magnetic fields strength region of the principal mafs in the centre, leading to creation of the strong light in the principal spectrum level and stronger gravitational fields of this sections' structure that creates its own magnetosphere region, then this section is covered with the transition mafs region structure of the light, and then when the transitions mafs have reduced in their strength, then they become in the level of the matter mafs strength and at this zone the matter mafs and matter of the light are established and maintained (Fig. 3).

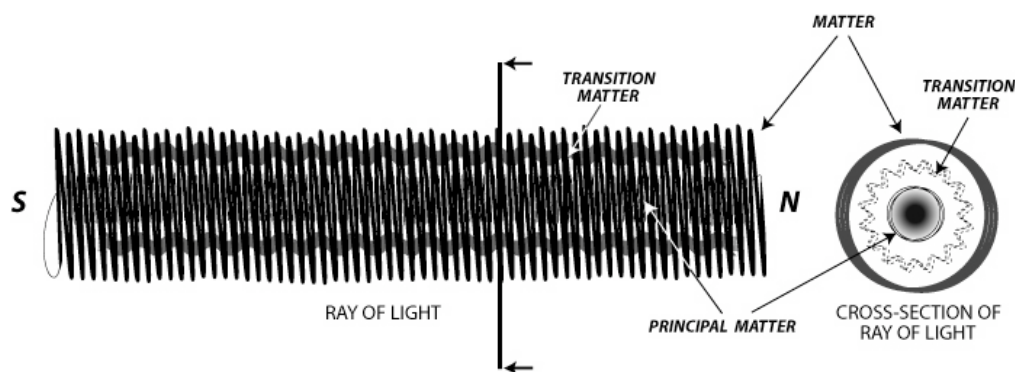


Fig. 3 The cross section of the ray of light

The lights' structure is similar to the structure of inner sanctum of the Sun and principal star in the centre of the galaxies, where for example the Principal Star takes its position in the centre of the galaxy and due to its higher inner magnetic field's strength of the principal star, this creates what appears as the principal stars strong gravitational field forces that all matters around it are pulled inward and at the same directional motion of the galaxy is set by their principal star too, where simultaneous this central matter radiates outward its own light in the principal mafs strength (3 and 4).

The straight helixal cylindrical shape of the light ray has polarities the same as any straight solid magnet, where the outer magnetic fields lines of the light ray converge inwards and the inner magnetic lines of fields diverge outwards, this creating an inward (South-Pole) and outward (North-Pole) directional motion of fields (Fig. 4).



Fig. 4 The polarity of the ray of light

Due to the structure of magnetic fields of the light, it can be said that the matter mafs fields components of the light will be interacting and be attracted and drawn inwards' through the centre

of the structure of light's magnetic fields at the ends of their pmf length (South -Pole of the light) and then as they go through or in proximity of the mafs of the principal mafs of the light in the centre they absorb some of the pmf, which has been unwinded by the mafs of the principal mafs fields and then these matter mafs fields, now energized, then due to their rapid motion are ejected and appearing from the other end (North-Pole) of the light ray.

This inward revolving motional central rotation of the outer matter mafs fields at the same time gives the light its property of high speed forward motion, where the conversion and the overall and total gravitational field strength and the helixial cylindrical rotation of Magnetic fields of the lights' principal mafs' dictates the length of the light ray and hence where the beginning and the end of the light ray would be.

This process of matter of light going inwards and then ejecting from other point, is very much like the process what some consider as the imaginary phenomenon commonly called and known as a wormhole principle. The continues rotation of the mafs of the matter's fields concaving-in and will go through the inner Principal Star like system of fields in the centre of the ray and then the pmf of the mafs of the matters emerges from the opposite-end as it has entered with new and higher pmf strength.

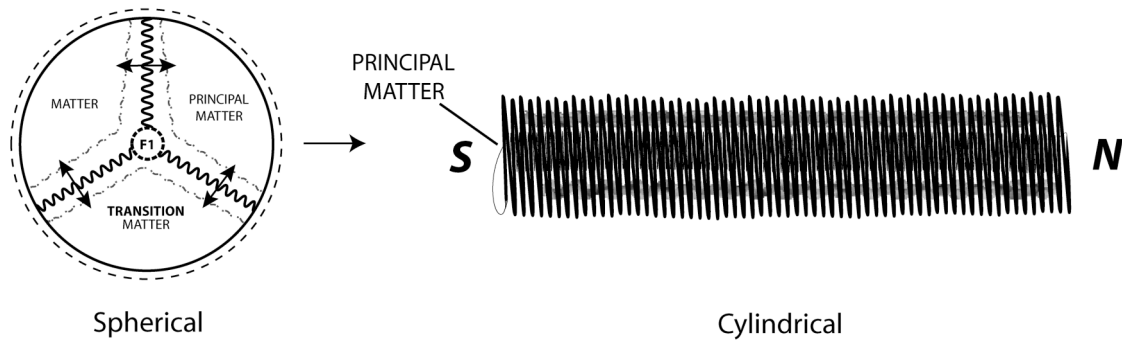


Fig. 5 The first conversion. The spherical plasma structure converts to the cylindrical plasma structure of the light (The first metamorphoses of the light)

When, the spherical plasma first changes to cylindrical plasma that is the point when the ray of light is created and becomes straight line directional in motion entity, and the spherical entity goes through the first metamorphoses (Fig. 5).

Then as and when this dynamic cylindrical entity reach's its destination point, this being of any mafs or matters plasmatic fields strength environment, then at the point of arrival then this cylindrical entity goes through the second metamorphoses and reverts back and spherical rotational fields entity (Fig. 6).

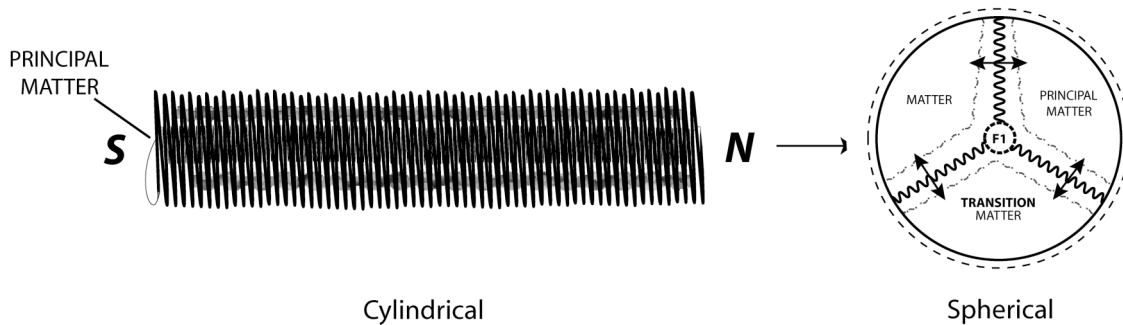


Fig. 6 The second conversion. The cylindrical plasma structure of Light converts back to a spherical plasma structure (The second metamorphoses of the light)

Where, the plasma of the light gets gravitated and absorbed then it takes the shape of the matters in the target entity environment as the content matter of the plasma of the lights gets added to the plasma of the target environment and the target entity receives an additional dynamic plasmatic magnetic field of all mafs of the matters of the light or what is called the target plasma receives an additional energy from the plasma of the light.

Therefore the plasma of the matter to hold on to its maximum pmfs and transfer its pmfs from one point in the universe to another as fast as possible, then the plasma of mafs uses and goes through double metamorphoses process of spherical to cylindrical and then to spherical entity (Fig. 7).

In reality the light ray due to its mass possesses momentum rather than light being a ray which only transfers' it magnetic fields and energy upon interaction with other entities in the universe.

Therefore, IFF the light was a ray and not a plasma composite of different mafs strength, then only one of the matters' mafs of the plasma of the targeted entity would increase in mass and this creates unbalance in the inner structure of the targeted plasma and only in that matter's content, which in the case of the matter environment this energy is so low compared to the principal mafs contents' of the targeted plasma, that this increase in matter pmf would not have shown any increase in its content and increase in the energy as the whole.

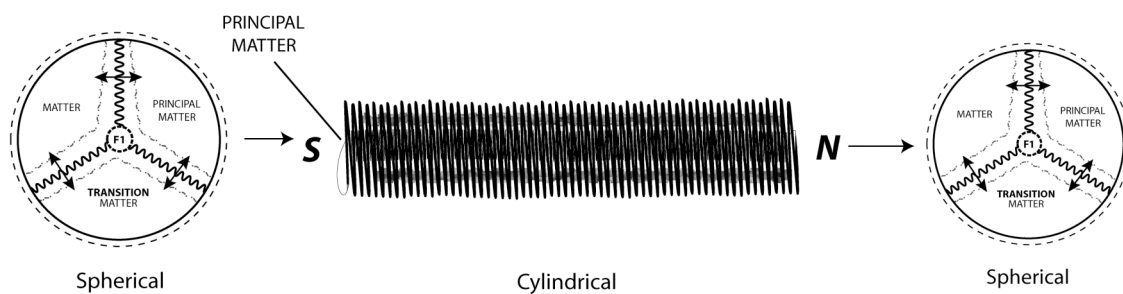


Fig. 7 The double conversion of the plasma from spherical to cylindrical, and on its arrival back to spherical plasma entity
(The double metamorphoses process of the plasma of the mafs)

But as the light transfers all its mafs of all its matters content to the targeted plasma, then the whole pmfs matters of the plasma of the target plasma increases and then the whole plasma shows signs of increase in the plasma content and for example the whole atom structure gets energised.

This being the like of when plasma of an atom receives injection of a ray of light that the whole proton and electron gets excited and energized and not only the matter components of the plasma (note: the term plasma of an atom as the whole structure of an atom including its neutron, proton and electron create its own magnetosphere and it can be considered as one plasma containing plasmas of these particles). Where, the electron due to its lesser mass shows a more rapid motion and excitation, whereas the plasma of the nucleus absorbs most of the light mafs and adds this to its total mass of all its matters.

If! The protons of the nucleus magnetosphere are measured before and after interaction of the light with its atoms magnetosphere, then it can be observed that there is a marked increase in the magnetosphere size of the plasma of the proton too, this indicating that the whole atom absorbs all matters mafs of the light and not only the plasma of the electron, which moves and takes new position in respect to the protons Magravs.

In comparison, in earth condition as meteoroids enters its magnetospheric zone, the facing side of

the meteoroid on entry into pmf of the earth, its interface surface matter curves' backward, where the same happens in the case of dynamic plasma of the light in entry into a new pmf strength environment, then the same types of curvature and convergence of the mafs of outer matter mafs layer of the light due to the speed of the transition and obstruction and friction of the new environment, then the outer mafs of the light take their position on the outer layer and the rest of the mafs of other matters' of the light follow the same process and take their position within the new plasma and the cylindrical structure of the light converts into spherical plasma and hence the light converts into a tangible spherical matter, and all its matters content fuses and amalgamates with all matters of the same in the new target plasma environment (Fig. 6).

The reversal of the helixal motion and cylindrical plasma of the light to spherical and rotational mode of matter is entirely dependent on and due to the environmental plasmatic magnetic fields strength, which the light arrives at and it is dependent on the tightness or strength of the magnetic fields of the destination environment.

In this process pmf traveling from one point to another in the universe, as the fields of the mafs of the transition matters have faster speeds than the matter mafs fields of the light then, when the light arrives at the point of its destination, where is to release and converts its fields to the given environments' of other plasmas, then the conversion in the matter mafs to matter fields strength leads to creation or release of plasmatic fields in the soft x-ray which is the essence of creation of life (6) and other magnetic fields strength of magnetic spectrum levels.

In the matter environment the slowing down from the principal mafs components of the ray to matter mafs fields strength leads to release of magnetic fields plasmas in the gamma rays strength levels and similarly the beta plasmatic magnetic fields strength is due to fields strength from principal mafs to mafs of the transition matter and transition matter mafs to matter mafs and matter pmf strength this become to release alpha rays in the magnetic field spectrum.

The production of gamma ray through such similar process can be observed, when the star in the supernova state releases gamma burst, where this gamma burst is due to the rapid expansion of the principal mafs of the star converting into the matter mafs magnetic field strength or the rate of the change of the principal maf to matter and matter maf leads to release of gamma rays.

As the matter mafs composition and the construction of the plasma of the electron has been understood to be of the same as the plasma of the proton and neutron (1), then gamma rays are and can be produced by the mafs of the matters of electron the same way as done by the neutron or protons, when and where the right condition for the release of the fields strength equal to the gamma rays are made available for this ray pmf strength to be released. Where these rays released by the electron can appear in the inner structure of the plasma of the protons of the nucleus and be manifest as the incoming and mysterious energies which are moving within the plasma of proton or neutron and their source unknown.

There are lights rays which are created by the electron in the same process of spherical to cylindrical structure conversion between the pmf of the electrons and the proton or an atom.

It has been explained (2) that there is current of magnetic fields flowing within the different mafs of the matters magnetic fields strength of any plasma as it does between the plasmas themselves. Where the current of magnetic fluxes in the case of the light rays is in the light plasma magnetic fields strength and not electron levels of magnetic fields strength of the spectrum of the magnetic fields, when magnetic fields moving from one matter mafs to another within the layers of the mafs of the matters of the light. This current of pmf within the mafs of the matters' of the light is to be called the **light Magnetism**, "*ligmagnetism*" instead of electromagnetism as their mass of the mafs

are totally in different scale of measurement.

It has to be said that as there are electromagnetic fields so there are *protomagnetic* field as well in the operation of universe, these are a more powerful current follow of magnetic fields package, which the world of science is not so much aware of these at the present, but in the construction of space reactors for the future of space technology the use of protomagnetic fields and their currents are much easier systems to produce and this gives opportunities for the development and production of a much smaller but more powerful by factor of several orders of magnitude than electromagnetic based plasma space reactors, where huge masses can be lifted with few grams of fuel. This concept of light to neutron and lift and motion is the main corner stone of knowledge and principle that allows the stars to create such a powerful gravitational and Magnetic fields, which the scientific world at the moment has not understood as of yet and has been entangled in the smaller component of the atom, rather than understanding the real power house of the atom and utilise this for their benefit to achieve some wonderful and interesting results.

The pmf current within the mafs of the matters of light structure magnetic field in strength has a different spectrum due to its length and rotational motion than the electromagnetism measurement. This ligmagnetisem has more powerful current flow and by size have stronger field's strength as it has more field contents in the principal mafs fields' spectrum than the electromagnetism which is in matter fields' strength spectrum.

Electromagnetism or electromagnetic flow (2) is said to be the electron magnetic fields strength equal to the strength of the magnetic fields of the plasma of an electron and the current is explained as the rate of the flow of the magnetic fields from one magnetic field strength to another (1 and 2).

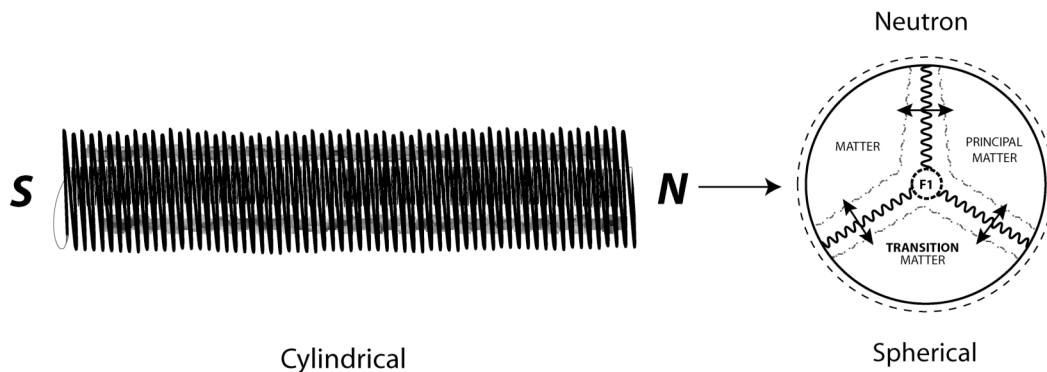


Fig. 8 Conversion of the ray of light into the fundamental plasma or what is known as neutron

In most cases when the lights have enough mixture of mafs of different strength, these rays upon their arrival to a given environment, they directly convert into the complex plasma of fundamental plasma or what is known as the plasma of neutron (Fig. 8)(1).

At the same time collection of smaller and fragments of lights plasmatic magnetic fields upon arrives at the point of destination, due to the vacuum level of the environment go through the process of accretion and they create or lead to creation of the fundamental plasma (neutron) in their new environment.

In cases the light ray carries more mass contents of all three mafs of matters compared to the its environmental mafs need for production of fundamental plasma in this new environment, then in these cases the large in mass light rays has enough mass of mafs that the light ray in this new environment goes directly into the structure of the fundamental atom or what is known as atom of

hydrogen, that once this ray. That is to say in certain conditions, the structure of atom is due to total conversion of the light rays components and the ray of the light does not go through neutron decay conversion (1) for the light to become an atom (Fig. 9).

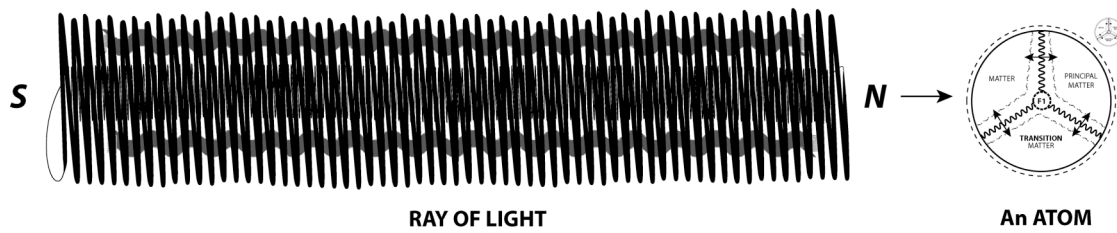


Fig. 9 Production of an atom direct from the ray of light

Some light rays due to their internal dynamism and different mafs strength in their structure, these lights rays create and contain entities moving internally and these internal structures keep the plasma of the lights' mafs in order and under control. These internal entities are the like of the electrons, which are externally positioned in the overall structure of the atom, these internal entities have specific position and purpose and they mostly convert to electrons' of the plasma of an atom in given specific conditions once the plasma of the light converts into matter of an atom, where with this process there is no conversion into neutron and then the nuclear decay of the neutron that leads to creation atom, in this process the light converts directly into atomic structure in one step. These internal entities are usually observed in the lower order environment medium which the light is traveling through, where the low speed of the entry of the outer layers fields, in-going through the faster speed principal mafs, these create small vortexes between the two fields in the transition mafs environment of the palms of the light, which these vortexes start operating independently and gradually fiend a fix position in the internal structure of the plasma of the light and when the light transfers to structure of an atom, these mafs entrapped in these vortexes become the electron of the matter of the atom (Fig. 10A).

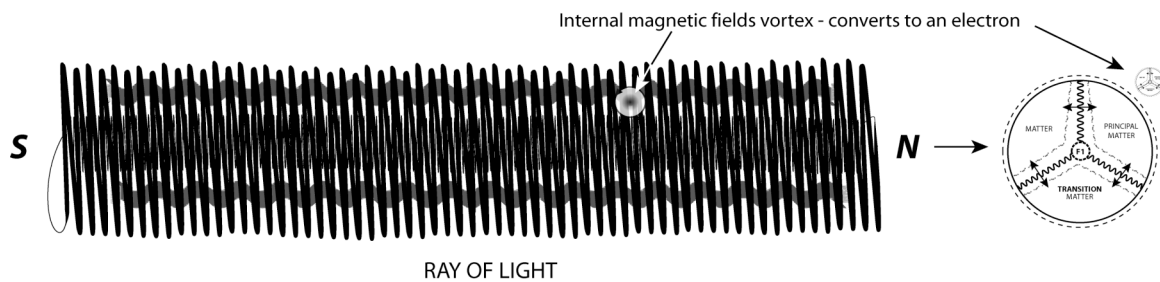


Fig. 10A The conversion of light containing vortexes into the structure of an atom direct.

The reason why the plasma of the light takes the spiral helixial cylindrical motion and shape is simply due to the fact that plasmas' with this type of structure does not have a need for additional external plasma(s) around them for coherence and a balanced plasma the like of electron in the spherical plasma structures of an atom.

In principle rays of light get their strength from their inner plasma of the principal mafs' strength rather than any other part. This being the reason, ***why light look as to be an energy rather than entity with the mass***. Therefore the light is a composite of plasmatic magnetic fields of different mafs of the matters fields' strength and **light is not a single magnetic field structure**.

The lack of understanding of the structure of the light and the inability in scientific world to be able to split the structure of the inner components of a light ray has led the scientific world to consider the light rays as an energy rather than a dynamic structural plasma as of the same as the electron or proton.

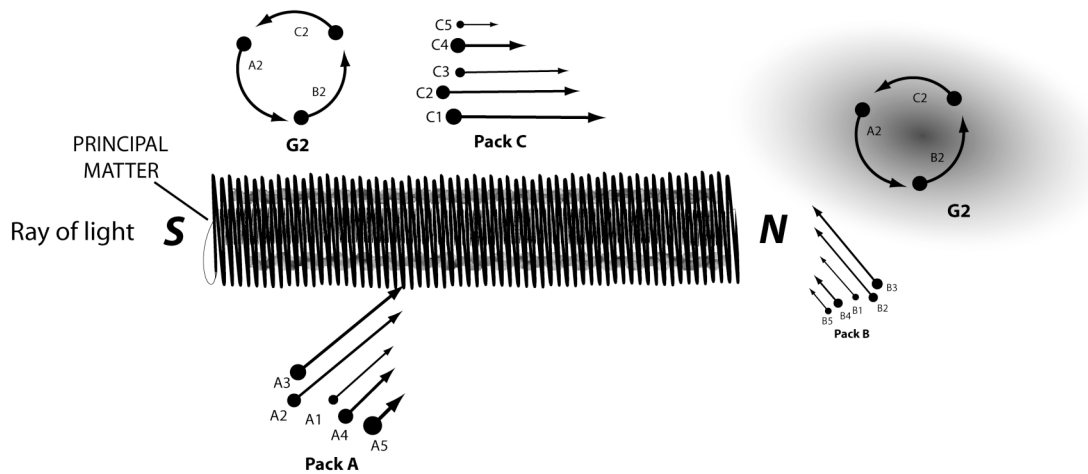


Fig. 10B Ray of light travelling through and interacting with outer mafs and initial fundamental particles of pmfs.

Due to the cylindrical structure of the light plasmatic magnetic fields and their interactions, light has the wonderful capability to be able to change its outer mafs cover as/and depending upon the matter mafs or matter medium that it is traveling through or where it arrives at.

In choosing and using helixial cylindrical motion the light does away with the need for external rotating plasmas like as the electron(s) with the atomic and planets with solar system.

This, meaning that all rotational spherical objects the like of the solar systems and atoms need to have two or more parts that their centrifugal magnetic forces can keep their matters and mafs content of dynamic magnetic fields in an encircled and enclosed loop for them not to lose too much of their magnetic fields through leakage to other plasmas in their environment.

In reality helixial cylindrical rotation partially can be seen in structure of some of galaxial structures too, primarily due to this phenomenon.

Where, for faster and simpler speed, the layers can move inside-out and vice-versa according the mediums' magnetic fields strength of the environment of travel. This meaning that due to dynamic cylindrical helixial motion and composite matters mafs structure of the light, the mafs of the transition matter plasmatic magnetic fields can become and take its position on the outer shell of the light rays in a mafs of the transition matter mafs and medium strength and similarly the principal mafs components of the light can take their place on the outer fields layers' of the light rays in principal mafs and matter fields strength environment.

The light is energized from the central magnetic fields strength region of its structure in a matter medium and this being the reason why the light seems to be able to travel long distances and behave as energy and not an entity. This change of cover allows less losses' of the mafs of all matters of the light ray due to friction in any medium magnetic field strength.

Now it becomes clear, how and why spherical rotational shape of the movement of the dynamic plasmatic magnetic fields leads to creation of matters and at the same time longitudinal cylindrical

helixial rotation of the same dynamic plasmatic magnetic fields lead to creation of light rays. Therefore the method of transport of pmf and Magravs in space is through the Light Magravs, where at the point of interaction and slowing down the lights' pmfs are transformed and transferred to matters fields strength of plasma of the new environment.

Hence, in the universe mafs of the matters are transferred and transported through the mechanism and the use of plasma of the light and when for example the Magravs of the light reaches matter environment it becomes and slowed down enough to reach's all content matters Magravs strength levels, then what is released in by the light pmf, this surplus or released pmf then becomes the pmf which targeted pmf receives as addition pmf or what is commonly called *it receives energy from the pmf of the light*.

When, the light ray reaches the principal matter environment then its principal mafs pmf will have the same interaction as delivery to its given environment as mafs of matter have in the matter environment.

The reason matters can feel forces of rays of light are primarily due to the momentum of the motion of the mass of the light itself and not through absorption of its energy.

In the solar-sail transportation the motion of these would not be due to energy of rays of light absorbed by the sail, but in real term the created motion is due to the motion of the mass of the light and its momentum that once it comes to rest at the point of interaction with the material of the sail, the light transfers its momentum to the fabric of the sails' matters and hence the increase in the momentum of the sail and hence the motion of the sail.

It is essential to realize that as there are gamma rays, beta, and alpha rays and so on in the matter world so do the same types of rays of the same in equivalent and in proportion in strength exist in the environments of the Transition and the Principal Matters too.

Therefore one has equivalents' of the gamma ray in the principal mafs environment and the same as x-ray in the mafs of the transition matter environment in magnetic fields strength too. This meaning that the sub-division and spectrum of pmf strength of the light is not the exclusivity of the matter environment only and it has parallels' in other matters' pmf strength environments.

At the same time the interaction of the Magravs of the lights surrounding with Magravs of the light leads to release of magnetic wave's rays in the visible light spectrum in these matter mafs environments depends up on the observes pmf strength visibly tools of observation.

The inter matter's mafs cover exchangeability of the light rays is the reason why light has the capability to travel long distances in mafs of the transition matter environment of the universe, as the similar in strength mafs of the transition matters creates no loses or interactions in this level that can lead to minimum losses of light's plasmatic magnetic fields and its strength. The reason being that visible light is only released, when two different Magravs in strength collide and not when two pmf of the same interact or very little pmf are released in these compatible pmf strength entities and environments encounters as in the interaction of the similar pmf lead to and creates very little friction between the pmfs of the light and the environment and hence these interactions releases very little light and this being the reason why in the universe, the interaction of the transition mafs of the light rays with the transition matters of the universe creates very little light or a dark light or what can be called the Transition Translucent light (1) and not a bright visible light, when one looks into the deep cosmos.

The invisibility of travel path of the ray of light through the deep space is in fact *due to its*

capability to change its outer layers according to the environment that it travels through.

That is to say as the light goes through the Transition fields regions of the universe, then the transition mafs and matters of the light will come to take their position on the outer layer of the ray, then through this process less pmf are used in interaction with these fields and matters and hence less friction and less loses of mafs of the light, and in these interactions there are very little loses through the Magravs of the mafs of the transition mafs of the light, these faint lights produced in the interaction of light's outer mafs of its transition matter and of the same and/or transition matters in the universe, where these very few interfaces of the collision between the light and the environment Magravs gives the universe a dark but translucent effect that one can see through the universe. In a way this interaction of lights' transition mafs and universe's transition mafs is the cause and the reason for the invisible transparent structure which allows the production of universes discreet light that one can see through this universe but blocks opportunity that one cannot see the lights from and the universes outside this universe (3).

It can be said that the light due to its interaction and helixial rotational characteristics is like a **chameleon** and ***it has the ability to changes its cover matter and mafs according to its environmental Magravs strength***, which it travels though and when and where the fields strength changes are too great then the light changes its cylindrical to spherical shape structure and its outer skin matter and mafs take's strength of its environment mafs or the matters' plasmatic magnetic field strength. Or it can be said that the light has **surface** Magravs strength matching characteristics and capabilities. As the Magravs of the light reaches or tries to enter another spherical Magravs or cylindrical Magravs then part of the released Magravs due to friction of two Magravs with each other lead to transfer of pmf to spherical pmf and release of some pmf in the form of magnetic rays' strength spectrum.

The light as it enters or comes in contact with plasmatic magnetic environment the likes of the earth, then the interaction of their two dynamic cylindrical and spherical Magravs creates fragments of plasmatic magnetic fields that are in the range of the man's protein Magravs strength that to man's sensory detection tool called the eyes can recognise the interface of the interaction of the two Magravs as the visible light.

In reality the light is created and operates through and from different pmfs strength and it is not as simple as an energy as if one define the true meaning of the energy, which is "the plasmatic magnetic fields (pmf) is motion" (1), then taking the motion or speed of the ray of light's movement in a different matters and mafs environment then one can see that the light in truth is no one magnetic ray but it is made of a complex plasmatic magnetic fields of different strength.

Whereas, in the light's principal mafs (3) the stronger and tighter of its fields seats in the centre of the structure (Fig.1) and as this mafs of the matters field's unwinds, these newly made available which are lower in strength and are going from one strength to another, then these mafs in motion to be known as ***transition energy*** (dark energy) and when these mafs slow down enough to their transition matter and mafs environmental strength, then these appear as mafs of the transition matters (dark matter), and then when the transition mafs pmf strength reduces or unwinds enough that this mafs reach's the matter mafs pmf strength levels environment then it become tangible or detectable the matter at this strength (Fig. 11).

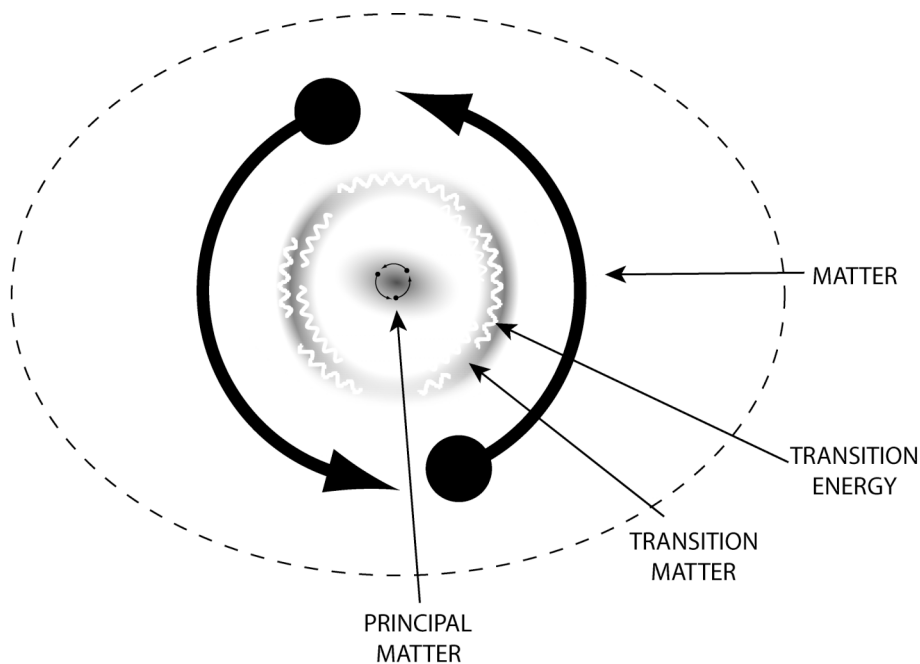


Fig. 11 The magnetic field structure of the plasma of the light

Where, the visibility of the light at this point the like as in the earth and human body, then this light is human protein chain mafs strength dependent, then it became visible light to the human eye in the Magravs strength of the planet gravitational field strength and then the light appears in matter pmfs strength and as tangible or detectable matter.

Light in its visibility and tangibility has different strength and what is visible light in one matter mafs and matter environment strength, this it is not necessarily visible and tangible matter mafs and matter's pmf strength in another environment and vice-versa. The visibility of the light or its transparency is ***environment and target magnetic field strength dependent***.

The structure of the light prevail that in general in matter environments the stronger or the principal fields take its position that as it unwinds it become the source of the magnetic fields to the lower field's strength and it can be divided into the lower field's strength of the plasmatic and magnetic fields.

At the same time the tightness of the fields of the mafs of the principal matters and their content of the principle fields in their interactions with other principal strength fields of the same strength mafs and matters creates visibility in their level of strength too that these lights are not visible for example in matter mafs or matter environment to human eyes even though in the matter environment the existence of the principal fields and mafs of the matters can be felt or even their affects can be seen.

It has to be said that if the light was not in possession of its own Magravs, the light would have been attracted and absorbed into and by the first magnetic fields or the first object in possession of Magravs in its travel in the universe, whereas the light being in possession of its own Magravs (the dotted line around the mafs of the light in the figure 11) (1) this allows the light to find its position according to its Magravs strength in respect to other objects Magravs and magnetic fields in the universe and this giving the light the ability to travel the length of the universe without being absorbed into or by other objects Magravs and magnetic fields. Thus the light has the ability to establish and maintain its own Magravs positioning criterion in respect to other entities in its environment.

The light rays with higher mass of the mafs of the principal matters, these rays can travel further in space compared with rays of lower mass. Therefore what one can observe as light from far corners of the universe in general these are some of the lights which possess the more mass of the mafs of the principal matters at the point of their inception, as the rays with lower mass have already been absorbed by the other entities in the universe over the life of the universe from the time that these rays were created and have been in travel in cosmos that they could not be observed by man at this point in the life of this universe.

The light observed from far corners of the universe are some of and not all the lights from the whole of the universal light from the point of creation of this universe as most lights by now have interacted and been absorbed or are interacting and getting absorbed by the other fields in the universe, then this can indicate that lights of lower mafs of the principal matters strength and content of principal matters from the origin of the time of the birth of this universe have mostly already been absorbed or been attracted by other pmf and entities in the universe.

The absorption of different rays of light in the universe are environmental dependent and it can be said that the lower mafs strength of the principal matters of the mass of a light ray can become the **seeds of neutrons** or it can be said that the principal mafs of the light as it arrives in a matter magnetic fields strength environment, then this principal mafs of pmf of the light becomes dynamically spherical in structure and then become the seed of the creation of neutron. Hence one can understand how energies which are defined as “the plasmatic magnetic field in motion” convert to matter in a given Magravs environment. Where, each mafs of the matters field’s strength components of the light then can become in its arrival at a given environment the seed of one of the components of mafs of the matters of different plasmas too.

Therefore it can be said that the initial seeds of the creation are in motion in the universe at all levels and all time and once they reach given an appropriate environment mafs pmf strength, then in that environment depending on theirs plasmatic magnetic fields strength and the given environment plasmatic magnetic fields strength then light rays manifest themselves or can become tangible and detectable in that environment.

For example the light which has the plasmatic magnetic fields strength of a neutron then can upon its arrival in a given environment changes to a tangible and detectable neutron and then through the losses of some of its magnetic fields to its environment this neutron goes through the nuclear decay (1), which this lead to creation of plasma of an electron and a proton and the light ray becomes the seed of the fundamental atom (1) or the atom of the hydrogen in matter environment plasmatic magnetic fields strength of for example of the Earth.

Thus; “the present assumptions that the first atoms in the universe were created when the universe cooled, **this theory is not and cannot be correct** and in reality atoms are created through change in the plasmatic fields strength of the mafs of the light, secondly at the point of creation of the universe, the universe was not hot and there were never high temperatures that the cooling of the universe has led to creation of the first atoms as presently commonly stated. The first atoms and universally all first atoms’ the like the atom of hydrogen in all mafs strength in the universe ***are created through the magnetic field strength reduction*** and through no other means.

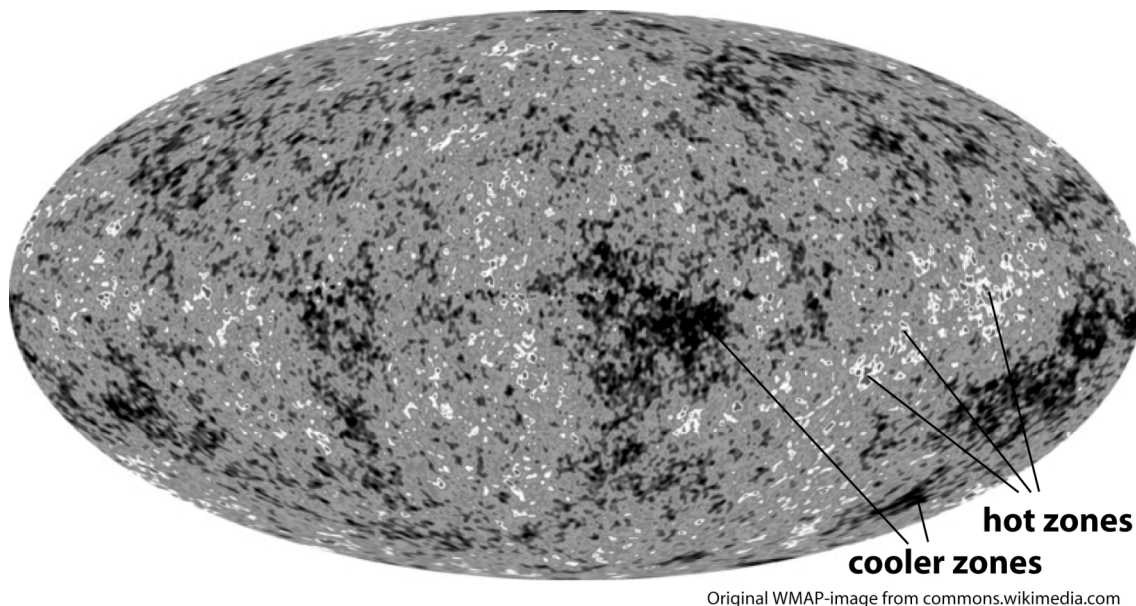


Fig. 12 The universe heat distribution map (W-MAP of the universe)

This concept of creation of heat and high temperatures at the birth of the universe is not observed in the plasmas of electron and proton, when the plasma of neutron decays and divides into an atomic structure, and in the universe there are always continuity and parallels, thus the universe has never been hot that has cooled down to create atoms, and this is the reason why W-MAP (8) shows present balance heat distribution of the universe (Fig.12).

In truth the current assumptions of initial heating of the universe at time of its birth cannot be true as the initial atoms of the universe and presently atoms were and are created from the original principal mafs strength which radiated out as principal lights rays of the universe in the centre of the universe and the initial atoms and matters of this universe were not created through cooling of the universe at the point of inception of this universe, which this universe itself is created from the decay and division of bigger mass of another universe as it happens in the division and decay of plasma of neutron to plasmas of proton and electron (3). One does not observe heating in the plasma of electron or proton in this division and so be it the same when the bigger universe divided and led to creation of this universe of the humans (3).

In fact, if! The universe was created by the present scientific assumption then the WMAP should have shown cooler region in its outer boundaries than the present near homogenous heat distribution which has been physical observed and from collated data by the publishers of the universal heat distribution map of the universe.

The heat distribution and the heat concentration on the central line of the WMAP confirms that the universe started from a central line in the middle and as the principal mafs of the universe unwinds then the transition mafs and the matter mafs were released and as were spreading outwards into the space of a larger universe (Fig. 13), then as the Magravs of the principal mafs in the central line region are converted and are reducing, then the overall unified oval-spherical shape explanation of the WMAP come to exist, and then as the total margrave of the central principal matters reach a point where they cannot hold on to all the mafs and matter expansion of the universal-magnetosphere, then at this point the universe will go through a division and all the matters and mafs at this point rearranged and regroup as and in the principal strength mafs and the universe then divides into two principal mafs of lesser masses of universes, which these new universe are magnetically interconnected and then these new universe go through the same principle of the principal light unwinding and the same process as creation of new universe carries as before (3).

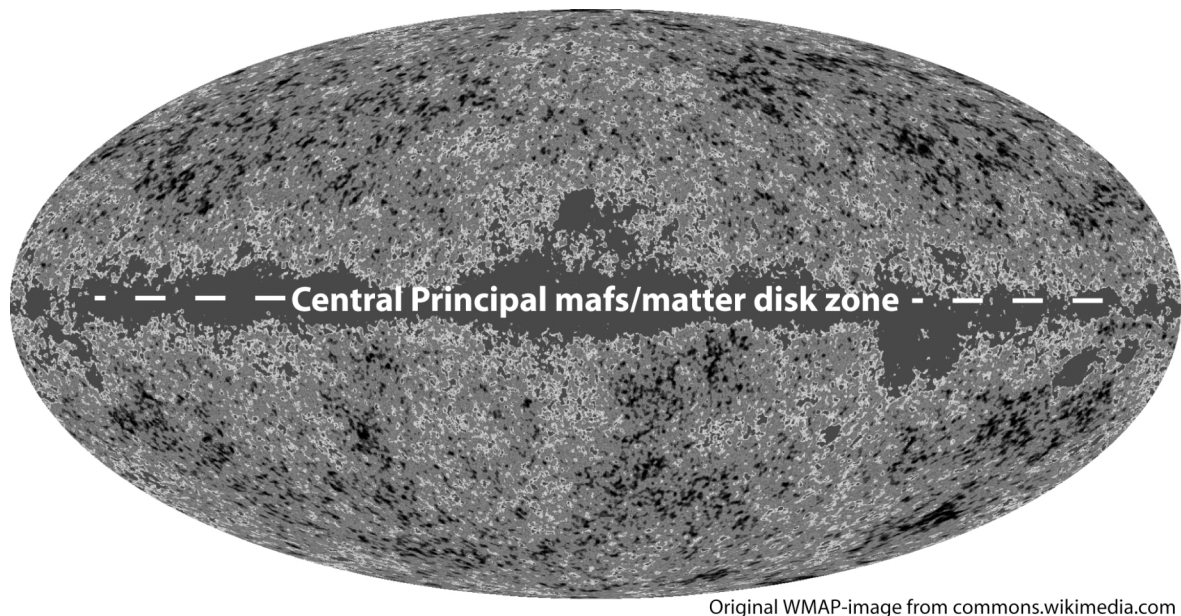


Fig. 13 The microwave heat distribution of the universe shows a concentrated heat in the centre disk of the universe

That is to say that the principal matters are the way that universes divided and arrive form another universe and as the light in the principal mafs strength unwinds' in its new environment then the new envelop of the new universe starts to be created (3). The same process occurs when the neutron decays and divides into the plasma of the proton and electron.

Thus, the universe is not created as a big-ball of fire which has been cooling down as has been promoted, but in fact the universe is created the like of as an ejected principal mafs is injected into new a universe environment and as the principal mafs radiate outward as light of stronger mafs, then they create the other matters mafs and matters depending on the given pmtics strength of a given region in the larger process of this unwinding of the principal maf and matters and its lights (3) in this new expanding universe.

Therefore this universe is in fact created inside out than what has been assumed up to now that as it cools down to what it is, which this explains why even the universe is observed to be expanding, as the reason for expansion of the universe is being due to the presence of principal mafs in the centre of the universe and as principal lights of the principal mafs radiate outward, these light rays of the principal mafs while traveling in their new environment they reduce in strength and this creates new matter mafs and matters according to given environments magnetic fields strength and in a given point pmtics hence the creation of new mafs and matters and so forth, which this leads to creation of atoms and molecules and stars and so forth.

Thus there has never been a big-bang and the current appearance of the expansion of the universe is due to the principal maf which as unwinds it creates the sphere of this universe (3).

This method of the creation of the universe now explains' why there is a central gravitational matter concentration in the universe as this pull is centred in the dynamic central line of the injected principal maf of the universe at the time of its inception, which this can be seen as the red line in the W-MAP (Fig.13), which the more concentration of the mass of the principal matter seats in the central disk of the W-MAP and as these principal mafs create their own magnetic interactions, hence these create their own gravitational and Magnetic fields of their own and thus the central gravitational of the universe is in the centre of the denser point of principal mafs of the centre universal heliosphere of this universe is created and solving the present mystery in scientific world

that, where the gravitational pulls of the universe come from.

This is how even the plasma of the neutron decays and divides into plasma of the proton and electron too, where the matters maFs of different quantities and masses of different strength from neutron are divided and injected in the new area in their environment, where the original in their overall Magravs of all their maFs as original components concurrently maintained that the plasma of the electron and proton(Fig. 14) and then as the matter maFs *unwind* and interact they reach given Magravs level and position *that new plasmas of the sub-components of the atom are created*.

Where this process of division due to micro -level of masses involved it appears as an instantaneous process of creation of proton and electron.

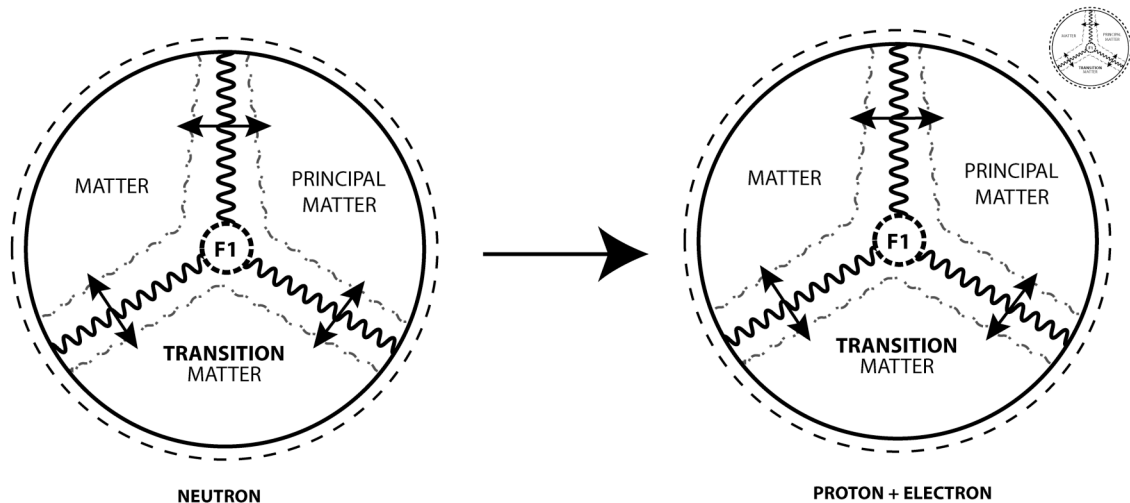


Fig. 14A The conversion of the plasma of neutron to plasmas of the electron and proton
The same process is considered to occur when the universe divides (3).

This being the reason why the proton does not get heated as a big-bang theory suggests but as portion of principal maFs of the neutron which become part of the plasma of the proton **expand centrally** and as the principal maf unwind to the transition matter and matter maf of the plasma of the proton and all other fragment of pmtics and magnetic fields, hence the protons' plasma is created from the division of the principal plasma and the fragments of the fields as different constituent maFs, matters and fields in the plasma of the proton.

The structure of the plasma can be compared to *the winding spring of a mechanical clock*, were as the main spring is wound up using a key and then as it unwinds.

Where as the winded spring is *tighten in the centre* this tightened spring becomes like the *principal matter* of the plasma, a compact entity full of energy in the centre (figure 14b-1) and as the spring unwinds it releases its magnetic fields in lower strength that this unwinding of the fields and reduction in their strength further down the line of unwinding of the spring becomes the magnetic field strength in the *transition* (dark matter) *field strength* (Fig 14b-2).

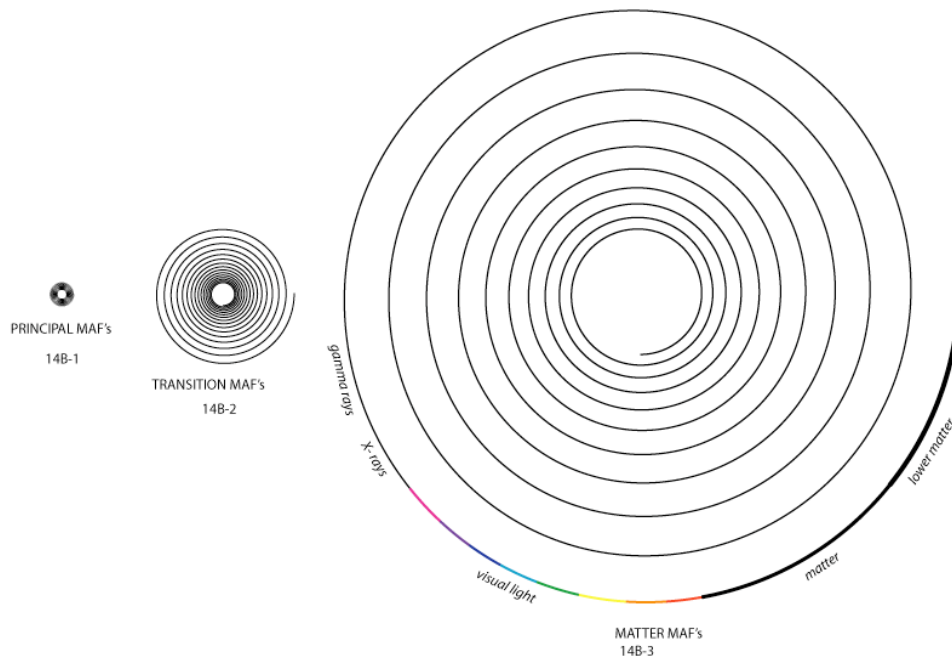


Fig. 14B The visualization of the universal spectrum of magnetic fields.

Further as the magnetic field strength and as this field opens up in it's environment and slows down and reduces in strength, these fields in this region become in the visible light and lower magnetic fields strength in the unwinding cycle of the principal magnetic fields reaches the ***matter*** magnetic field strength (Fig 14b-3) and further on this field reduces in strength to even lower fields strength magnetic fields.

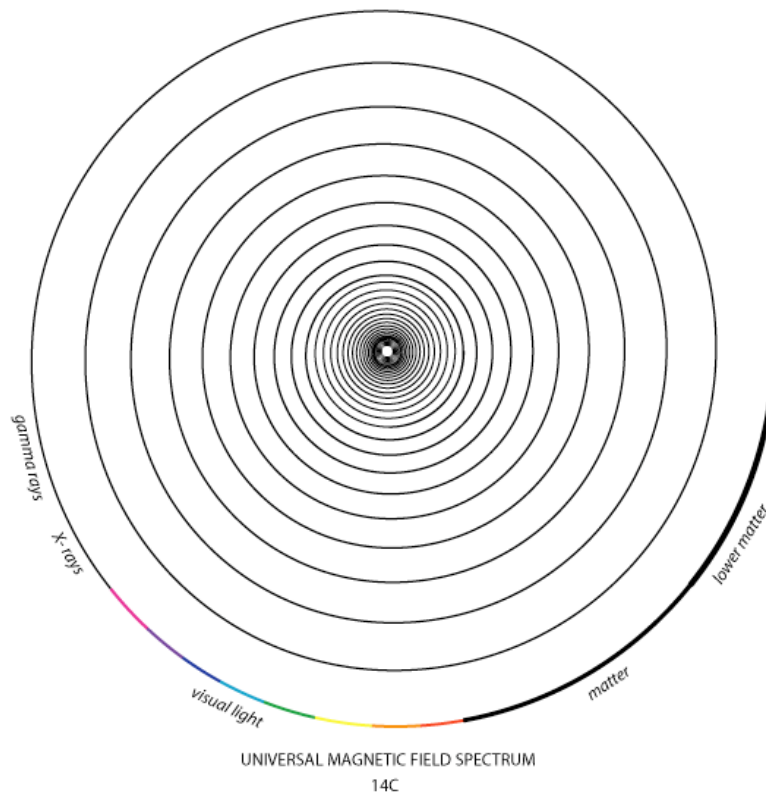


Fig. 14C The visualization of the universal magnetic field spectrum.

Then as one puts the whole magnetic fields spectrum of the principal mafs, transition mafs and the matter magnetic fields as one continuous magnetic field strength spring or then the true sense of the unifying magnetic field spectrum which connects all creation of fields and matters as can be observed in the universe, that this can be called the universal magnetic field spectrum (Fig 14C).

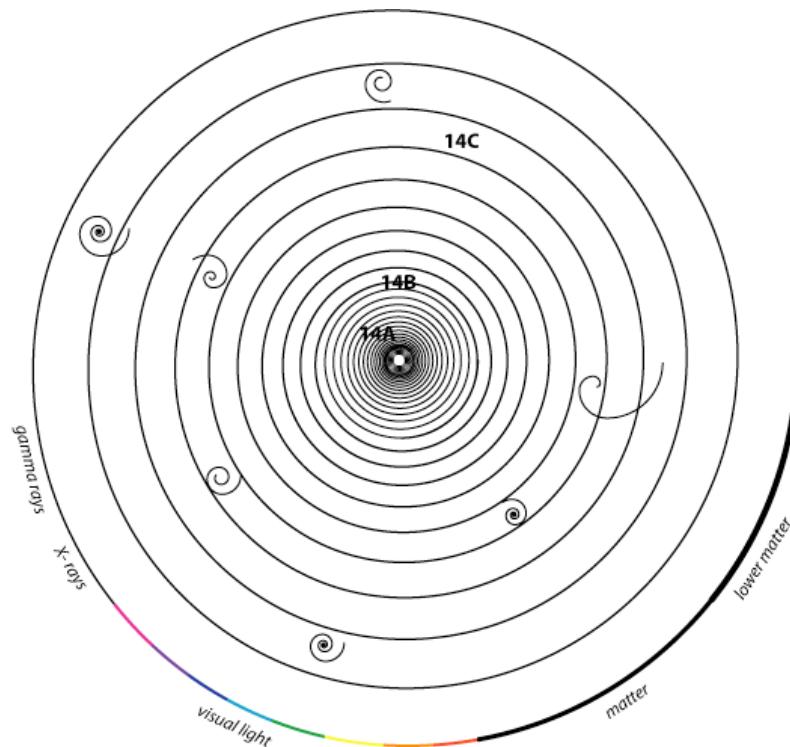


Fig. 14D The universal plasma magnetic fields structure

Where in the plasma of a proton for example, as the fields unwind and divide in the lower scale of the maf strength these lower fields as themselves unwind they interact with other fragments of the fields of the same in the Magravs of the principals matters of the plasma and hence they create the division and sub fields which one observes within the structure of the plasma, these being like what they call quarks and bosons and so forth. Where this total interaction within the capture zone of the Magravs of all the fields is called the universal plasma magnetic fields structure 14D.

The same process can happen with the ray of the light originated from principal mafs strength (what is called the principal light), when this principal light arrives in the principal mafs strength environment and hence the first fundamental principal atoms' can be created in that given environment through the same principle as principal atoms are created in the principal matter environment (1).

In reality: if! one could follow and observe the rays of the light which arrives at the boundary of the heliosphere of a solar system, one should be able to observe that some of these light rays of varying in mafs strength, which can reach this point in the Oort clouds region, these due to the balancing of their pmf and their environment vacuum condition and mafs strength, then these light rays individually or as collection of fields will become particles, plasmas of neutron, atoms and matters, and over the life of the solar system then they rain inward towards planets and the star of the solar system (Fig. 15)(4).

These light's rays which have slowed down in the Oort clouds layers or other inner sectors of the solar system can and do become as neutrons or other particles, then some of these become like of

what is commonly known as neutrinos and get attracted back to the star.

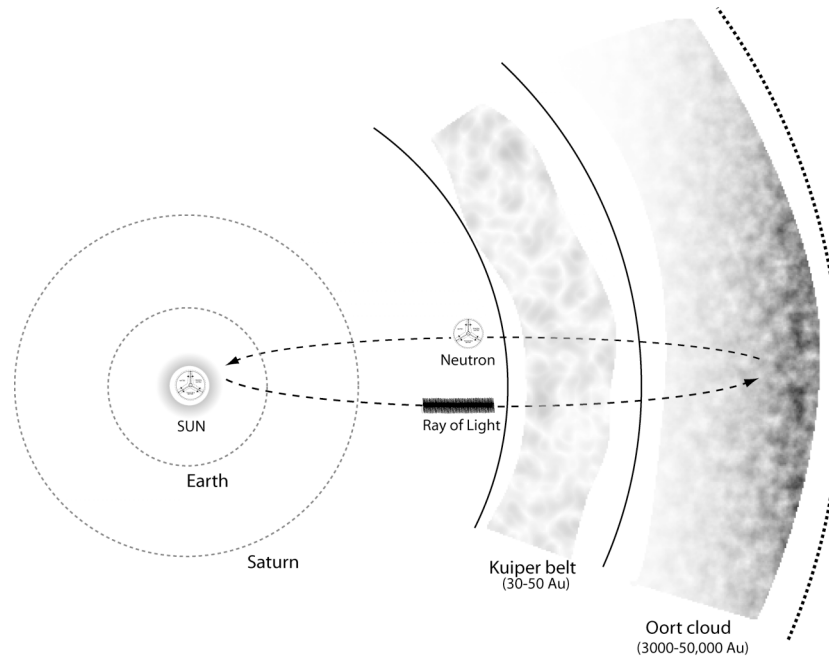


Fig. 15 Conversion of the light ray to neutron, atoms and gans in the Oort cloud

Thus as the stars of solar systems through their light emission continuously feeds their planets and moons with light rays in form of heat and further the sae light rays in slowing down in form of matter, then the same principle continues as the solar systems themselves get feed by the principal stars in the galaxies through their principle lights which these lights at the moment due to the man's lack scientific tools these lights have been invisible for detection to the man of science.

The neutrinos are on the other hand produced by and through the same process from the fragments of principal mafs of the light rays of the Sun or the principal matters in the centre of the earth inner cores too. At the same time and by the same measure neutrinos, which are released by the principal matters and mafs content of the inner-inner core of the earth which are detectable leaving the earth surface their existence and the exit from the surface of the earth is the confirmation of the presence of the principal matters and principal mafs in matter environment of the cores of the earth, as the light emitted by these principal entities lose their pmf strength within the centre cores of the earth (4) and as they move outward from the centre of the planet they appear as neutrinos exiting the earth surface.

Some of these light rays due to their Magravs strength get attracted and in a process known as the fusion of light rays and produce the initial molecules of the matters in the solar system too.

In understanding the concept that lights' rays from the Sun converts into atoms and molecules, then this make obsolete the theory that the ice particles left from the time of the creation of the solar system are the ones observed in the Oort clouds, the Kuiper belt, in the rings of the Saturn and so forth in the solar system.

That is to say most and even all matters in the solar system like the fuzzy material in the Oort clouds layers are mainly the product of the slowing down of the light rays of the star of the system and not the hypothetic present assumption that the meteoroids and all particles in the outer edges of the heliosphere of this solar systems are the residual materials from time of the creation of the star and the solar system.

This recycling of the light rays and production of for example particles is comparable and it is in fact the same process as one observes in systems which have dynamic magnetosphere the like of the earth, where the molecules of the vapours of water rise-up to upper and further regions of the earth magnetosphere and when they reach a given temperature and environmental condition then they gather and when they are heavy and enough of these entities then they rain down on the earth. This is the exact process as it happens with light rays of the Sun as these rays reach to the outer boundaries of the solar system in this process due to magnetic field strength difference instead of temperature difference as in a planetary system, they slow down and become matter mafs and matters and then they rain back towards their star due to its magnetic field interaction and gravitational field strength (4).

In attraction and motion of these lighter atoms and molecules solar winds in the outer region of the solar system are created and as they move in the Kuiper belt of the solar system these matters become part of the constituent matters of the outer giant planets and these light rays become part of and the creators of comets, asteroids and meteoroids as different densities of matters are released and created in this process and collected in these so called belts of the solar system.

Where, the existence of the meteoroids and their pattern of motion confirms the change of the mass of the light to the molecules of gans of the hydrogen as these comets and meteoroids go back in the Oort clouds layers, then meteoroids attract the newly produced molecules of the hydrogen and oxygen and at the same time they carry on mixing the soup of the Oort clouds matters(Fig. 16), this leading to collisions of new produced gas and gans of matters needed for the production of heavier matters and molecules like water in the solar system.

In reality the light rays becoming part of comets and meteoroids, these themselves become like a mixing spoon of the solar system and the cause of the mixing and displacement of the matter mafs and matters needed for having an active and dynamic matter environment in all parts of the solar system.

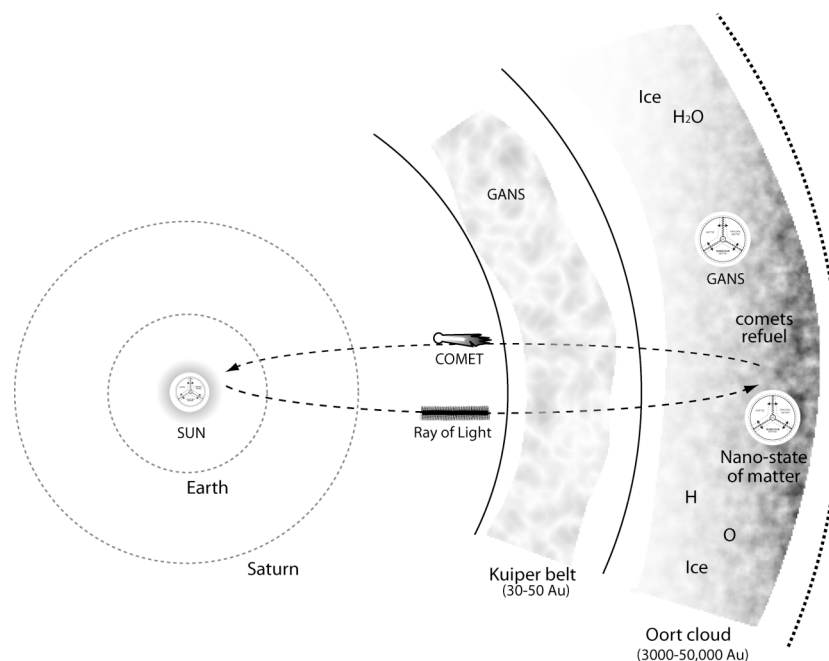


Fig. 16 The light rays become water molecules and get attached to comets and meteoroids and then return back into the inner parts of the solar system.

Therefore the reason, why giant planets exist and possess most of the gasses at the outer boundaries of the solar system, this is due to the fact that these gas planets *continuously absorb all the freshly*

atoms and the molecules of the gasses and gans which are produced by the ***transformation of the light rays to these atoms***, and hence these gas and gans atoms and molecules get gravitated and pulled around and held or get captured by gravitational, Magnetic fields and get positioned, for example, ***in the rings*** of giant gas planets according to these ice **gans** particles Magravs strength and Magravs positioning.

The collection of ice particles and solids in different rings in the planetary or solar system is primarily due to magnetic fields of static inertia of these objects the like of asteroids and on the other hand due to and Magravs positioning through the Magravs of the gans matters their interaction with the planet or solar system Magravs strength and due to their of these planet's fields nearest to the Kuiper belt and Oort clouds.

Thus, light rays of the star are the feeder of the star, planets, meteoroids and asteroid as they rain back inwards into the star heliosphere over time as the Star's strong gravitational fields pulls' every matter and matter mafs in its system back to itself.

Therefore the light emitted by the star partially become the sources of the materials which are returned to the star matter for it to carry on with its everlasting existence.

Chapter 3

The conversion of light rays to the Gans of the matter

Considering the transition of the light into matter in the outer boundaries in the Oort clouds environment of the heliosphere of the Sun, there is a further process which occurs to these newly created tangible mafts from light rays of the Sun as these newly born neutron goes through its nuclear decay (1) and become an elementary atom of the hydrogen in possession of an electron and the proton. This atomic matter in the coldness and in low gravitational and Magnetic fields of the Oort clouds and Kuiper belt become in atomic or nano state of matter of hydrogen rather than atomic hydrogen and hence sometimes due to the weak gravitational field forces in these zone these lights become the gans (5) of the same element.

The **gans of the matter** is the *state of matter, where the atomic gas of matter becomes the single solid atom of itself* or what we have called “the gas in nano state of matter” in short or “gans” of the same element (5). Where, the gans of the matter is *internal gravitational and Magnetic field strength dependent* and at the same time *where the gravitational and Magnetic fields of the matter is stronger than its environments' Magnetic and gravitational fields strength*.

The difference between the atomic gans or a nano gas material is in the fact that gans of an atom is its solid three dimensional free state of matter due to its internal gravitational field interaction.

As the Gans is the solid state of atom of gas in its natural three dimensional structures that its mafts of this matters are interlocks due to their internal Magravs strength of its own and their internal mafts loose bindings, and not rigid binding as in solid atomic state of matter as in the form of ice state of matter of the same entity of the same atom, which ice state of matter is due to and dependent upon external magnetic fields' strength of the environment which are exerted up on the binding structure of atoms that become creates the state of the ice of the same atom.

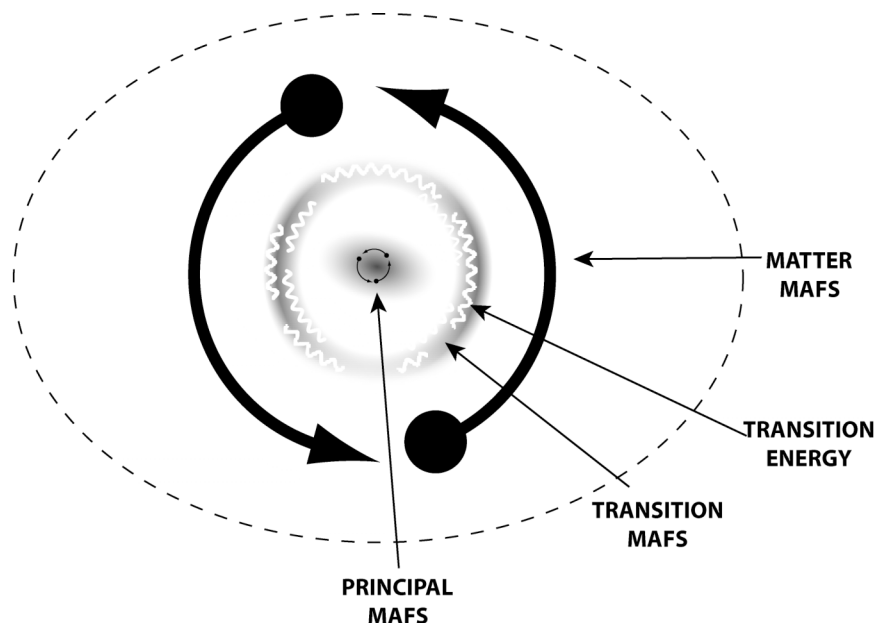


Fig. 17 The structure of gans of neutron

Where, at the same time it has to be noted that the light in becoming in *state of gans* it can create the fundamental plasma of the gans (Fig. 17); in the same region as it does create the fundamental plasma (of neutron) too.

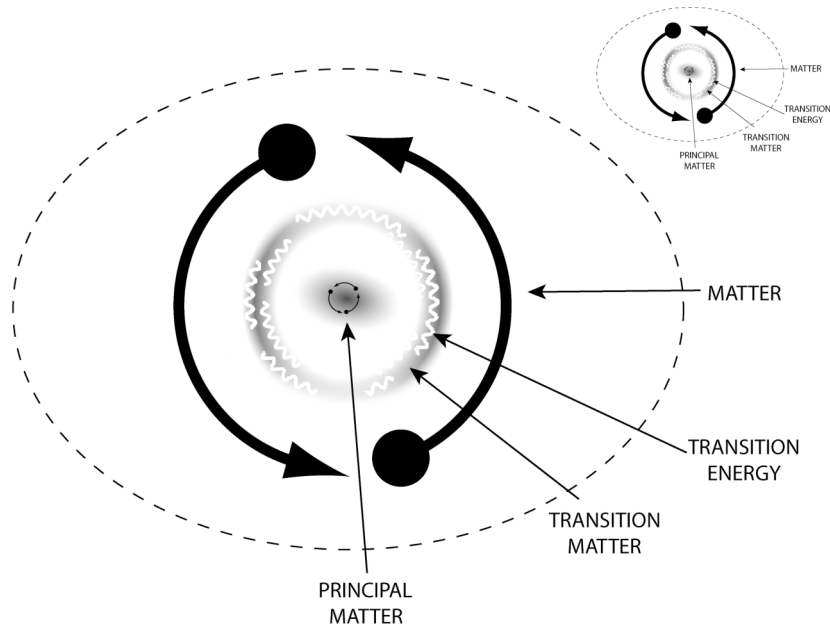


Fig. 18 The structure of gans of an atom

The gans of elements (Fig. 18) are created through the same process as of known atom directly from the rays of light or through the decay of the neutron of the gans going through its nuclear decay and creation of its own gans of the same elements in atomic state.

It can be said that the gans state of an neutron or atom is internal magnetic and gravitational fields strength dependent, where atom or nano of matter of the same element is environmental magnetic fields strength the like of heat and pressure dependent (Fig.19).

In this illustration the difference between the internal and external magnetic fields forces and processes which lead to creation of gans of matter structure of neutron respectively are shown.

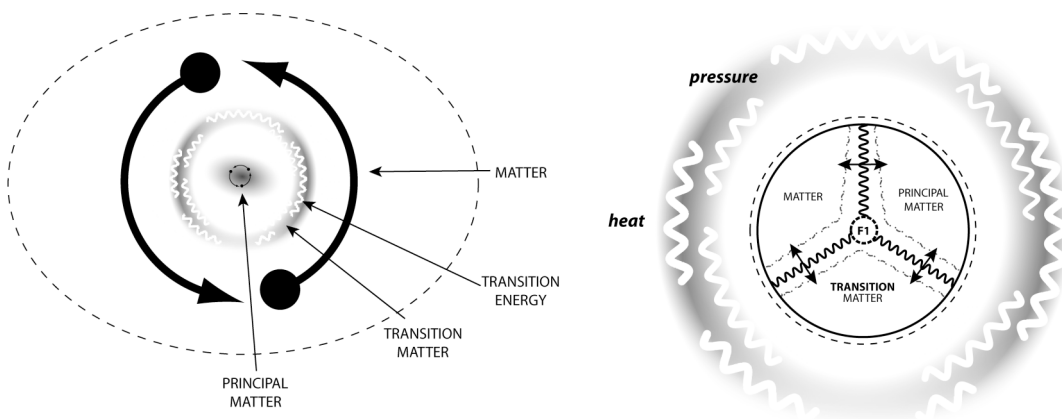


Fig. 19 The comparison between the gans of neutron on the left and the fundamental plasma (neutron) on the right

The gans state of matter is the reasons why for example the molecule of gans of the amino acid (Fig. 20) in the structure of protein and other cell structures the like of in the leaves of plants have

tangible, flexible, soft characteristics that they can be manipulated and not being rigid hard.

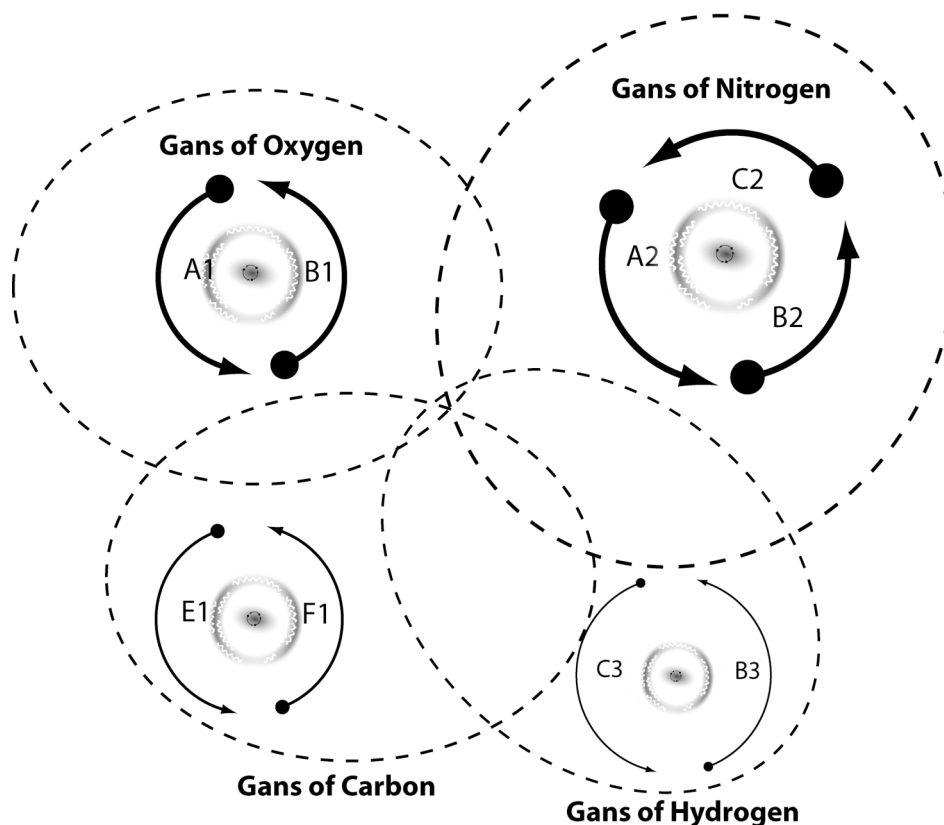


Fig. 20 The structure of a molecule of gans of amino acid

May be it can be said that gans is the solid state of matter of living entities. That is to say the structure of the protein is one of the molecular states of the gans in matter magnetic fields strength environment. Where, through the gans state of matter as part of the cell of the living beings this makes the transition of pmfs needed for rapid transfer of given mafs much easier as by the availability of the gans of an atom rather than nano of atom, this makes it possible to transfer the information of the matters as magnetic fields and not the whole of the atom from one atom or molecule to another as has been assumed by the world of science up to now, and hence once the right measure of the mafs are transferred to a cell then through accretion of mafs in the vacuum of the body then a new gans cell is produced.

Where, for example, if one pinches oneself flesh or skin, what one holds within its fingers are gases of oxygen, nitrogen, carbon and hydrogen in state of gans of the matter, otherwise the body of the man would been a balloon of gases and not in the state of matter as one finds between ones fingers.

At the same time the energy transfer to the already existing cell is due the transfer of pmf of mafs from one cell of gans of lymph to the existing cell. By the same measure as the cell uses its appropriate mafs and is left with wrong or mis-measured amount of mafs for its use, then the cell transfers these pmf of mafs to the blood cells for their removal from the body's systems. This being the reason why for example one does not finds residual of urine in the blood, but as the blood passes through a different dynamic gans molecular structure of the kidney, then the mis-measured mafs in the gans blood cells are reconstituted as liquid and appear as urine in the walls of the bladder.

This applies the same for the transfer of the molecules and atoms of the minerals and vitamins which in fact are mafs of different combinations.

In reality, the world of science and humanity always have known this state of matter as part of the structure their own body but they always have considered it as molecules of the same element and not as another state of matter, thus gans can be considered as the **fifth state of matter**.

This condition of gans of matter is to be explained as the gases when their physic-chemical at ambient temperature and pressure and due to internal gravitational and Magnetic field's strength of the atom the atom physical appearance the atomic structure of the gas ***changes to a compact configuration of the solid*** and as the atom of the same gas become and behave like solid but ***with totally new properties and characteristics*** which has never been known as when the atom was in its other three initial known states (gas, liquid and solid).

This ***conversion of the light rays to solid state*** occurs in the **outer regions of the solar system(s)** where the gravitational field forces (vacuum) are low and the temperature has no effect on the internal motion of magnetic fields that create this solid state of matter. Then, as the ray becomes and appears as gas and in a given conditions manifest itself as the nano structure of gas or what is called "GANS" in the same environment *due to atom's own internal Magnetic and gravitational fields configuration* and ***not due to its environmental magnetic fields***.

This state of gans and gas of an atom is being the *same difference as between the mass and the weight of an atom* respectively, where **mass** is due to internal atomic interaction of fields of the atom and irrespective of external field forces and where the **weight** is due to environmental magnetic fields effect on the outside appearance of the same mass.

Humans are familiar with the gans of the molecules and atoms as integral constituent of their own tangible body, where ***gases at low internal vacuum condition of the body convert gases into gans or soft individual solid atom state***, but up to now the scientific world has never considered this state of matter as they just say for example the carbon of protein chain or matter of a cell or a carbon as part of the structure of a sugar of a leaf of a plant and so one. That is to say for example, when an atom or molecule of a hydrogen gas, which was created from the ray of light as this gas is absorbed by the human body then this gas of the atom changes to the gans of the same atom and then through the accretion process in vacuum condition of the human internal operation, then this gans particle according to its Magravs strength becomes part of the molecular ganses of the **N-C-O-H protein chain** of the human and that is why human body becomes tangible entity. Where, the creation of the solid gans in the atom of the gas of the atom, this process by itself is due to the accretion process of all the fields of the mafs of the gas atom itself.

If this change of state of light to gans does not take place, then the human body should have been a balloon of gasses and not in the solid tangible arms and legs and so forth.

Further, it has to be said that as the light ray changes to the atomic gas of the hydrogen and as it reaches the planetary condition and natural Magravs state of planets this matter changes to gans atom of the same matter in the atmosphere of the planetary entities too.

The confirmation of the production and existence of the gans in the Oort clouds and Kuiper belt is and can confirmed by the existence of the hexagonal rings on the top of atmosphere of the poles of the Planet Saturn. Where the composite dynamic layers of nano gans of material(s) in this part of the planet leads to creation of the hexagonal shape solid clouds as has been recorded by pictures taken the scientific world from the pole region of the planet (4).

The only reason that one sees these types of structures in the universe is primarily due to existence of gans state of matters like hydrogen, methane ganses and others in these layers, as the Magravs of

the planet interact with dynamic metallic characteristic structure of the hydrogen gans and other matters ganses and this nano state of matter in dynamic magnetic fields of the poles of the planet leads to creation of current in between these layers and consequently for example in the poles of the Saturn the formation of hexagonal shape rings of the clouds which is the consequence of these interaction , which are natural positioning for the gans in dynamic mixed and composite magnetic and nano structures.

To create the hexagonal shapes of the clouds in the north-pole of the Saturn one needs at least three layers or mixture of three different ganses of different or the same elements to be able to create these shape features in the upper atmosphere clouds of this planet (4).

In reality gans's of matters behave as semiconductors do in the matter environment, with the difference that the gans of matters are *always as they are in a **semiconductor state** and at the same time they create current in any environment* due to their internal dynamic magnetic fields structure.

On the other hand, the conversation of the light into gans and its absorption and their interactions with the strong Magravs producing planets like Saturn is the cause and producer of the internal Auroras that are commonly observed at the poles of the gas planets. Where these auroras are due to the fact that as the gans of the elements from Kuiper belt gets absorbed into the giants planet atmosphere and as these ganses are in solid atomic matters state the like of the cosmic dusts and in their interaction with the magnetic fields of the planet, these interactions of the gans and the magnetic fields of the planet leads to creation of the Aurora at the poles of these giant gas planets.

It is essential to understand the fundamental effect of the light rays mafs of the matters' in the solar system and even in the creation of the solar systems and planets themselves that one can understand why the rays of light are the transporters of creation in the universe as in their conversion they become the created entities the like of atoms, cells and so forth due to their pmf strength of their environment. Where, in fact the lights in becoming the gas of the matter, then they become the source and the cornerstone of the creation in all matters levels of the universe. Thus as light changes to atom and gans then in the right environment of for example one G (gravitational field strength of the earth) as on earth then the collection of atoms as the molecules of ganses state of matters leads to creation of the beings, the like of single cells and complex combination as of the human's body.

Light ray from the Principal Star (black holes) as it loses its strength and becomes to matter mafs state strength and then it becomes to the nano and atomic level of the matter strength of the fundamental element of atom of hydrogen, it is at this point, where this matter generates the first external gravitational and magnetic fields or what is called the Magravs of itself in matter environment that this tangible entity due to its Magravs positioning and strength in respect to other Magravs that it can be attracted by or attract to itself the same and others elements in the same environment. Then it is at this point that the light becomes physical entity and the seed of the stars and planets and the essence of the tangible entity in the all matters environments of the universe.

In the spans of the solar systems, galaxies and cosmos as the gans and atomic of the hydrogen interact, they create the first seeds of creation of more powerful Magravs that leads to attraction and conversion of other light rays in the universe into liquid and solids, which these interactions leads to creation of galaxies, stars and planets, where the light itself in different strength becomes the tools of the division of the hydrogen for it to start the cycle of creation of intelligence and creation of the lives in all corners of the universe (6).

The gas and gans of hydrogen becomes the dynamic fuel source of creation of the magnetic fields necessary for the creation and establishment of the stars and solar systems and their planets, as the interaction of different magnetic fields of gases and ganses lead to the creation of the initial

Magnetic and the gravitational fields needed for these celestial bodies to be created in the universe. The existence of nano materials in the core of the planets like earth has been initially disclosed (1), now it can fully be understood that how these nano materials in state of nano matter, gas and gans become to exist in the centre of these celestial entities and be the initial seeds of their creation.

It is important to realise that due to internal structure of the nano material in layers and in gans state, these materials by large keep their structural integrity, where high external environmental matter conditions like pressure and temperatures cannot affect the total structural integrity ***once they are in individual matter gans compound state.***

This meaning that internal structure and molecular binding of gans and nano materials in nano layers or composite structures will not be affected by the matter environment's the likes of temperature and pressure condition of the environment. But the gans will be changing in its structure when conditioned to high level dosage of radiation.

For example, this is one of the reasons, why the DNA of the human being is venerable to changes and absorption of radioactive energy and in the radioactive environment or to burst of radiation, as the real structure of the amino acid of the protein of the DNA chain is made of gans of matters and not solid matter of the same gases (6).

In these conditions the gans of the matter receives radiation in the upper levels of the matter mafs strength and hence it has to accommodate this extra pmf of radiation hence the gans reaches a new magnetosphere pmf strength and consequently the gans of the atoms of the protein which has absorbed the additional pmf has to accept a new positioning in respect to other ganses in the chain, hence new positioning means new additions or new configuration in the setup of the DNA and hence new changes and hence slightly new chain configuration or alteration (6).

The property of the light in gans state make the gans venerable and receptive to changes due to the magnetic fields spectrum in all levels of mafs of the matters strength, this be it from the higher order mafs of the principal matters fields to lower pmf strength of below matter environment. This being the reason why DNA due to absorption of for example high level radiation or strong ray can change its configuration this leading to new permutation and change in the characteristic and change in parts of the being characteristics of the living matter.

Through this process of Magravs positioning and that all Magravs needing to be in their given position in the DNA chain that one observes the consistency with structure of the DNA for every living entity in the universe, which these chains of protein positioning become entities exclusive to that of a given being or entity. Now one can understand how light and its process of conversion, fusion and amalgamation lead to creation of exclusive structure of DNA and creation of beings (6).

Scientists due to old understanding of creation of magnetic field consider that the earth has an iron metallic core which due to its motion through convection theory leads to creation of Magnetic fields of the earth. The fact that the Sun does not possess a metallic iron core but it has large and powerful Magnetic and gravitational field forces; hence the existence of iron in the centre of all dynamic rotational bodies is not a common and acceptable principle and natural order of creation of Magnetic and gravitational fields in the universe.

In truth the plasma of neutron does not possess iron core, but it goes through the decay and division to make plasma of electron and proton and in this process of decay neutron does not go through iron energy balance condition as has been claimed by the cosmologist that this is how they consider stars reach the point of no return due to the creation and solidification of iron matter in their central core. And at the same time geologist consider iron core of the earth is reason for the planet possessing

Magnetic fields.

The method by which the Magnetic field's (repulsion of fields) and gravitation field's (attraction of fields) are generated exponentially increased in all planetary, solar and galaxial object are initially and primarily through the magnetic properties of the plasmas, nano and gans materials within the centre and internal structure of all celestial objects. As in the inner cores of celestial objects the ganses of the matters due to their mafts and through nano layers or different composition of collective crystal and magnetic fields structure they become or behave as the best insulator and conductor simultaneously in their environment, where the gans and nano matters, and their mafts and their properties *changes from conductor to insulators* as these matters behave as semiconductors and metals and at the same time due to their dynamism of their pmfts this leads to the initial and then partially continues production of the Magnetic fields and gravitational fields of the star or planets respectively (2, 3, 4 and 5). It is at this point that magnetic properties of the nano and gans materials in their interaction lead to creation of Magnetic and gravitational field's forces, this leading to creation of the independent mass and magnetosphere of the new entity.

Through the gans internal disassociation of its mafts structure as the internal principal mafts of the structure unwinds rapidly and when this transition to matter level strength is very rapid, then this lead to release of the high temperatures and strong rays of light in man's protein and the visible magnetic fields spectrum strength and hence detection of the release of spectrum of magnetic fields of the light rays.

The gravitational properties of nano materials and the creation and attraction and absorption of matters from the environment have been explained in the paper published in detail (5), at the same time matter cannot attract or gravitated towards another matter if both are not in possession of magnetic fields, where at the same time it has been confirmed (5) that nano materials possess magnetic properties and as magnetic fields interact then nano and gans materials create their own gravitational field zones and environments; and in having nano and gans materials in the centre of planets and stars this indicates how the gravitation fields (6, 7) of all dynamic systems and objects in the universe are created.

Ganses being in the right magnetic fields strength environment due to their Magrafts strength these materials *will convert into gravitational zones in their environment and attract light and in turn absorb, create and release energy*, where this energy leads to creation and attraction of gases and their conversion as for example the same process in the human body to solid state of matter at room temperatures, where in test it has been shown that this process of absorption or conversion of the gas to gans leads to creation and release of energy and similarly vice-versa. As for example in absorbing CO₂ from its environment the plant releases energy into its internal structure to be used for conversion of minerals to food for the plant to assist with its survival and growth.

Thus the truth about how even the heat of the body is created is far from the present assumptions which the scientific world has led the man to believe, as they themselves never understood the real working of universe and the process by which matters behave and operate in its low vacuum conditions.

This concept and process has been tested, explained and published in detail in Chapter 4 of this book, where for example in capturing gases of CO₂ from the environment and collecting it as gans as a tangible entity at room temperatures and pressures, the energy released through this process is use to light and run lights and motors respectively in the lab by independent scientists as has been published in the journals in May 2010.

Whereas, in this case energy is released is in a similar way as it happens in the human body, when

the light or magnetic fields of the light enters in the micro vacuum condition of system or the body and in receiving the light rays and in trying to entangle or go through the process of atomic-entanglement in gans level and then accretion, this process leads to release of the surpluses energy and then accumulation (accretion) of solid ganses which appear as cloud of matters in tests and in human body which then this become tangible structure of matters of the body and the surplus energy is released as the heat of the body or it is used for the communication system of the body.

This process of accretion is one of the sources of energy release in the living body entities and in experimental testing this released dynamic energy in the level of plasmatic magnetic field strength of an electron produced through this process become the source of power and is enough to light a LED for several months, as this process is a natural process as long as the light or other rays can penetrate the liquid, jell or soft tissue condition of the system this process can continue.

The other important reason that one finds water in this solar system is primarily due to the fact that pmf and Magravs strength of this solar system and the ones like this encourage and enforce initially the production of gans of magnetic matters the likes of oxygen, which leads to creation of liquid state of matter of water.

At the same time it is curtail to understand the structure of three and two dimensional properties and characteristics of the same atoms in layering and physical positioning. The gans of the matter is captured and held in three dimensional states, where gans of matters gravitate and make dynamic clusters of ganses around themselves and become dynamic entities, whereas, in the linked version of the same atom clustered the same matters in solid state makes layer and gives and possess totally different properties and appearance.

The light in its conversion to atom of gas or atom of gans according to its given environment then will take and enforces its preference estate of its manifestation, and with slight change in level of its internal vacuum (defined as availability of Magravs and their strength) then the light will appear as the gas of an atom or a gans of the same.

It is interesting that scientists and scientific organizations are not in possession of tools at this moment to identify these two separate states of matters of the light in visible entity of matter and hence always consider all matters as the atoms and in presently considered four states' of matters as has been tradition.

The same ray of light when changes to gans of the hydrogen atom, this change's its dynamic diamond crystal structure of the same matter and hence this gives the same matter insulating properties and hence allows the creation of conductive and isolative properties of the same element in its layering and clustering structure and its dynamic properties in between the same elements of atoms of the gas and gans.

The gans in specific condition has diamond crystal structure of the hydrogen atom and with slight change in its environmental condition become a conductor for short or on a long term. Where this has been experimental prove and demonstrated and then clustering of this structure mixture of gas and gans of the same atom leads to creation of multi-layers of conductive and isolative matters of the same matter and hence in the dynamic magnetic environment of the universe this leads to creation of different and stronger Magravs, and start of attraction and positioning of different matters towards these initial seeds of gravity and Magnetic fields and hence start of creation of initial celestial entities like plasmas of neutron, atoms, stars and galaxies.

This is the reason, for example why the same matter of carbon becomes to be the best conductor as nano layer Sp2 and the best insulator as the diamond crystal insulator structure known as Sp3 across the same layers or through its layers respectively where the production of such a mixture has been

independently confirmed by Ramon spectroscopy of these structures produces as layers on a given surface. Therefore all elements and molecules or their combinations can have both Sp^3 or Sp^2 structure and property at the same time and in the same environmental condition.

This being the like of the protein chain, where each gans of each element exist individually and collectively in the amino acid as molecule of gans as each element plays its individual role which can affect collectively the operation and existence of the acid in its given environment (6).

In understanding the concept of the conversion of light rays to gans and gas and creation of nano materials, this discredits the present philosophy of the planets needing solid iron cores which enables them to create their Magnetic fields that they can operate in the universe or even the human race could be brought to the earth from other places from far corners of the universe. The life on earth is the natural product of lights' motion and its conversion in the internal activity of this planet and solar system.

By the same measure light plays in different environments different roles which can lead to creation of the same and similar or totally difference combination of creation of molecules of gans, which these manifestations of difference appearance of the light are environmental pmf mafs strength dependent. This is to say that life is not and shall not be the exclusivity of this planet and this solar system once on understand the principle of creation and motion of the light rays in the universe.

Thus the centre of the earth does not need to have solid iron core for it to possess Magnetic and gravitational field's forces leading to creation of life on the planet too. Whereas, composite elements of nano materials, gases and ganses crystal structure of the same element in the inner cores of the planet can lead to creation of the same Magnetic fields and gravitational fields of the planet.

This explaining why even some planets like Saturn possess Magnetic fields, even though these planets could possess some solid matter as their constituent materials as part of their inner structure.

In reality as layers and layers of dynamic gas and gans are piled-up in the centre of the planet the effects of dynamic magnetic layers exponential strength that they make as the Magravs of the planet take hold and this phenomenon lead to creation of stronger fields that can span billion of kilometres in the solar, galaxial heliosphere in the environment of these entities.

Thus the transition dynamic helixial cylindrical ray of light in slowing down in a given environment Magravs strength, this lead to creation of specific matter in that given Magravs strength environment.

The scientific world has to understand that the state of gans of matter is a natural phenomenon in the world of creation, this meaning as man has learned about the solid, liquid and gas state of matter, as these states of matters are due to temperature and pressure difference in the environment of these matters, but there is another state of the same matter even though as it's like a gas and behaves and exists as matter in form of liquid and solid but due to its internal gravitation fields forces of its atomic structure this matter for its appearance and properties is ***not external environmental dependent***.

The gans or the gas in nano state of solid state of matter will play an important part in the future of the science and technology. That is where the same atom behaves like a gas, liquid and solid at the same time depending on its own internal magnetic fields interaction in its plasma and not of the external environment conditions around the plasma the same matter will be in dynamic solid state at room temperature at all-time irrespective of the environmental condition.

That is to say the plasma of an atom of gans receives or coordinates its own Magravs and its own Magravs positioning in respect to its own electron and proton and other gans structure.

Thus, gans is the state of the structure of the light which has changed from dynamic cylindrical plasma of magnetic fields to a dynamic spherical entity of the same matter mafts, which its state of manifestation in matter environment is internal gravitational dependent and not environmental condition dependent. That is why one can observe the same element in coldest and hottest regions of the universe and still misreads them as atomic matter rather than nano-atomic or gans of the same matter.

This is how some of the plasmas and rays ejected by the Sun, depending on how they arrive at the Oort clouds and Kuiper belts then become nano materials of gas or gans and in clustering with other matters and ganses become part of the meteoroids or asteroids and look as they have been there from the time of the creation of the solar system.

In the universe and solar systems of the right Magravs strength, the light changes into the nano hydrogen and through internal magnetic fields of the solar system through the principle of magnetic balancing and accretions this matter elevates to the next magnetic material, which one of these materials' is the gans of the oxygen. This element due to its Magravs positioning and balancing in the Magravs of some solar systems lead to creation and production of water molecules in the Oort clouds belt and then these water nano particles gets pulled back into the inner parts of the solar system as nano ice particles of gans of this material which for example one observes them in the rings of Saturn.

The ice particles in the ring of the Saturn are there and for ever are produced by the return of the rays of light which were released by the Sun itself, on their way back to the Sun as gans and ice particles and they are temporarily trapped and positioned in these rings, and the present assumption that these ice particles exist in these rings are not by the crash and splitting of meteoroids or asteroids into smaller pieces that afterwards have stock in these rings of the Saturn as can be observed at the present time.

Thus as the light reaches the outer boundaries of the solar system, its becomes nano material, which due to their magnetic properties, this leads to creation of a nano magnetic material which is oxygen and then this matter of nano particles gans of oxygen to find stability for its Magravs, this attracts two atoms of gas or gans of the hydrogen nano particles, which this leads to production of gans of ice looking particles of water in the Oort clouds belt of the solar system, which they move inward and become the liquid magnetic substance and the source of the life in this solar system.

Thus the water in the solar system is generated by the rays of the light of the Sun itself mainly and by no other source and hence water is produced in the solar system by the recycling of the light rays of the Sun itself.

The mixture of these ice nano materials with solids matters of the solar system leads to creation of meteoroids, whereas these dynamic objects in traveling between the Oort clouds and Kuiper belt, these objects attract nano water molecules and then they return to the inner regions of the solar system. This being one of the reasons why the meteoroids are seen on regular basses and their size never changes, but their vapour trail tells the existence of the water residuals in their structure's as forever these objects gets replenished with the Sun rays in the form of gans of water in these outer regions of the solar system and return back into the inner parts of the solar system.

Therefore the theory that water is brought to planets like earth by meteoroids as has been assumed is partially correct, but Magravs of planets like earth in the Magravs of its Sun have the ability to

convert light to nano matters and nano matters which have been produced into hydrogen and molecules of water through accretion process in the vacuum of the solar system and in the upper layers of the earth atmosphere itself. Hence water is the creation of the combination of atoms created by the rays of light and in different magnetic fields conditions in the Margraves environment of this solar and planet system.

This process of conversion of the light can happen anywhere in the universe as the nano particles of the hydrogen is one of the first and weakest Magravs strength that light can change to matter anywhere in the Magravs strength of this universe.

Thus water is not exclusivity of this solar system and is product of the light rays of the universe in matter environment.

There are waters like substances in other matter mafs and matter strength environments in the universe too.

It is important to realize that all gans have the magnetic properties with the difference that oxygen is the one of few common magnetic materials in the solar system and in most of the universe needed for braking of the light itself to lower level strength, which can lead to creation of intelligent life. In some solar systems and galaxies pmf strength of the gans of the matter of the oxygen is the common magnetic elements and the reason why all matters existence dependent upon availability of this matter in the pmf of the environment.

In the living bodies in possession of systems the like of the lungs and gills in fish, the light in changing to molecule of oxygen and in being inhaled for their existence, in these systems contrary to present belief the atoms and molecules of the oxygen will never cross the boundary of the structure of the lung or being absorbed by the blood as has been thought and promoted by scientific world (6). The fact is that in the process of inhaling or in case of fish by passing the water through its gills, the atoms of oxygen simply passes limited value of their matching plasmatic magnetic fields strength to its matching oxygen atom of protein of the blood cell that the blood cell as commonly called gets oxygenated in the lung (6). In reality no oxygen atom or molecules ever passes the walls of the lung as has been assumed, but the oxygen atom transfers its pmf to the bloods oxygen atom in its protein and then this pmf is carried through and by the same principle as the pmf from the oxygen of the blood protein cell is passed on to other oxygen atoms ganses in the protein chain of other cells in the human body (6) as they come across their corresponding mafs strength protein in the blood.

The oxygenation of the red blood cell is primarily another quantum-entanglement of the same matching matters strength or entanglement transfer of adequate amount of pmfs of specific cell of the matters of blood.

The fallacy that oxygen atoms cross the walls of the lung is so far from the reality of existence that as saying a man can walk through a solid wall. This hypocrisy has been the consequence and through the lack of understanding of the real structure of the oxygen and its origin being laying in the structure of the light that matching plasma of light and atoms can/and frequently entangle and transfer their pmf up to level of their mutual strength that existence can be guaranteed in one form or sub-structure of the same and without the plasma of actual solid atom crossing the boundaries (6) of the lung.

In fact the energisation of the red cell is through transfer of the pmf of the atom of oxygen and not the actual transfer of the crossing of oxygen into the blood stream and the brightening of the red cell passing through the lung is like the variable light switch, that as one increase the current through the

light the light shines brighter, this is the same process and in the same way as the red blood cells receive the pmf of the oxygen, then the blood become brighter or richer in pmf, then the blood cell after transferring its pmf to appointed cell in the body then pmf strength of the blood cell is reduced in energy and illumines less, dimmer or looks darker as it returns to the lung to be recharged (6). Man has a lot to learn first about his own body before he can conquer the universes.

In understanding the function and the fundamental properties of the gans and molecular gans then computing systems can be produced that not only they think the same ways as humans do but due to their dynamic energy and singular directional rotation, then at this point the first quantum computing systems can be produced that these computers will be exact copy of the human brain and muscles in structure with the same multi-neuron-cross linkage and communication channel, as these channels are created as gans molecular Magravs linkage will allow them to have the same simultaneous multi-cross connection that these quantum gans of molecules structures will be exact parallel systems as do the human brain in all aspects of a real working structure of logical system, which even they can carry emotions as well as control and logic. Where, in fact the binary gans and twin gans sets will be the future of fast thinking units needed for the high speed control logic system for space systems travels of the future.

As there are gans in the matter environment mafs strength then there are gans in pmf strength of principal matter and transition matter too, and at the same time the gans of matter in all mafs strength will operate in all levels of pmfs strength. Thus it is possible to produce molecular gans unites which work at high speeds and with same emotion and logical systems as human brain, but with speeds that are far exciding speeds of the human brain processing capabilities.

Therefore it can be said that for the first time the man has the capability and the knowledge of not only producing solid gans of gas at room temperature, but it can go one step further than present conceptual nano matters and nano matter based computers and start working on real brain based matter structure logical systems by using the gans of the gases which are the building block of the human amino acids.

But the question is that would we as far as building the first human operational brain and body using these matters as we have already decoded the DNA of the human genome, and as we know the full chain of the DNA sequence and we have already unravelled the mechanism that the RNA produces it energy and current for its internal communication and control of the internal systems of the DNA, then would man become the creator of new beings bases on human structure and would the discovery of the gans and simple method of its production will allow the ethical question of mass replication without the need for stem cell or even egg and sperm, which are memory banks of human survival on this planet. Would man will make one of his own with a clean DNA memory. OR is the human being to become the god of new generation of beings.

This is not the first time in the universe that one created has the ability to reproduce another of the same, but at the same time this discovery of structure and properties of the gans would have become apparent to man of science in due time as he would have progressed in his scientific conquests.

Some scientists believe that solid iron is the main magnetic matter in the universe and this matter in the centre of the stars and its energy balance conversion between its fission and fusion is the point when stars goes through their slowing down process or reduction or what is known as their nova state. The truth is that the plasma of mafs of the simplest structure of the plasma is the common and the fundamental and elementary magnetic entity in the universe. Thus the plasma of the light is the basic and common magnetic matter in the universe and one does not need iron to reach this point, as the plasma of matters in given position can lead to unbalancing of their total environment pmf mafs and Magravs, this leading to total disassociation of the all matters in any matter or object in the span of the universe, and once the process of the chain reaction of disintegration and disassociation

starts then the whole entity disassociation from each other begins and in the case of plasma of neutron and star at this point disintegrates to re-association in a different as plasma of proton and electron and new star and planets in their form in difference point and place in their given environment.

By the same measure the plasma of neutron which is created by the conversion of the light ray is the common magnetic matter of the solar system and not atoms of iron, and in reality the light of the Sun and its Magravs dictates this property of this mafs of the matter and the present assumption that energy balance conversion of iron is the cause of their nova cannot be correct and as most of matters in the universe are created because and through the existence and the operation of principal matters in the centre of the stars and their rapid unwinding and balancing of their Magravs in the centre of the star leads to the expansion and disintegration of the star and not as has been assumed at this point by some cosmologists due to the iron fission-fusion balance (3,4 and 5) phenomenon.

What has been explained above, this is the process of creation and recycling of the light through its full circle of its existence from matter to light and from light back to matter(s).

The detailed information and explanation about the existence of the gans of the matter has been possible due to through series of tests which has been carried out and absorption of the physical solid CO₂ at room temperature has been confirmed. The procedures and tests results in confirming the existence of this new state of matter was originally published in 23.12.2009 by the Keshe Foundation on its website. For those whom have not been able to read this paper a copy of the same is published in this chapter.

The state of gans of matter can now explain about the truth of life in the universe and this opens new horizons in the world of energy, new materials, production of more natural components of the human body parts, production of new medicine, new types of food processing technology, which this eliminate the need for present farming processes to feed the populations, as protein can be produced from the content of the light or the mixture of composition of lights mafs in gans state of matter that can lead to production of solid matter the like of fresh meat and or composition of dairy milk and so forth. Thus through production of gans dependence on the extensive farming in the space becomes irrelevant, where in deep space by absorbing weak residual mafs of the light and in bringing them together and through accretion, then producing the gans of the fundamental plasma, then producing the gans of fundamental atom and then through accretion creating composition of ganses of protein, then one can produce any food in the span of the universe directly using the matters of the light. Originally this concept of producing protein through gans from the gases of environment was considered and successfully tested in Tehran in the summer of 2008, and through simple process the first gans of protein in small quantities by using the natural air at room temperature was produced.

In the appendix section of this book, attached is the paper titled “The unifying field theory” published in the 28.10.2009, in this publication it is discussed and can be concluded that the origin of all entities, tangible or not are magnetic fields and the interaction of at least any two of any magnetic fields of any strength can lead to creation of all other effects and matters which are observed in the universe.

Thus the magnetic field is the unifying field and the mother and the seed of all created and creation in the universe, thus the magnetic field is the Holy Grail, which the scientific world had been searching for in the universe strength to connecting all fields and effects observed in the universe.

Chapter 4

CO₂ in Gaseous State (paper 2009)

Direct absorption of carbon dioxide CO₂ and methane CH₄ gases from the environment and their conversion into nano solution and nano solid matters and production of energy and oxygen by the use of nano compound at ambient temperature and pressure.

Abstract

In this paper, results of processes will be introduced for the absorption of carbon dioxide CO₂ and methane CH₄ gases direct from environment and their conversion into nano materials of the same suspended in solution or dried as powder. Where, concurrently within the processes of extraction of these gases in a simple reactor, we have managed to produce energy and oxygen.

Discussion

New methods for absorption of CO₂, CH₄, and others gases and further conversion and preservation of these elements in their nano solid state of matters at room temperature and pressure has been developed and achieved.

We have developed simple processes by which carbon dioxide CO₂ and methane CH₄ gases can be extracted from their environment where no additional heat or pressure to achieve this has been applied.

At the same time conditions can be created within these systems that CO₂ in conversion without going through any chemical process, can lead to creation of methyl, oxygen and methane gas and vice versa.

Where during these processes of CO₂ and methane gas extraction or conversion we have managed to produce usable energy and oxygen molecules in sustainable way.

Production and extraction of CO₂ by applying energy is a known technology in the present science, what is new with our technology is, that not only CO₂ is extracted in a simple system at room temperature and pressure, at the same time, energy released through absorption and conversion of the captured CO₂ to formic acid, we have developed simple techniques to capture the energy release from this transition process to produce useful power.

The novelty with this new technology is that in previous state of art technologies, engineers and scientists had to add energy to extract CO₂ from the environment or to produce O₂, where through our technology, not only we generate useful energy while absorbing these gases from the environment, but also at the same time, the system can produce molecules of oxygen.

Thus, this simple system has the ability to replicate the processes as in a natural way as plants achieve in their conversion of CO₂ into oxygen.

With this technology, CO₂ and CH₄ gases are absorbed and attracted into and within the solution in their nano state, and then they are allowed to amalgamate to produce gel like residual solution and then form nano sediment.

Where, nano CO₂ can be extracted or removed from the solution as solid matter at room temperature.

The CO₂ stays in state of gel as nano materials in the solution due to their diamond crystals structure (sp³), or due to their crystal lattice structure, this creating a non-adhesion molecular bound like diamond crystals. Which, this does not allow more than certain number of molecular structures to adhere to each other. Where, CO₂ nano matters once reaching a certain molecular gravitational level, as crystal, then they do not attach or cannot hold on to more than single or certain numbers of nano molecules of CO₂ and form independent or nano cell of matter. Thus, all clusters of CO₂ in solution have certain dimensions and that is why they stay like clouds or gel within the solution.

We have to explain that it is known tested fact to us that nano-coated materials and nano materials in sp²/sp³-state due to their characteristic of diamond crystal behaviour, they cannot be soldered to each other or soldered to another material. However, at the same time in a peculiar way the outer electron of these materials allows conductivity of matter. What this means, is that, even through they do not or cannot be attached to any other material from their outer structural boundaries, but in being connected with each, these materials allow flow of current and voltage through their outer boundary.

In a way, these behave like quartz materials, but at the same time after a number of layers, they do not or would have the gravitational pull or adhesion capability to allow more layers to be added to their layers.

Where, these layers along their grain and layer, they behave as a superconductor, but across layers in PN junction, depending on the position of PN cavity within the layers, they become best resistors. Where, we have measured the resistance of these layers and this have been confirmed by other scientists whom have tested our material of sp²/sp³, that these materials have shown to have 20 M Ohms resistance threshold barrier. On the other hand, this material on the surface has as good as resistance capacity as air and diamond.

We have further managed to obtain solid matters of CO₂ from the system or dry the nano-saturated nano CO₂ dilution into nano CO₂ powder. Thus for the first time in the world of science we have managed to generate at room temperature and pressure nano matters of CO₂ and methane through the same process.

To confirm that solutions obtained in our tests to contain CO₂ and CH₄ matters and these matters are in nano form, we had to under take laboratory tests of the solution with infrared spectroscopy and XRD respectively.

Further, as we know through our previous developments in nano technology, that nano materials are by principle sp²/sp³ in their character. Thus from results obtained from infrared spectrosopes and XRDs of matters during our process of absorption and nanolisation, we have concluded that the extracted CO₂ and CH₄ materials in solution and dry are both in nano state of matters of these gases.

At the same time parallel researches which we have found on the internet since the publication of the first addition of this paper on the 23.12.2009 done by other scientists, Dr Omar M Yaghi of the university of California released on 7.12.2009, which extracts of this has published in article by The New York Times published 4 on the 8.12.2009, this article refers to “metal-organic frameworks (MOFs) material promise of carbon capture and release, and that these materials being crystalline sponge hybrid lattices of organic compound and metal atoms that has a huge internal area where gas

molecules can be absorbed.”

Where we have reported these characteristics of metal-organic sponge effect and capture of CO₂ in 2006, and this has been confirmed by indecent testing by major nuclear testing centre in Europe in their report in 2007.

Further, in the paper Dr Yaghi states, “**MOF used in the study contained magnetism atoms**”

Where in our previous disclosures and patents applied, we have declared that the absorption of these atom of CO₂ and CH₄ are Magravs (Magnetic gravitational fields) based. Which this independent scientific paper confirms our finding that CO₂ and CH₄ are gravitated to the water as nano molecules, and they do not have any interaction with the medium of the water, but the water *is the container and tool or catalyst to keep these captured molecules in their singular or nano state and sp³ floating condition or as a solution.*

In the same paper, Dr Yaghi refers to how material separated out CO₂, which allows methane to pass.

Where, our system not only captures the CO₂, but also at the same time it can capture CH₄ as we have reported before. That these captured carbon dioxide CO₂ and methane CH₄, produce diamond structure nano matters or crystals, with metallic behaviour like, which they have a superconductor characteristics and behave like conductors.

Thus, our findings are inline with other scientists and their scientific research works, which have been reported. Where now we can clearly state these captured gases can be converted to solid nano materials, which behave like metals, and are superconductors, but in reality, their superconductivity of the matter is due to their sp³ nano characteristics and not their metallic condition.

Further Dr Yaghi states that 87 percent of the CO₂ captured, at 13-degree temperature are released back by the MOF matter to the environment.

Where this is inline with our reported behaviour, that as the CO₂ are extracted by these materials we have developed, which our capturing materials are metallic and organic in their real structures, these materials then release their captured CO₂ in the water at room temperature in Gans (Gas-Nano-Solid) state.

Further, he states that to release the balance 13 percent of the captured gas, one-need temperatures of 175 Fahrenheit.

Where, we release all captured CO₂ as nano-material into the basic solution of the system, this all at room temperatures without any heat being applied.

Further more, the Canadian company Mantra-Venture-Group has announced on Business News Network that in conjunction with 3M using electro reduction of carbon dioxide, they confirm that **they need 6Mw of energy to extract one tonne of CO₂**, which this is considered to be at the edge of technology of CO₂ extraction.

Where, with our new technology we produce energy rather than consuming energy.

Where, further MantraEnergy in conjunction with use of the CO₂ they capture, they can produce formic acid, using the technique developed by Dr Gabor Laurenczy. Where, he has confirmed that he can generate hydrogen from formic acid. (Video-interview:

<http://www.mantraenergy.com/mantra-in-the-news/squeezeplay-zapping-carbon.html>).

We clearly have shown and absorbed CH_4 not only from the environment, as similarly we have reported the production of formic acid through the natural gravitational forces of our system as has been shown by laboratory tests results which are discussed below.

We have reported the production of CH_3 in our system late last year as we managed to separate the CH_3 and its capture in nano state of matter in our system. The production of radical CH_3 from the H_2O molecule of the water as the magnetic and gravitational catalyst of the system, subsequently this leading to existence of two radicals in the systems at the same time, one of the CH_3 and one of an atom of Hydrogen leading to release of molecules of oxygen.

Scientists at a nuclear centre have confirmed the production of hydrogen radical through our technology in 2007 in their independent (not yet published) report.

Therefore, it has become a simpler method through our development to extract CO_2 and CH_4 and released it in nano solid matter in water, and at the same time have the ability to produce energy and oxygen as we have demonstrate it to independent engineers in December 2009.

Further on in this paper we show and present pictures of both matters of CO_2 and CH_4 in solution and solid state for the first time (Fig. 29 for solution and Fig. 30 for powder of CO_2 , and Fig. 31A-B for solution and Fig. 32 for powder of the CH_4). The CO_2 in solution and dry state has a white milky appearance and methane CH_4 has a blue greenish colour.

We have mentioned Dr Yaghis' paper in this section as the findings in his paper is near to our finding and is one of the latest in this field.

The CO_2 capture is well documented subject on internet and we are not here to list them to support our claim, one can refer to these on the internet to find that our claims are inline with main stream physics community, with the difference that we reported the capture of CO_2 in early 2005 in nano materials on our web site and now we are reporting the first solid nano material of the gas as in Gans-state. We call a Gas-Nano- Solid state the GANS-state, which is a state or phase of transition of matters, which has been unknown in actual science up to the release of this paper.

Meanwhile in light of our latest discovery and disclosure of the capture of CO_2 as solid or in solution, our foundation will ask the nuclear centre which has done the independent test for our system in 2006-2007, that if we can release part of this report confirming the CO_2 capability capture of our materials.

The CO_2 absorption

In our tests and development phase, we have managed to produce a special material for the production of a new and a simple system for absorption of CO_2 through the principle of Magravs field forces, rather than the chemical method of absorption of these gases. Where, the absorption principles through gravitational systems have been disclosed in full in the book, which we have published in July 2009 (titled: The Universal Order of the Creation of Matter; ISBN 978-94-6087-001-9). In this book, I have, explained in detail, the principle of gravitational and Magnetic field positioning and attraction and repulsion of matters from these systems respectively.

Through the development of these new composite materials of organic and metallic nano layers, we have managed to create specific static gravitational field forces which can be in the magnetic wave length of the CO_2 molecules, or we have developed condition(s) that as the gravitational field

attracted the CO₂ to the material, the Magnetic field(s) within these layers cause the repulsion or the release of the captured molecules of the CO₂ from the layers. Thus causing the creation of nano molecules of CO₂ in the water, and as we use the magnetic fields of the water for stability and as a magnetic catalyst, they come to allow the formation of clusters of Gans of CO₂ and create a solution of these nano matters, which these latter manifest themselves as a sediment in the liquid of the system at the bottom of the holding container (Fig 30E).

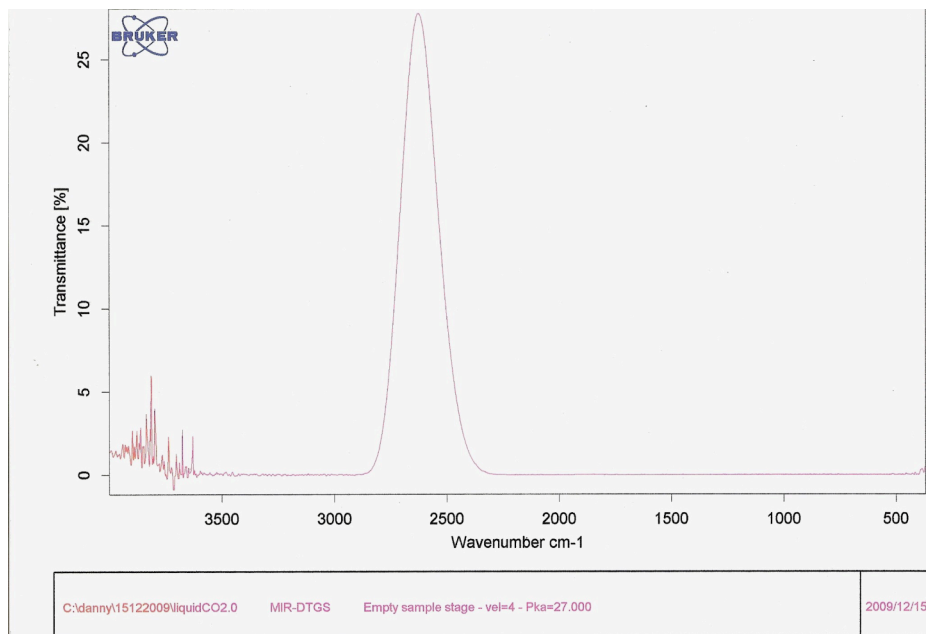


Fig. 21 Infrared spectroscopy of the CO₂ solution.

The solution of nano carbon dioxide CO₂ and has been subjected to infrared spectroscopy by independent laboratory confirming the production of the first nano CO₂ in a solution or as gel at 2630 cm⁻¹ wavelength of the spectrum (Fig. 21).

This is actually the best observe data as calculated and predicted figure is said to be at 2640 cm⁻¹ (Fig. 22). (Source: <http://science.widener.edu>)

The closeness of the figure of 2630 showing the purity of the CO₂ solid matters within the solution obtained during our test.

Where even the predicted matter has a multiple peaks, where these captured matters due to their singularity in the measured sample has a sharp and clear single peak as has been shown in Fig. 21.

This sharp peak can confirm the possible nano sp³ structure of the suspended capture matters of CO₂ in this solution, once XRD test was carried out for the same sample.

For further confirmation of nano structure of the matters captured within the solution and then the solution was allowed to dry and then as a film was subjected to XRD testing.

The results of this test showed a clear match only as superconductor characteristics for this material. Further analysis with the data from XRD, a superconductor material characteristics perfect match was not found for this matter.

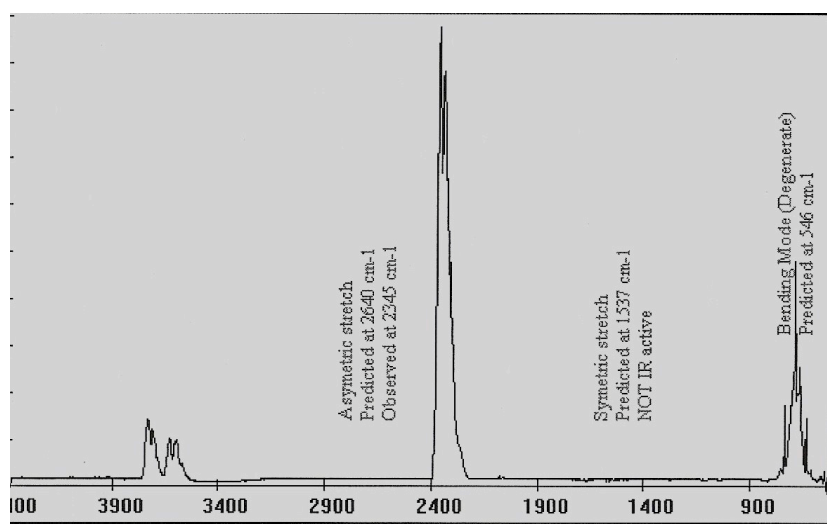


Fig. 22 Standard CO₂ infrared spectroscopy graph.

With this test, and from our pervious developments and testing, clearly it is shown that the matter within the solution has superconductivity property (Fig. 23), which has new non matching data in the present collected reference data, and this is the characteristics of nano materials in sp3 state of matter.

This matter as superconductors known or ever been recorded for observation.

Thus the XRD of the CO₂ data as solid and its graphs have become the new base knowledge and fundamental basic data for any future capture of these gases, once they are absorbed as a nano material in solid state.

From our previous developments and tests, we know that all nano materials show and have superconductive characteristics. Now with this test, now we have further proof that the captured CO2 in the solution is in a nano state of matter.

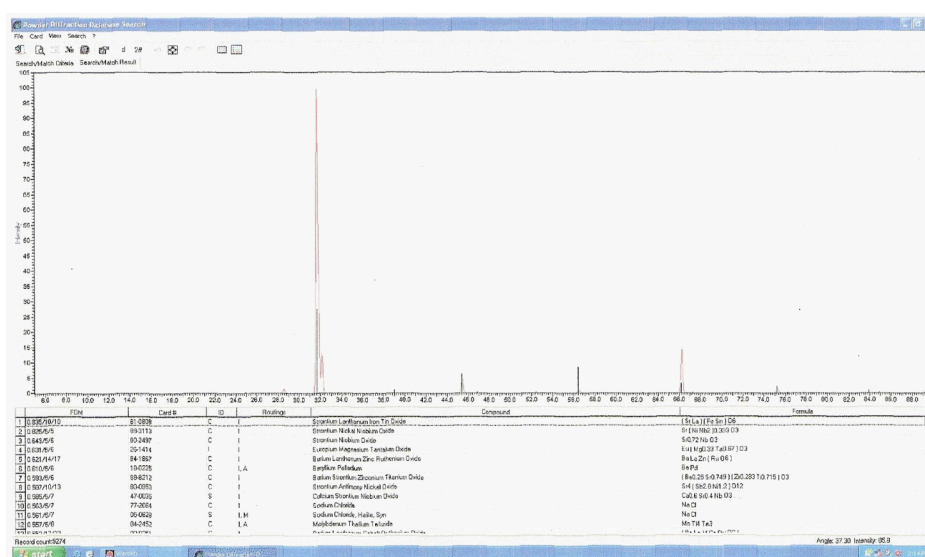


Fig. 23 XRD of the CO₂ nano material

The closest match as superconductor characteristics to CO2 in the solution or in dry state of matter,

this was found to be an exotic mixture of five different materials, as can be seen in the table at the bottom of the graph, with the best match reference data figures to be about 80%-90% superconductivity properties of this matter.

With the discovery of this new state of matters and the simplicity of their production and their high superconductivity properties, we predict that gans (GAs Nano Solid) of gases are going to be the next-best purest superconductor and resistor materials of the future.

Further more: in confirming the matter of solution being carbon dioxide and at the same time confirming that this matter within the structure of the solution and the system set-up has the capability of conversion to formic acid in presence of CO₂ captured in the solution of water, a further test was carried out with **infrared spectroscopy** to confirm this conversion principle of the confirmed nano CO₂ capture to formic acid within the solution.

For confirmation of absorption capability of nano CO₂ by the solution and its conversion into formic acid, the chamber of the infrared spectrometer system was field with pure CO₂ and measurement were taken. This measurement is shown as line A on graph Fig. 24.

Then the solution of nano CO₂ from our test was then injected into the chamber and the graph line B in Fig. 24 was obtained.

The peak region NC in the Fig. 24 shows an increase in carbon dioxide in the solution was once it was introduced into the chamber.

This showing that the CO₂ solution is extracting carbon from the chamber or causes reduction in carbon content of the chamber.

This in away showing the absorption capability of the solution of nano CO₂ of more CO₂ on its own independently, and confirming further from previous results that nano materials are CO₂ absorber by their nature of construction, even though these matters are themselves part of the original solution.

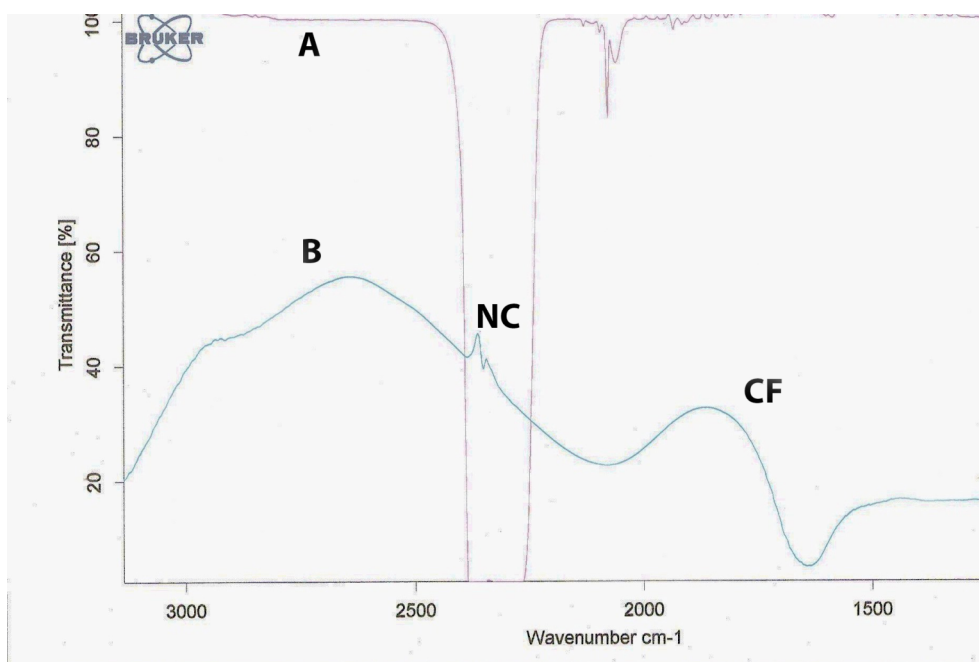


Fig. 24 The comparison graph of injection of the solution of CO₂ into CO₂ gas environment.

In this graph the peak NC showing absorption of CO₂ from the chamber and this followed by formation of formic acid as shown in the CF region of this graph through infrared spectroscopy test Fig. 24.

The graph of the CO₂ from the solution and its conversion is independently shown in Fig. 26.

It is at this point of gravitation attraction and subsequent Magnetic field repulsion that the magnetic fields strength equal to the strength of the Magravs of the proton and the electron are made available to the system, which these fields are absorbed by the electrodes within the system and then these are past to cooper wire atoms', which are the constituent matters of electrodes and cause the vibration of electrons within the copper wire leading to creation of current in them.

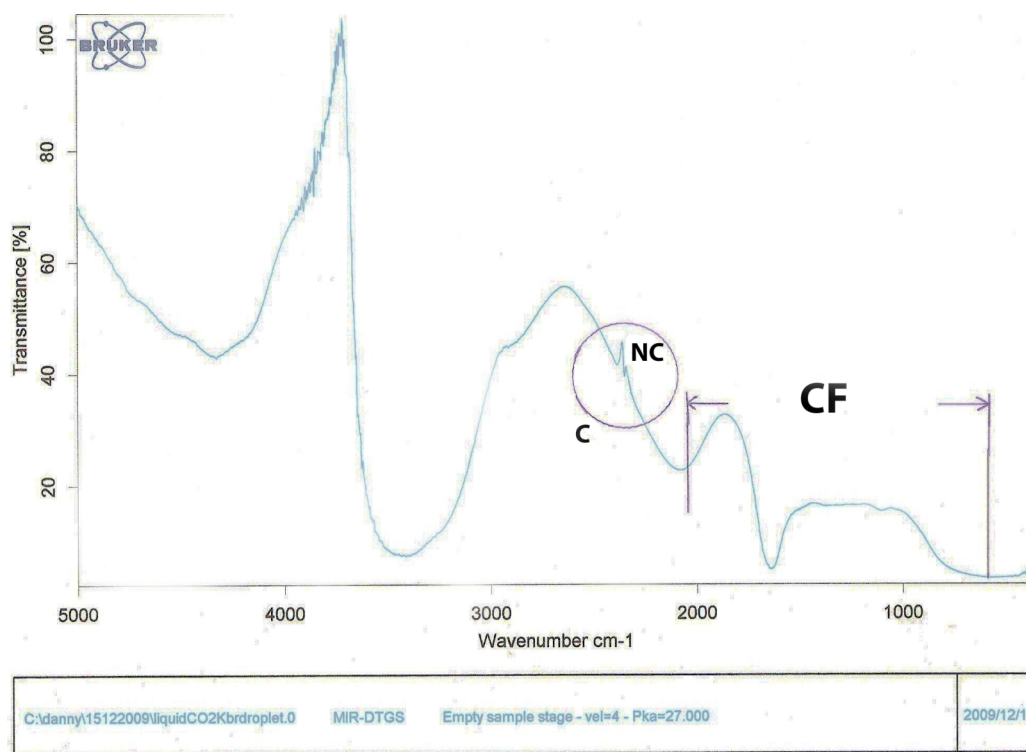


Fig. 25 The graph of the conversion of the CO₂ into the formic acid within the chamber.

In the actual physics they call these released packages of magnetic fields or energies as photons as they are released which are then these are absorbed by electrodes placed within the system and used for example to light diodes.

Through development of this technology, production of power without burning fuel and at levels that can meet the demand of a household or a car, is achievable.

Where, for separation of CO₂ from environment, in present state of art technologies, energy is used to be able to first separate the CO₂ and then cause the formation of formic acid reaction chain, this leading to production CH₄ or hydrogen.

Where, through our simple technology, in opposite to the norm, we **generate energy while extracting CO₂ from the environment**. The method we use is the principle of gravitational positioning and is exactly the way by which matters are extracted and separated in the universe as has been explained in this book.

Our approach is totally different than the present state of art technology, where they use and follow the fundamentals of chemistry, hence the need for their system for energy input to achieve the separation or extraction and we follow the universal method of extraction and holding where magnetic fields as energies are made available through the process.

The example of energy production during the process of CO₂ extraction is shown by lighting the diodes as can be seen in Fig. 26.

Where, this set of three LED lights being powered by CO₂ capture process. These lights have being on contentiously from 7 pm Saturday 11.12.2009 until this report is release 05.01.2010. Further we expect that these lights will be on for months to come, if we allow the set-up to be running as it is. The intensity of the lights from these LEDs has not diminished and in fact, sometimes they are brighter.

Through development of this technology, production of power without burning fuel and at levels, which can meet the demand of a household or a car, is comfortable achievable.

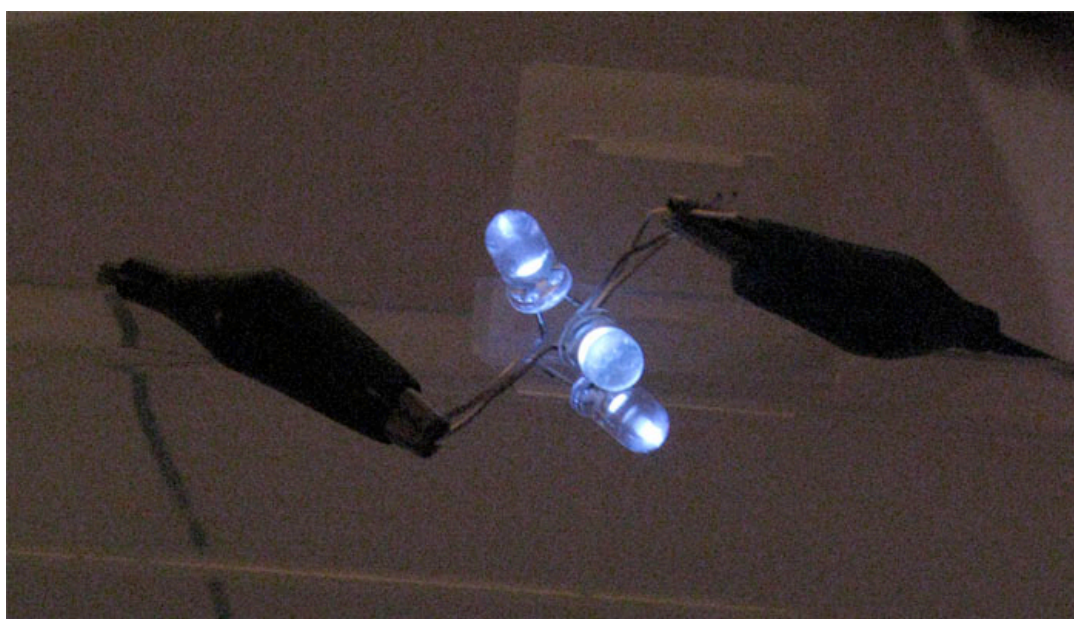


Fig. 26: Group LED's light

For further investigation into confirmation of CO₂ capture and its conversion in their interaction with water to form formic acid, the standard reference infrared spectroscopy graph and data of formic acid was obtained as shown in Fig 27.

To confirm further the conversion of the CO₂ into formic acid from the CO₂ nano solution from our test, the following procedures were carried out.

To begin with, formic acid liquid with 95% purity was introduced as film on the sample disc of infrared spectroscopy system and the graph FA in Fig. 28 was obtained.

Then a drop of solution of nano CO₂ was placed on the film the formic acid and the graph CO₂+FA in Fig. 28 was obtained.

When the three graphs are superimposed, that is the original infrared graph of the nano solution of CO₂, on the graph of the formic acid and then the graph of the mixture of formic acid with CO₂ solution, these clearly showing the absorption of CO₂ in the zone 1 in Fig. 28, and then presence and formation of formic acid as shown in the zone 2 of the Fig. 28.

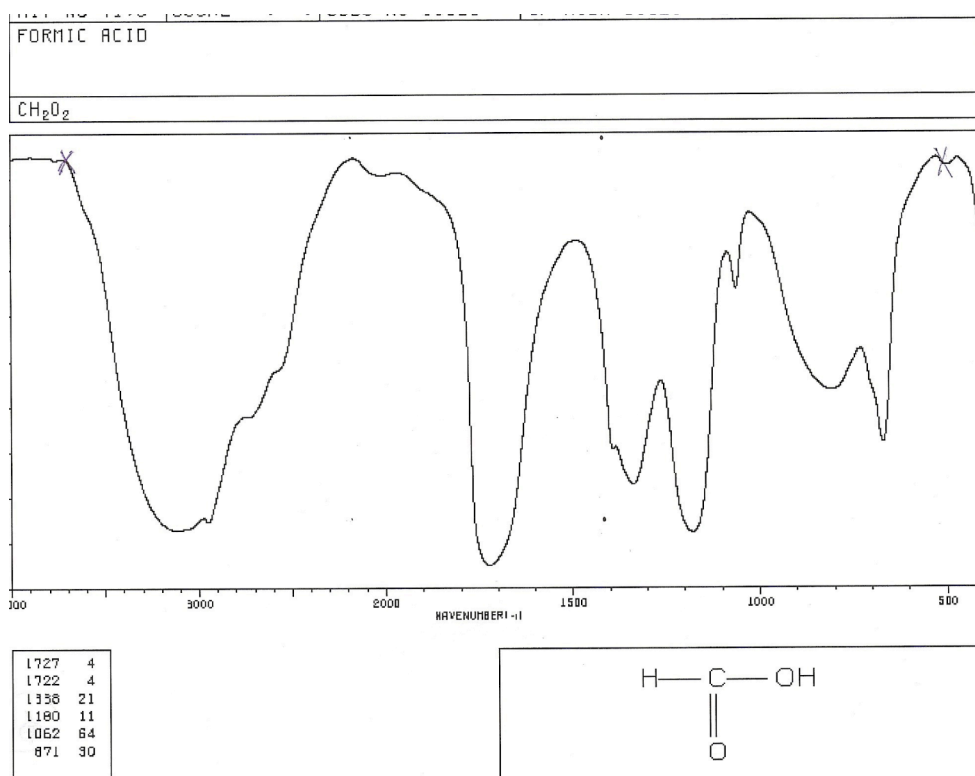


Fig. 27 The standard reference of IR spectroscopy of the formic acid.

This showing the same pattern of presence of Formic acid in the solution of nano CO₂, hence not only confirmation of existence of CO₂ in the nano CO₂ solution, but at the same time the absorption capacity of nano CO₂ solution of CO₂ from the environment and conversion of these additional CO₂ in conjunction with water into formic acid.

Having established the characteristic of the matter within the solution from testes and results shown in Figures 21, 23, 24, 25 and 28, without the shadow of a doubt, the white material is CO₂ in nano state, and from Fig. 23, we have the confirmation that this matter is a nano structure in sp³ and behaves as a superconductor.

Further, as the process of the energy production from the system has been extended to days and weeks, the following characteristics and materials have been detected and collected from the system.

In the process of the running the system, the area around the electrodes, which have been specially treated, start gathering a white cloud around them after subjecting the electrodes to certain conditions. From this point on the environment around the electrodes start creating a mist of white material around them, and then gradually the whole containment becomes like milky colour liquid, and then white sediment is established in the container.

Through the infrared spectroscopy shown in Fig. 21, we can confirm that the material in the solution is carbon dioxide and the nano state of this material is very much confirmed by the second test of XRD, as the only match for the dried solid residual of this milky substance shows' superconductivity behaviour of this material. This confirming the nano characteristics of the CO₂ as white powder, or in its solid state of matter.

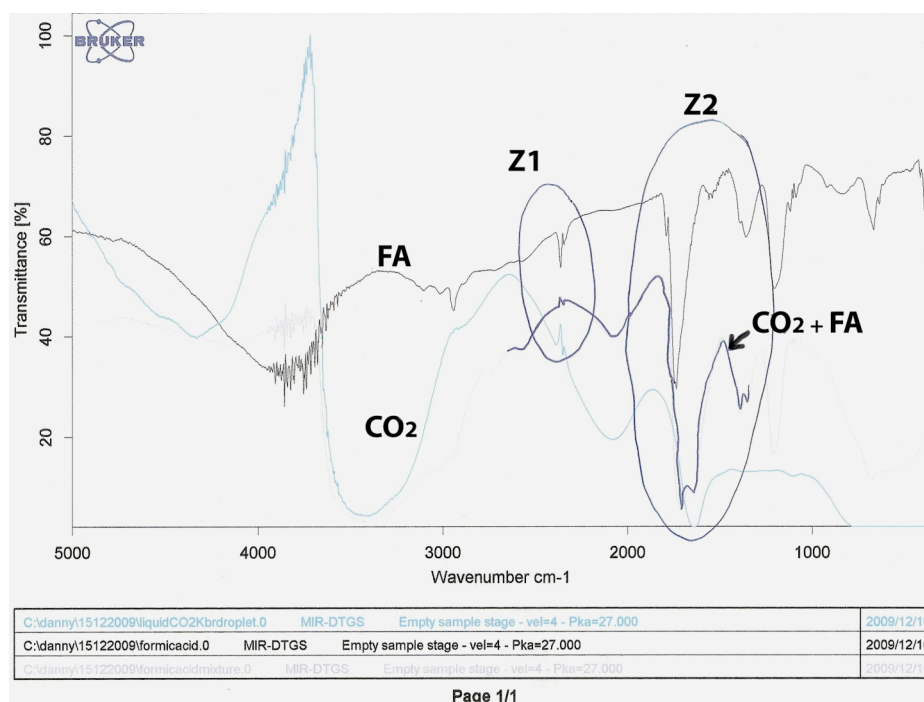


Fig. 28 The superimposed graph of CO₂ and conversion o Formic acid and formic acid and mixture of formic acid and solution of nano CO₂.

This is for the first time in the world of science that CO₂ as gas not only can be captured without use of any pressure, temperature, or energy, but this matter can be extracted and held as a solid at room temperature.

The picture of concentrated nano carbon in solution used for infrared spectroscopy leading to graph in Fig. 21 is shown in Fig 29.



Fig. 29 Solution of nano-CO₂

To our knowledge, this is the first picture of nano CO₂ solution produced and maintained at room temperature and pressure ever been recorded.

Photographs of dried powder of nano CO₂ are shown in Figures 30 A, B, C, and D. These are the first pictures taken of nano CO₂ in solid state in atmospheric condition.

This is important as nano CO₂ or **CO₂ has *never* been observed in solid state at room temperature** and the only solid state of this gas known has been in frozen state of this matter as like of ice blocks (Dry ice).

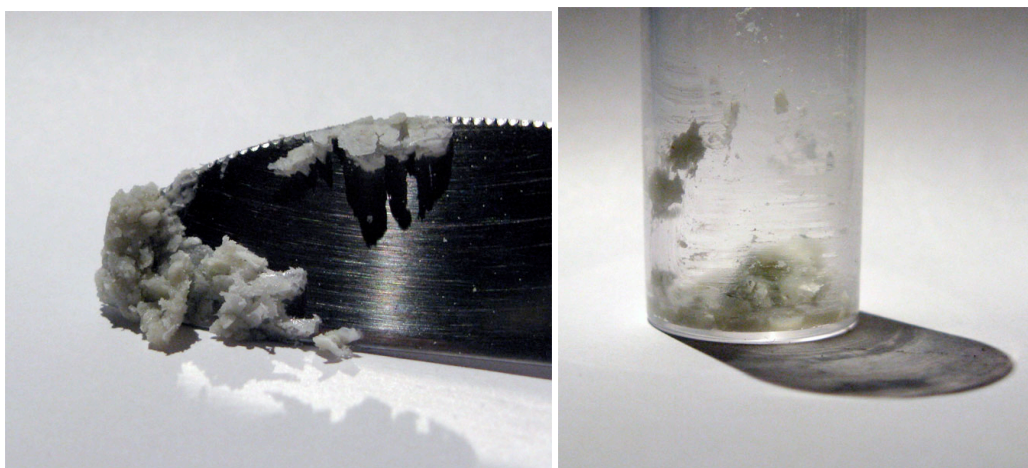


Fig. 30 A, B: Solid nano-CO₂ on a knife and in a vial

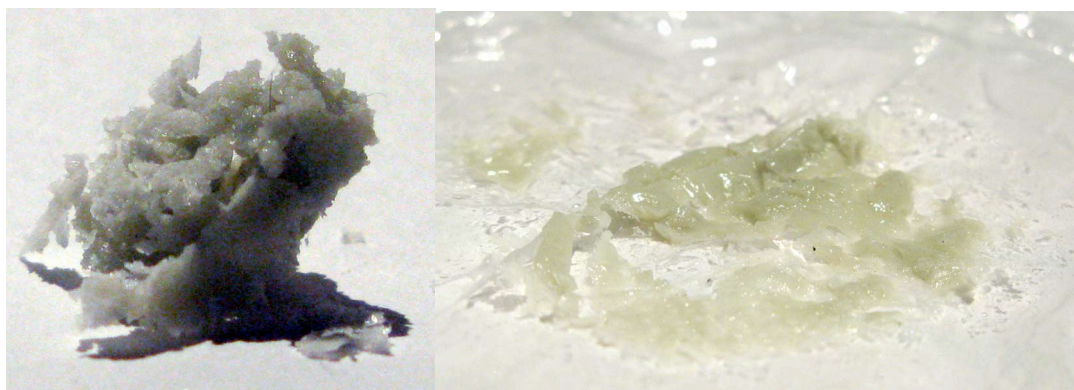


Fig. 30 C: Solid and gel nano-CO₂

The important point to note is that, there is no content ratio between the CO₂ absorbed in the liquid and the water, as is the usual procedure to state in most tests like these content ratios between sediments or gel and the water of the solution.

With this method of CO₂ absorption technology, as long as one can extract nano CO₂ from the environment or surrounding environment of water, the CO₂ absorbed can be removed without ever a need for the change of the water.



Fig. 30 D: The Solid CO₂ material in the Gans-state being held in hand at room temperature. This solid CO₂ is not a 'dry ice', but a mastic-like matter.

In practice, we have a number of times collected Gans of CO₂ from the same water within the container. The only reduction in the water is due to vaporisation or when it is part of the gel.

This is a very important and crucial point, and this is where this technology departs from present science of chemistry, and stands on its own merit as a nuclear gravitational system.

That is where if the system were a chemically based system, the CO₂ content of the water would have been fixed and hence there would have been a ratio balance and final content for CO₂ in the water and this value would have been fixed.

Due to the new understanding of the gravitational systems, as has been explained in the book (The universal order of creation of Matters), these specifically designed systems, with specifically placed and produced electrodes, these systems can create a strong but invisible gravitational and Magnetic fields within the layers zone of the electrodes, that these electrodes, as gravitational positioning elements, can create ***the gravitational pull that can absorb CO₂ molecules from the water and beyond the boundaries of the water***, without the CO₂ as a nano molecule ever chemically interacting with the water molecules content of the system and going through the normal chemical processes.

Thus; if this was not so, how could electrodes deep submerged in liquid would have been able to extract CO₂ from the air above the liquid and bring them into the material of the electrode for them to be separated as individual CO₂ molecules on a continues bases, as we have been collecting these materials from the same container over period of weeks.

Where in this processes, as the materials like CO₂ become in nano structure of their own state, then they are sealed like the diamond and hence they achieve a self sustained gravitational system, like a planet, that does not interact gravitational or magnetically with any other matter and attain the state of singularity or nano state.

This solution of CO₂ material feels like mercury as gel, and to touch it feels cold, but does not stick to its container that much.

After extracting the water from the CO₂ gans solution, the matter takes the form of gel and is cream whitish in colour.

Thus, this is a **static nuclear gravitational and magnetic field extraction process**, which has never been recorded or known up to this point.

With this method of CO₂ extraction, there are no ratios between the matters collected as nano matters and the water content of the system, as the residual of gans of the gases can continuously be extracted from the environment of the system, without change in the volume of the water of the system.

The point to note is that, the volume of the water content of the system stays the same. Where, the system caries on gravitating to itself gases of CO₂ and other gases from its environment indefinitely. But the total mass and the volume of the system increases as gases are absorbed into the system by the gravitational principle.

In fact, the system gains weight, mass, and volume as it absorbs more gases. This phenomenon was observed after the test was completed in Holland in the lab, and the increase in volume of the content of the system was noted at the end of that meeting, that we have more liquid in the bottle than when we started the test after about four hours of testing and running the system for energy production trail.

This is normal phenomenon, as extra gases from the environment of the system have been absorbed in the system and converted to gans, which settled at the bottom of the bottle of liquid.

The snap shot from video of the matters content of gans of CO₂ as misty residual matter collected after the test in master bottle is shown in Fig. 30E.

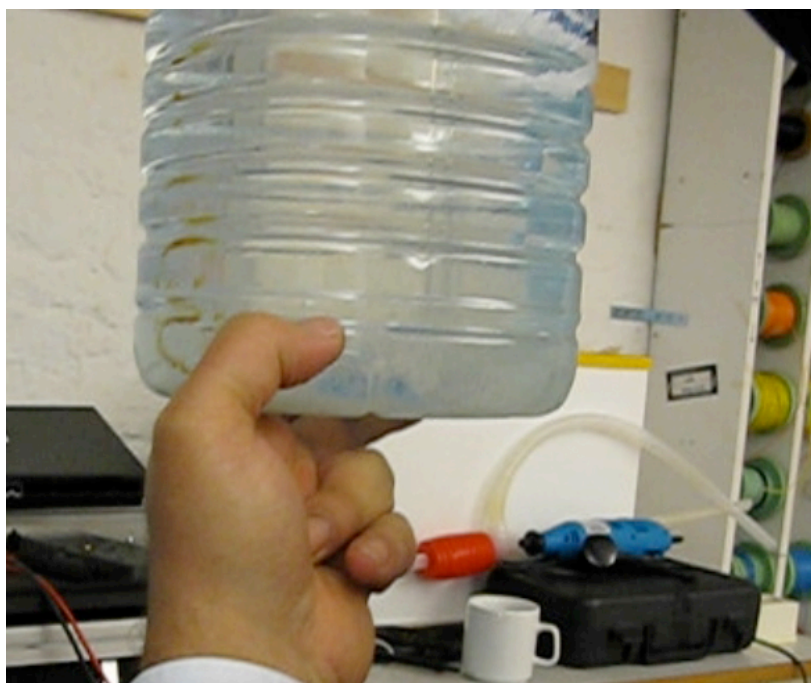


Fig. 30E A misty residue at the bottom of the bottle.

The principle and the technology used for the extraction of CO₂ and its containment as a nano matter can be used for making and allowing the production and development of vacuum systems or singular atomic weight extraction systems, which can attain high purity vacuum condition needed

for space technologies of the future or in room laboratories for extracting certain molecules or germs.

This vacuuming technique can be achieved without use of any suction system or high-vacuumed pressure pumps as is the norm in today's technologies for production of interstellar space level conditions that are hard to achieve. These systems do not even need to be adjacent to the system or near the space where the extraction is needed to take place.

In the universe, this singular Magravs strength principle is the exact method used by certain planets or stars and solar systems in managing to extract only certain materials from their solar or galaxy environment respectively. An example of mainly mono Magravs system is few elements material content, being the like Saturn with mainly helium content matter.

In fact in this system we have shown, a micro universal selective gravitational, which in this scale we only absorb CO₂ gases from the environment. Where the operation of these systems can be changed and modified to extract any material from any environment without the use of suction or chemical process and so on.

The methane CH₄ absorption

During the process of running the system for extraction of CO₂ and production of useful current, due to specific configuration setting of the system, specific section of system starts the absorption of methane gas from the environment.

At this point, the water content of these sections of the power system starts to become blue greenish or violet blue in colour, similar to reported colours of the methane in solid state.

Further to confirm the nature of this new material, the same tests as for the CO₂ gas extraction was undertaken and results obtained were as follows.

Through infrared spectroscopy test, it has become clear that this solution has the ability to facilitate the CH₄ capture and the release of the residuals of CH₄ as solid in the dilution of the liquid through the same principles as described above for CO₂ gas.

This effect of separation of CH₄ as solution shown in Fig. 31 A and B as blue-greenish water and the same colour sediments in the tube.



Fig. 31A. Solution of nano Methane (from two different angles)



Fig. 31B. Solution of nano Methane

The solid dry residual nano CH_4 powder is shown in Fig. 32.



Fig.: 32. Solid nano CH₄ (gases of Methane)

The process of creation of current and the observation of appearance of residual of solid matter indicates two clear processes:

Firstly, the system starts to absorb methane gas from the environment through the same principle as described through mainly Magravs process as for gas of carbon dioxide CO₂.

With the difference that in this case different and specific conditions Magravs strength level by the layers of matters' of electrodes are generated, that this new Magravs strength level facilitates the extraction or absorption of the new material by the system and within and through the system.

As the gravitational and Magnetic fields needed for extraction of the CH₄ Magravs are slightly different than the Magravs fields for CO₂, hence different combination of Magravs is needed to extract the CH₄ from the environment.

Hence, in being able to collect and further test the new material from the solution to confirm the extraction of CH₄ from its environment, this proves that, the system has the ability according to its pre-set conditions, to create different Magravs strength within the layers of the electrodes, that can absorb or gravitated different materials to the system such as CO₂ or CH₄, through operation of the same system concurrently.

Secondly, another process can take place within the system, where the CO₂ absorbed in the system goes through process of interaction with water and initiates the production of CH₄ and release of molecules of oxygen.

To achieve the production of methane gas through this process, one molecule of CO₂ and two molecules of water H₂O are required, that by using the energy absorbed by the material within the system leads to production of CH₃ radical and then CH₄ as molecule.

Where, this process is not a chemically binding rather is Hydrogen plasma gravitated and it is sustained through magnetic field strength within the layers of coating or matters and energies within the system facilitate such a process.

In conventional chemistry, it is assumed at least energies equivalent to eight photons are needed to achieve such a conversion from CO₂ to CH₄.

Through this method of using our new system, the material of the systems acts as catalyst and

magnetic field provider, that such energy (eight photons) are not required, but in fact gravitational and magnetic fields of the plasma of the oxygen and hydrogen of the water become the magnetic field binder for this chain of events.

This being the reason why in similar cases and in theoretical chemistry one needs energy to trigger such conversion, where as through our system the hydrogen and it sister radicals in presence of the free magnetic oxygen, the solution becomes the magnetic bridge, allowing the system to release energy in larger quantities than eight photons, rather than in parallel chemical process in needing energy for the same process to take place in these systems.

In this second path of production of CH_4 , one needs catalytic effect of the material used in the set-up of the system. In the nature, this catalytic effect needs eight photons of energy for it to take place, which this is usually provided through sunrays.

In the case of our system the conversion of CO_2 to production of CH_4 and O_2 takes place through the layers structural materials and the localised gravitational fields which they generate. As these materials have the ability to absorb infrareds rays too as well as sunrays in the environment and hence these new materials can facilitate the production of the methane and oxygen gases and release of energy twenty-four hours a day.

Thus in fact with the development of this new system, we have clearly shown that for process of photosynthesis, one needs the Magravs strength in the infrared spectrum. Through this process we have clearly shown why plant do their CO_2 to CH_4 and O_2 conversation mainly during the night time, where the infrared radiation from the planet is high, as the sun magnetic field can not suppress their emission upwards from the earth surface. Where, it is known fact that the earth is the best supplier of infrared rays.

Further on, to show the correctness of our technology and that we do not require energy to extract CH_4 , where in fact we produce energy as power supplier through our technology, the engineers at the lab proposed to connected our system to an electric fan, to see if the poser produce can run mechanical devices like this on a long term. As can be see in Fig. 33. Where we ran the fan for over an hour.

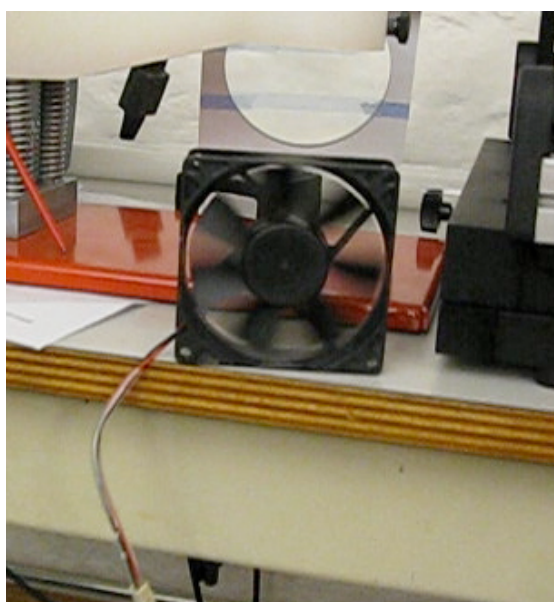


Fig. 33: Turning fan powered by CH_4 extraction system.

This test was done in presence of a journalist and engineers from the magazine that we cooperate with and all has been videoed. The test happened in the basement of their premises, in the absence of any sunlight.

Energy release by the process of gravitation and extraction of CH_4 creates more energy and stronger current than the same process of absorbing CO_2 from the environment. Where, this process leads to creation of strong current rather than stronger voltage output from the system.

The absorption of CO_2 from the environment and conversion of it into formic acid and release of energy needed for the photosynthesis and where at the same time the CH_3 stage of methane gas as methyl becomes first stage for the production of sugar bases in organic materials has been observed and videoed with operation of one of systems.

Thus for the first time the process of photosynthesis can be shown to take place exactly as happens in a nature like in a tree through these systems can be demonstrated.

These systems not only absorb CO_2 from environment, but through their process of conversion, they can lead to production and released of oxygen as molecular structure.

To confirm and be able to show such a process takes place within the process of the production of methane and oxygen and hydrogen from our system, it is essential to show that methane in nano state of matter as we have collected in our system is or has a superconductivity behaviour, as was shown for CO_2 nano material.

For the confirmation that the captured CH_4 solid material is or has a ***super-conductive*** behaviour, we subjected the solid residual of the blue-greenish matter to XRD testing in the laboratory.

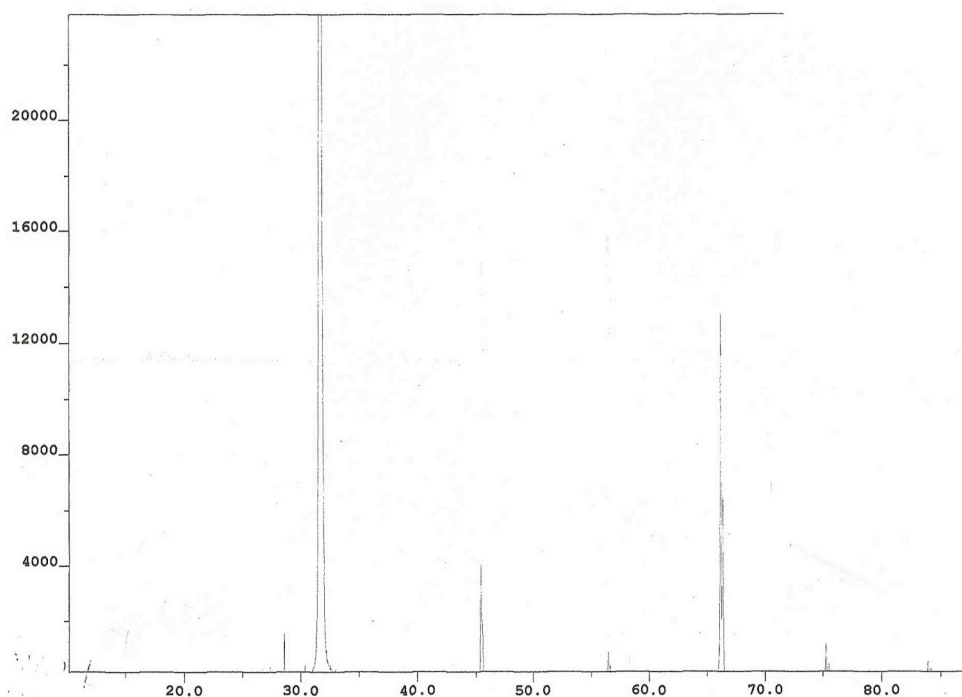


Fig. 34 The XRD of the superconductor characteristic of nano Methane solid

The result of this test has to be noted that CH_4 as CO_2 in nano state has superconductivity behaviour detected seen in XRD is shown in the graph of Fig. 34.

The nearest material composite match to this material characteristic of our solid matter is beryllium palladium, which matches by 95% as a superconductor behaviour only. The list of near enough matches as superconductor to CH₄ in nano state can be seen in the table shown in Fig. 35.

Comment: Scan Type: 2Theta Scan Start Angle: 5 deg. Stop Angle: 90 deg. Num Points: 4251 Step Size: 0.02 deg.			
Name=Beryllium Palladium / Be Pd	FOM: 0.950	Total Matches: 6	Total Lines: 6(11) Card: 65-3196
Name=Beryllium Palladium / Be Pd	FOM: 0.946	Total Matches: 6	Total Lines: 6(11) Card: 18-0225
Name=Sodium Silver Chloride / Na.903 Ag.097 Cl	FOM: 0.942	Total Matches: 6	Total Lines: 6(9) Card: 77-2065
Name=Sodium Chloride; Halite / Na Cl	FOM: 0.936	Total Matches: 7	Total Lines: 7(9) Card: 75-0306
Name=Sodium Chloride; Halite, Syn / Na Cl	FOM: 0.905	Total Matches: 7	Total Lines: 7(17) Card: 05-0628
Name=Sodium Chloride / Na Cl	FOM: 0.866	Total Matches: 7	Total Lines: 7(9) Card: 77-2064
Name=Strontium Nickel Niobium Oxide / Sr (Ni Nb ₂)0.333 O ₃	FOM: 0.860	Total Matches: 5	Total Lines: 5(12) Card: 89-3113
Name=Manganese Tellurium Selenide / Mn Se _{0.8} Te _{0.2}	FOM: 0.837	Total Matches: 7	Total Lines: 7(9) Card: 89-4969
Name=Strontium Niobium Oxide / Sr _{0.72} Nb O ₃	FOM: 0.827	Total Matches: 5	Total Lines: 6(12) Card: 80-2497
Name=Barium Strontium Zirconium Titanium Oxide / (Ba _{0.25} Sr _{0.749}) (Zr _{0.283} Ti _{0.715}) O ₃	FOM: 0.785	Total Matches: 5	Total Lines: 6(12) Card: 89-8212

Fig. 35 The nearest data of matching materials available that match the green blue powder superconductivity characteristic to the extracted nano methane solid from the solution.

The comparison of superconductivity characteristics of the CO₂ and of the CH₄ nano materials obtained by XRD and matching and similarity in behaviour of carbon dioxide CO₂ and methane CH₄ as super-conductive nano materials are shown in Fig. 36.

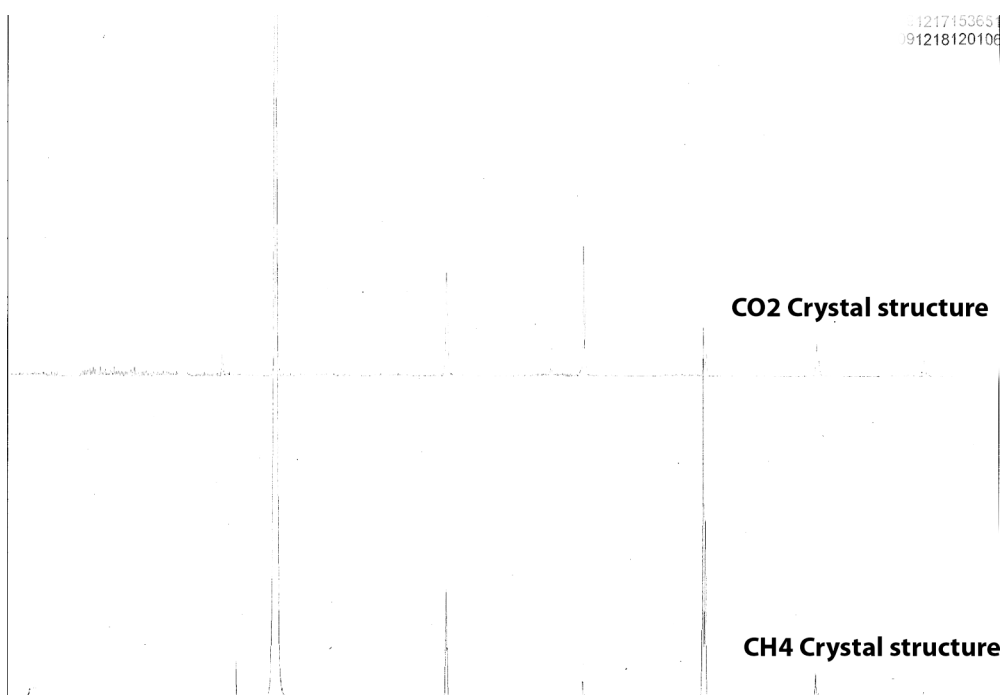


Fig. 36 The XRD superconductivity characteristic comparison of nano CO₂ and nano CH₄.

The common behaviour between the CH₄ and CO₂ nano matters have been observed and shown by superimposing their infrared spectroscopy graphs as shown in Fig. 37.

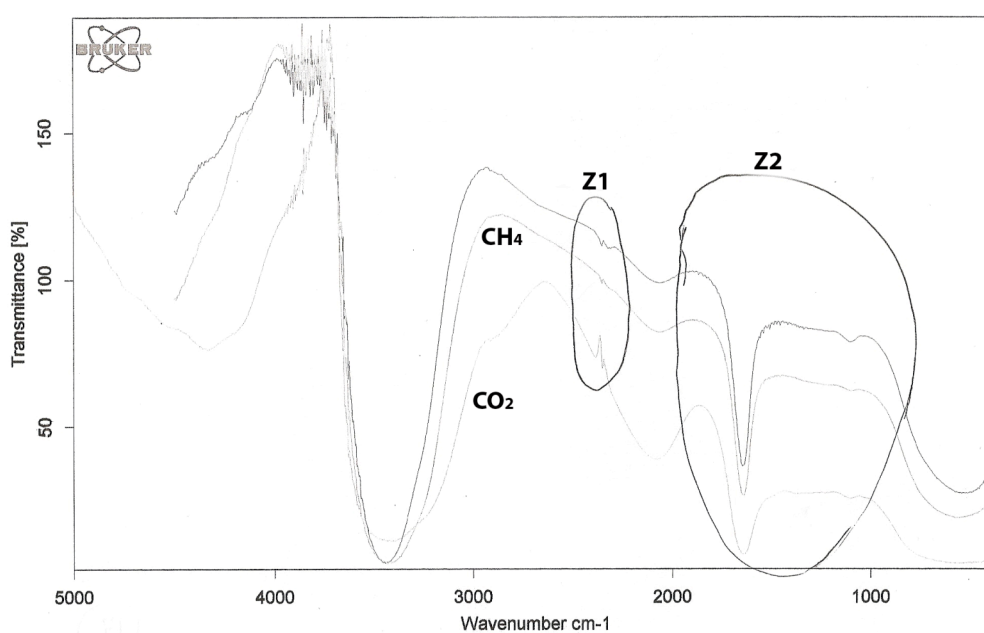


Fig. 37 The IR spectroscopy comparison between nano CO₂ and nano CH₄ in solution

In this graph the CO₂ in zone 1, shows extraction of CO₂ gas from its environment and then forms formic acid as seen in zone Z2. Similarly methane (Me) releases increase the availability of CO₂ in the environment of the chamber of the spectrum machine as seen in zone Z1, and then the same releases' of formic acid as the same as CO₂ as can be seen in the zone Z2 through this process.

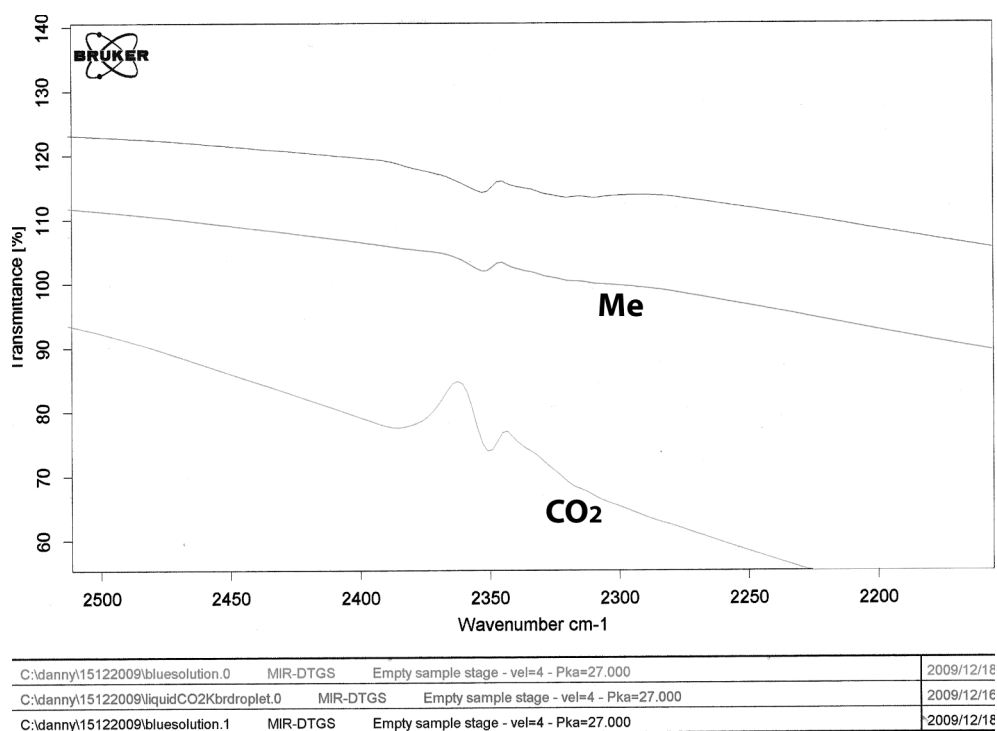


Fig. 38 the enlarged section of the CO2 and CH4 in infrared from Fig. 37.

This explaining two factors, one that the solution is processing both CO2 and CH4 extraction simultaneously and or it is has the ability to produce CH4 through CO2 absorption and the water chain interaction as was discussed before.

Enlarged section of the zone Z1 in Fig. 37 are shown in Fig. 38.

Superimposed graphs of these nano materials of the same region in graph 37 are shown in Fig. 39.

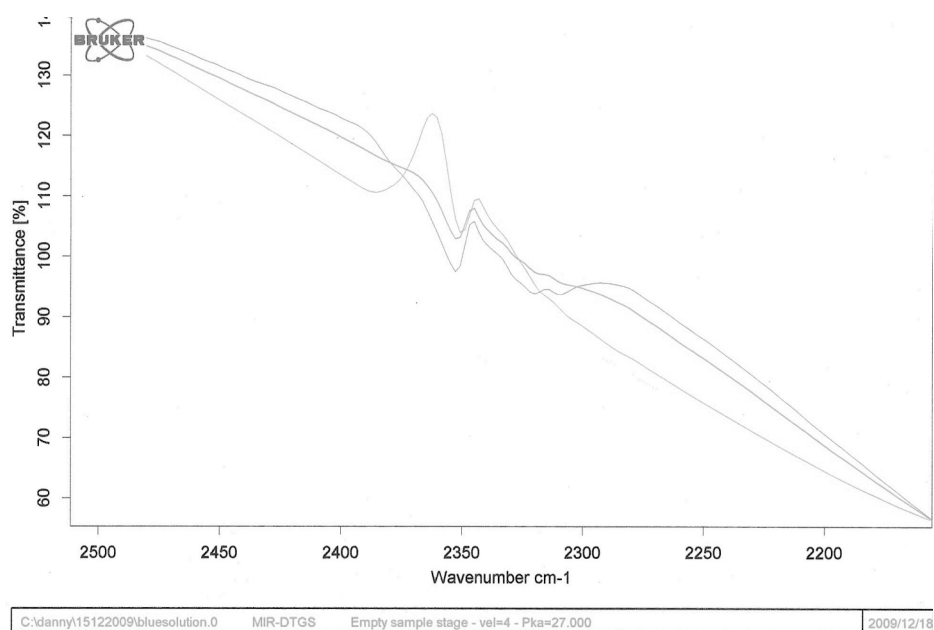


Fig. 39 The superimposed and enlarged section of carbon sector of the Fig. 37.

Observations and notes.

In the development discussed above, one has shown how by absorbing CO₂ from the environment, this being on earth or as the content of craft, this gas can be used to generate energy and oxygen to sustain life without the need for additions reserves of these gases using the man himself as the supplier of the main ingredient matter, the CO₂.

What this new technology offers for the planet earth is a survival line that in the present environment of the global warming with the CO₂ generated by burning of fossil fuels and production of methane gases produced by extensive cattle farming, through the utilisation of this new technology for the first time these gases can be extracted from the atmosphere and simultaneously be converted to solid matters or solution, this process can be used to lead to, and cause the release of energy, and through the use of specially developed composite materials, this leading to separation and generation of oxygen.

Where some of methane and carbon dioxide in the form of nano materials of the same gases can, all be suspended in the solution or dried as solid and reburied or returned to earth as topsoil.

Where this new technology shows for the first time and make it possible to achieve creation and holding of carbon dioxide or methane gases in solid state at room temperatures and pressures. Through evaporation of water from solutions, solid of carbon dioxide CO₂ and methane CH₄ gases in the form of powder nano materials of these gases are produced.

This new system and technology completes the circle of life for maintenance and existence in the future while it can clean up the mess man has created by the use of fossil fuels on earth in the past centuries.

Where these new systems will behave as trees on earth and for the passengers of space systems of the future, by simple converting CO₂ into oxygen, and where the man himself becomes the supplier of CO₂ for the system to keep the cycles functioning.

Through the development of the technology that has been disclosed in this paper the initial steps to conclude this process for application in our space technology is considered to be completed. In the space technology of the future, one has to be able to use all matters available within a spacecraft to attain continues and sustainable existence of man in deep space travels.

This technology of direct extraction of CO₂ and CH₄ from the environment can happen in reactors of small and large dimensions. Thus the technology can be used to tackle the Climate Change problem. For example large installations can be connected to exhaust systems of heavy industry, and small extraction devices can be made for households or be built in cars. None of these installations will need powering, as they will deliver themselves electricity. On the other hand we don't have a sequestering problem since the CO₂ and CH₄ are already in a solid state, which make storage easy. However our liquid and solid CO₂ combined with limonene oxide can also be used to make new type of polymers and plastics.

We have developed and attained a fully integrated system that is able to sustainable life in space.

In letting the process of CO₂ absorption and production of energy to continue, some cells of the system start the process of production of methyl CH₃. This is a significant process as this shows organic process as CO₂ is in progress within the system.

Further, this process in conjunction with its water content, and nitrogen from the environment, can itself lead to production of natural sugars, starch and proteins, using our simple static gravitational

system.

This simple system can be used not only to clean up the environment from CO₂, but at the same time the same CO₂ can be used in conjunction with specific matters of the system, to release energy, oxygen. Further at the same time producing CH₃ and methane and formic acid and by use of nitrogen this leading to production of protein(s) that can be the food supply for the humans' passengers of spacecraft's of the future while they inhale oxygen and exhale CO₂.

Thus through this new technology mans' existence on board of the spacecraft's of the future, the man becomes the container and supplier of carbon dioxide and hence the provider of oxygen for his own existence.

Thus, man himself becomes the conversion system to maintain his own survival in deep space or on earth during shortages of food or natural disasters.

The property of this system has allowed us to submit a full patent for the first full day and night energy panels.

New state of matter

When considering this new technology and understanding the potential of its physical ability to convert gases into solid state of the same, where up to present knowledge the gas from being able to take the shape of its container, for the same atom or molecule becoming the container of itself as a nano matter, then this new state of matter or the solid state of the gas at ambient conditions like the room temperature and pressure, ***itself becomes the nano matter of the gas*** and this state of matter has never been known in the world of science and has to be considered to be a new state of Matter or the fifth state of matter.

Where, through our development of matters in our technology we consider solid, liquid, gas, plasma, and dark matter as the first five known states of matters up to this point in our technological development.

This being due to the fact that this new nano matter of the gas in solid state, it does not behave and looks as any of its old states of matters or any other state of matter as we have known and what we have seen before from these matters.

The infrared and XRD testing of these carbon dioxide CO₂ and Methane CH₄ gases in nano state showing that this matters behaves like a ***superconductor material***, where nor hydrogen or hydrogen and the carbon in there matters are considered as super-conductive materials in the present world of science known knowledge in their gas state of their molecules.

To our present knowledge superconductors at these levels are by principle of matter in diamond structure or sp³ state of matter. Where, their physical gas equivalent of these matters known to science and are classed as odours.

Thus as in this new state of matter molecule of GAs which becomes Nano of itself and become and appears as Solid state of matter as we have seen from our testes and shown as solid of the matter in this paper, this new state of matter needs a new name, for it to show the source of the matter, that is from GAs to Nano of Solid and to be called GANS for short.

This new name in fact clearly not only indicating the source of the matter, which is the gas, but at

the same time it clearly explains what to be expected and describes the characteristic of these matters too.

Where these new characteristics being like superconductivity, lightness, singularity of grains and so on, of the same molecule as it become nano of itself and become solid of itself but having full molecular structure of a gas, but self gravitationally and magnetically closed and singular, but it still can be in a gas state of itself, but as it becomes singular atom or molecule of itself it behaves as solid matters do.

Thus from this point on, we do not call these solids of nano of gas or nano CO₂, but **GANS** of CO₂.

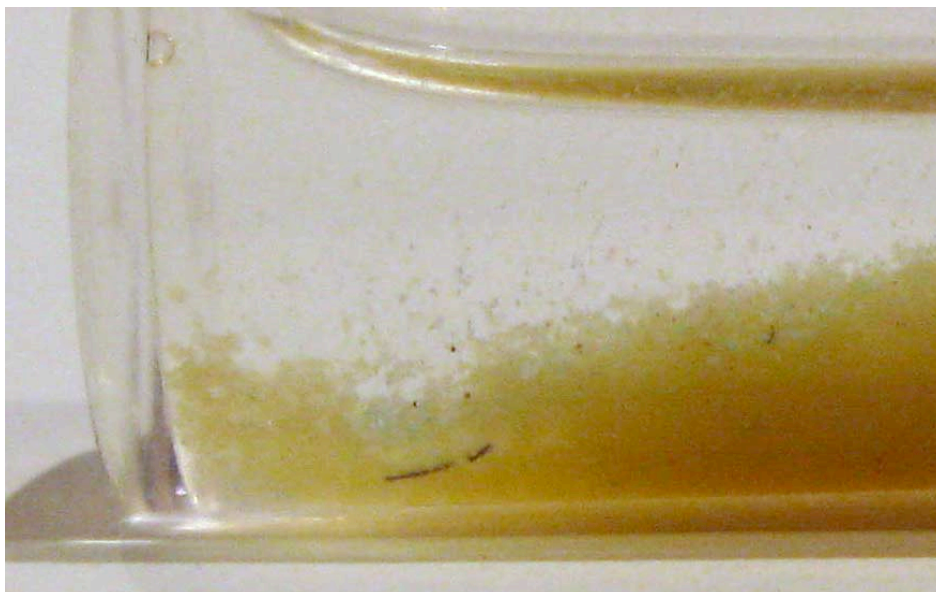
First ever pictures of these matters in Gans or solid state are shown in Fig. 30(A-D) for CO₂ solution and dry state.

Pictures in Fig. 31A and 32B shows the first ever solutions of methane and dry or gans of CH₄ respectively.

Through experiments and deliberate mixing of different gans in one solution, it is clear that these materials do not mix or do not chemical interact with each other. Where each gans of each matter stays separated from the other matters within the solution, and stays the original gans. Fig. 40 shows a mixture of three gans in a solution, where they stay without any chemical binding, where for example the green residue settles can be seen at bottom of the tube.

Similarly for the first time in the world of science, through understanding of this technology, we can capture odours as solid? But the question is that, would they smell the same as their sp³ counterpart as gases? This is the question to be answered and explored in the times to come.

Parallel with development and extraction of gans, these systems produce energy, which are not due to burning of fuel or chemical conversion like in a battery. The energy produced during the process of gans from any system, which this energy can be used for any purpose, this being creation of gravitational field force to create static sources for creation of Magravs, power to run a motor or light-up a lamp, this new source of energy needs a clear and new name classification.



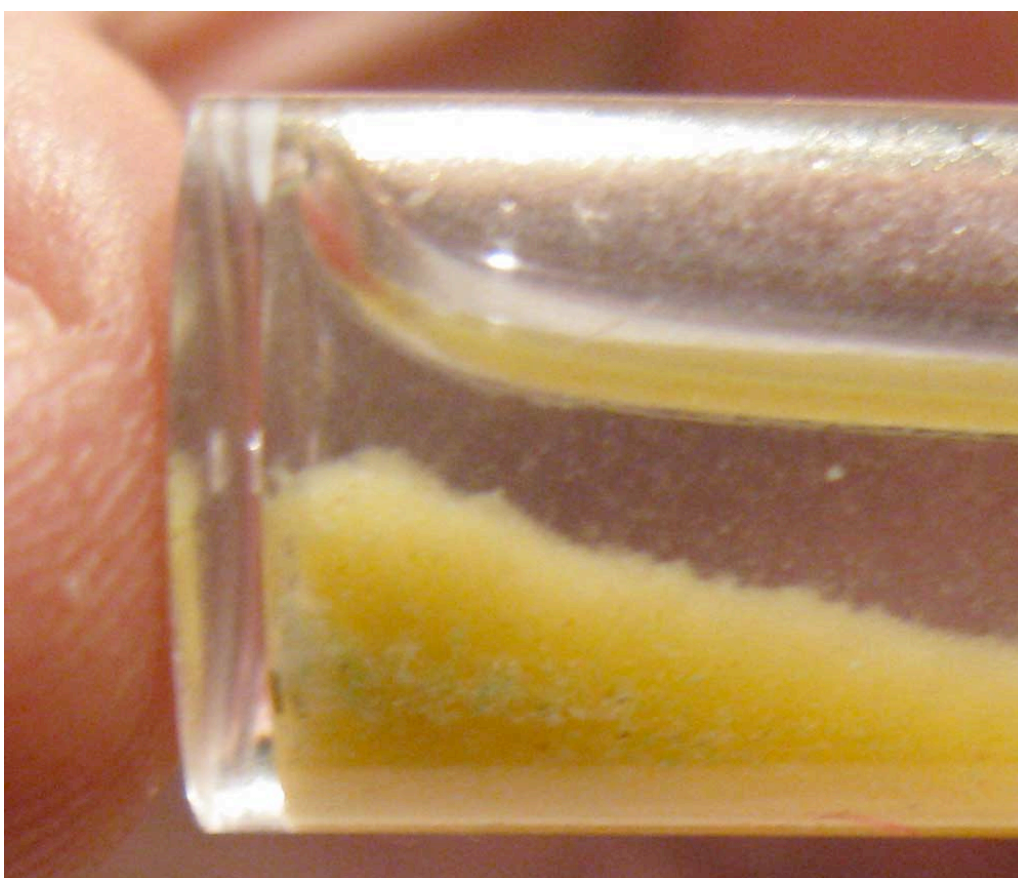


Fig. 40 Different Gases do not mix or chemically bind, and stay separate in the solution.

We call this new method of production of clean energy, this being in magnetic field force strength or electric energy, the **GAs Nano Solid Energy** or GANSE for short or Gas Energy Solid for short **GES**.

Implication and applications of this new technology

In the development of the technology discussed above, we have shown how by absorbing CO₂ from the environment, this being on earth or as the content of craft, this gas can be used to generate energy and oxygen to sustain life without the need for additions reserves of these gases using the man himself as the supplier of the main ingredient matter, the CO₂.

What this new technology offers for the planet earth is a survival line that in the present environment of the global warming, with the CO₂ generated by burning of fossil fuels and production of methane gases produced by extensive cattle farming, through the utilisation of this new technology for the first time these gases can be extracted from the atmosphere and simultaneously be converted to solid matters or solution and return of this matter as solid into the ground,

The development of this new technology shows and makes it possible, for the first time in world of science to achieve absorption and containment of carbon dioxide or methane gases in solid state at room temperatures and pressures.

Through evaporation of water from solutions, solid of carbon dioxide CO₂ and methane CH₄ gases in the form of powders nano materials of these gases can be produced, where in later stages in different applications like manufacturing processes, these materials can be added to effect the physical or the property of different matters or produce new types of matters with these new materials.

These new matters of gans can be used for example as new biological nano filters, where their purity or the molecular size of gans can determine the matters to be filters, this being cancer cells, germs or other matters.

Through the use of this new technology the circle of life for maintaining a clean environment in the future, while it can clean up the mess man has created by the use of fossil fuels on earth in the past centuries.

Where these new systems will behave as trees on earth and for the passengers of space systems of the future, these systems by simple converting CO₂ into oxygen, guaranteeing ever supply of life essential need, where the man himself becomes the supplier of CO₂ for the system to keep the cycle functioning and guaranty his own survival.

In our tests, in letting the process of CO₂ absorption and production of energy to continue, some cells of the system start the process of production of methyl. This is a significant process as this shows organic process in progress within the system.

Further, this process in conjunction with its water content, and nitrogen from the environment, can itself be used to lead to production of natural sugars, starch and proteins, using our simple static gravitational system.

This simple system can be used not only to clean up the environment from CO₂, but at the same time the same CO₂ can be used in conjunction with specific matters of the system, to release energy and oxygen. Further at the same time producing CH₃ and methane and formic acid and by use of nitrogen this leading to production of protein(s), that can be the food supply for the humans' passengers of spacecraft's of the future while they inhale oxygen and exhale CO₂.

Through the development of this technology that has been disclosed in this paper, the final steps to conclude the process for application of these systems in our space technology is considered to be completed.

Where, these CO₂ extraction systems, by their nature of operation as described above, they can become the natural backup energy systems and vacuum systems for spacecrafts of the future.

With the completion of this sector of our technology, we have developed and attained a fully integrated system that is able to sustainable life in space. Where we have shown through other sectors of technology, systems for motion with gravitational positioning through our nano materials we have shown how to produce matters in the universe and materials to manufacture for what man needs for food and habitation, then we have shown how to develop the system to feed and produces systems to cure ailments through our medical application section, and in the energy production system we have shown how to generate energy through simple natural process, and finally now with this technology we have shown how to create a self sufficient environment to sustain life with extraction of CO₂ and use of the same to create oxygen for man to survive in space.

Thus through this new technology mans' existence on board of the spacecrafts of the future, where

the man himself becomes the container and supplier of carbon dioxide and hence the provider of oxygen for his own existence is complete.

Thus, man himself becomes the conversion system to maintain his own survival in deep space or on earth during shortages of food or natural disasters.

The property of this system has allowed us to submit a full patent for the first full day and night energy panels and all other points which has raised as new science in this paper.

Conclusion

Through new and simple methods which has been developed and explained and production of new materials with some new properties which has been confirmed, we have managed to create and establish clearly how gases can be made to be contained, extract and converted into solid state of matter, without the use of any chemical reaction, temperature or pressure, and simply through creation of condition of mini and localised Magnetic and gravitational fields within the system, as is done in the universe.

Where, these fields are hidden within the static layers of different matters within the system, as they have been chosen as the electrodes within the structure of these systems.

Where clearly in picture Fig. 40, one can see that these matters are normal solid and can be handled like any other solid matter.

Clearly from the infrared spectroscopy and XRD graphs of these matters and solution it is clear that the matter absorbed or extracted from the environment, as gases are so pure and in nano state that their spectroscopy recorded data is as close as to perfect theoretical for CO₂ gas. This purity of the matter, showing itself in such clear and single perfect lines of graphs shown from the test of the actual sample of the solutions of these gases.

At the same time, it is confirmed that nano gases do behave as their metallic and semi metallic matters in the universe and they become or attain the behaviour of conductors and superconductors and super resistors. Where this finding of the behaviour of these gases solves and answers a number of unanswered questions in the world of physics, chemistry and biological binding, movement and motion of planets, stars and matters in cosmos.

This paper in its simplicity of its presentation and the knowledge it has put forward, it will in due course bring about fundamental new ways that a number of problems in the scientific world concerning gases and solids are to be considered.

For example we can think of ways to solve the mystery of the *a-biogenesis* (the study of how life on Earth could have arisen from inanimate matter.) or how proteins could have been created in Space by local super-conductive conditions.

With the knowledge gained with the operation of these simple power cells, new systems in production of vacuum, creation of matter, extraction of matters and conversion of matters can be developed, and in a way this paper opens a new and unbelievable horizon to the man for science and space technology of tomorrow.

We have shown and clearly proven not only one does not need all sorts of machines to create or

extract matters from the environment but simply following the laws of universal gravitational and magnetic field forces, one can achieve the same in a much simpler ways, and instead of using energy to achieve production of a matter, one can extract energy from the same system and achieve better results in doing the same process.

Additional pictures

Some pictures of different matter, which have been gravitated to the system, are shown in the picture below.

Up to this point we have managed to attain six different elements in gans-state, which each one has it's own colour as can be seen in sample tubes as they have been extracted from the system during it operation, while producing energy. Some of the materials shown have not been subjected to IR and XRD spectroscopy to confirm the composition of the original gas before they were converted to their gans-state.



Fig. 41. Six different materials in gans-state which have been gravitated by the system up to today (05.01.2010).



Fig. 42. Two different materials in gans-state, which have been gravitated by the system, which we think these, are organic gases in Gans-state. They have different orange colours.



Fig. 43. CO₂ in gans-state , which have been gravitated by the system. It contains solid flakes within the solution



Fig. 44. Different angle of show from the same solution as figure 23. CO₂ in gans-state, which have been gravitated by the system. It contains solid flakes within the solution.

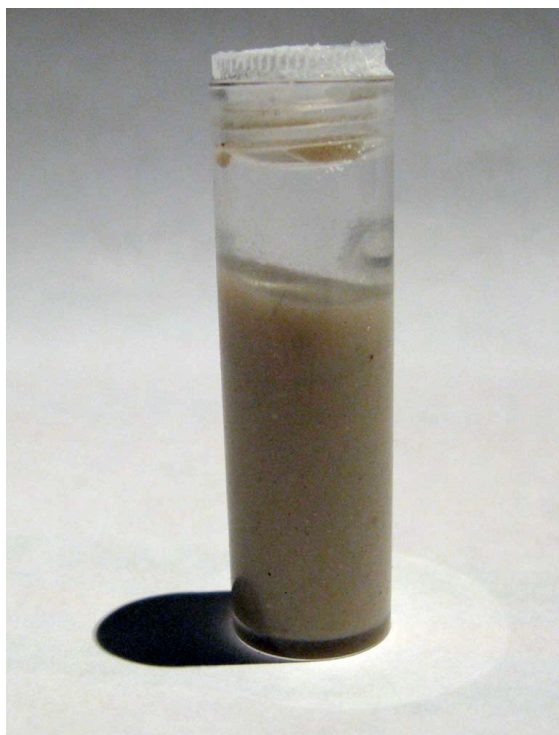


Fig. 45. Unknown composite material in gans-state which have been gravitated by the system.

Chapter 5

The light and its interaction with the Principal star

The Principal Star is what has been commonly called the Black Hole (3) and it is understood that these entities are places, where the principal mafs and matters are create and collected.

The pmf of principal star being covered by dense layers of the transition mafs, this being the reason as why they look to be dark or where there are no lights are transparent in these regions in the specific parts of galaxies in the cosmos (Fig. 46).

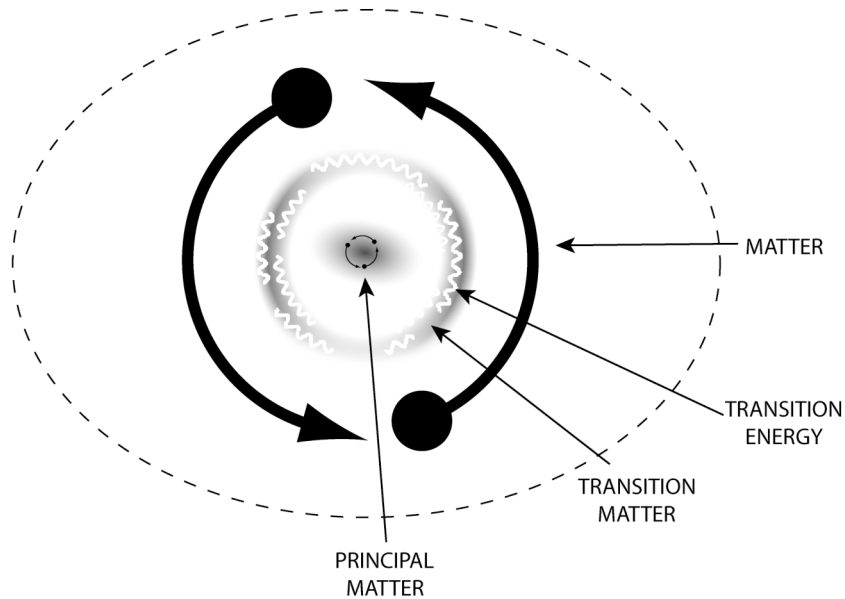


Fig. 46 Structure of the principal star

The light being in possession of the gravitational and Magnetic fields of its own and consequently the light having the Magravs of its own, these fields forces' of the light in matter magnetic field strength environment of the universe take their positions in respect to the Magravs of these principal stars in the centre or any other part of the galaxies.

In these environments in the universe one can observe that as the light rays come close to the principal star the light in majority of cases will not be absorbed by the extensive gravitational fields forces of the principal star, but the light ray finds its way by going around the principal matter star instead of as it being absorbed by this entity. This ability of bending of the light is commonly called the lensing of the light near large objects, and this is the process by which currently scientific world can confirm the existence of the principal star in the universe.

The reason for the bending of the light being due to the fact that as the light possess its own mafs of the principal matter, then the light's principal mafs Magravs take their Magravs positioning in respect to the principal star mafs' and matters' and this positioning of the two Magravs of the principal mafs of the light and the star from the point of an observes from a distance looks as the light bends around these objects or what is called lensing phenomenon of the light around the Principal star occurs (Fig. 47).

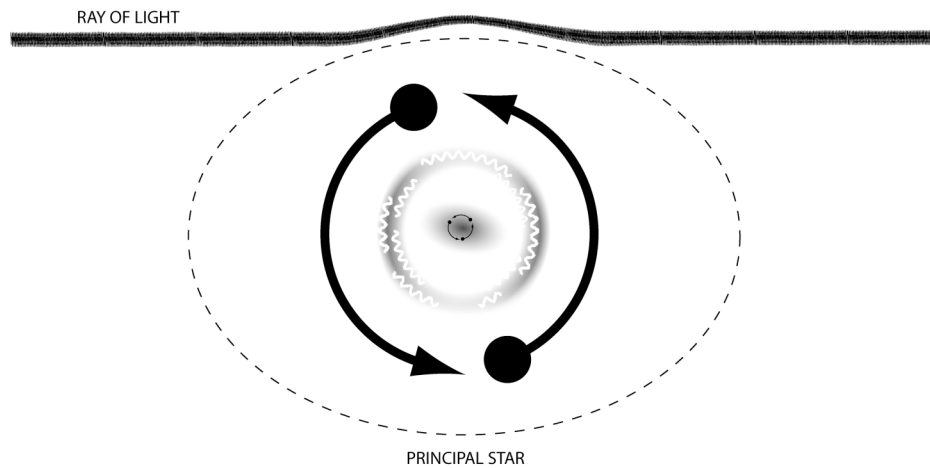


Fig. 47 Bending phenomenon (lensing) of the light around the Principal star due to Magravs positioning

The theory that even the light will not escape the Principal star gravitational field forces once passes the event horizon, this shows the lack of the understanding of the scientists in this respect too, as if the scientists had the tools to observe and could detect the principal mafs magnetic field spectrum, then they could observe that as in matter mafs stars like the Sun of the earth's solar system, these Principal stars will radiate pmfs in the principal mafs strength spectrum and the Principal stars are like bright shining stars in their environment, and as they absorb light in matter's spectrum strength, they at the same time release light in principal mafs and transition mafs pmf strength simultaneously.

In time the scientific world would produce tools that with these tools they will be able to observe the motion and emission of the Principal and transition lights rays from these dark spots in the universe. Then one can observe that light in principal mafs strength are emitted from these stars in the galaxies as light are emitted from the Sun of the solar systems and the disappearance of the light in even horizon is only illusion and not a reality as the pmf of the light mafs get diluted in the stronger pmf fields of principal and transition mafs rays.

The concept that how principal stars are created, how they operate and how they absorb and emits some light has been disclosed in detail in the paper written in 2002 and published in 2006 titled "The creation of Back Hole".

Principal stars if they absorb mafs and of the matters, stars and visible light as it appears to human eyes' vision spectrum, then they can and they do at the same time emit light in the mafs of the principal matters spectrum into the environment of their galaxies too, as this was not the case then the conservation of principal mafs and matters in the cosmos will not hold and this is against all the laws of physics.

In reality the dynamism of the mafs of the principal matters in these stars and the light they emit is the cause and deliverer of pmf needed for the creation of matters and stars in the galaxies.

In a simple way, as the light from the Sun feeds its own solar system mafs of the matters and matters the like of its planets, the same is done by the Principal star through its light emission in the Principal mafs pmf strength feeds all mafs and matters in its captured Magravs sphere or so called its galaxy.

At the same time the Magravs of the Principal star dictates the position and attraction of other

matters, stars and galaxies' in respect to itself as the total mass of the matter mafs and transition mafs of the matters in galaxies are about less than five percent of the total mass of the galaxies (3).

Thus the positioning and directional motion of the galaxies in the universe, the same as in the solar systems is dictated by the mass of the principal mafs and matters of the principal star of the galaxy and no other factor (3). Therefore the mass of the galaxy is the measure of the interaction of the Magnetic and gravitational fields' forces that the principal mafs contents of the principal matter can produce and maintain.

Once these principal stars are formed in the universe then the Principal stars and the lights which are released from them become the means of the supplier of pmfs and nourishment of to the environment of these galaxies" (3).

The concept of the structure of the principal's star lights as the source of pmf into its heliosphere zone is applicable the same but in much smaller quantity of mafs of in the operation of plasma of an electron, proton and stars too.

In the modern science the source of the creation of matters in the plasma of electron and proton are mysterious entity, which lead to creation of quarks, bosons and other names content of the plasma, in fact for example so called the bosons are the pmf of lights released by the principal mafs of the plasma, which as this dynamic light reaches a given point and given pmf strength in the plasma of the proton or electron due to reduction in its pmfs strength in motion in the plasma, this leads to appearance of matter mafs and matter of different pmfs strength in all regions of these plasmas.

The mysterious forces which the scientific world has been observing in the plasma of the proton, these are released by the principal star of the plasma itself as lights in the principal mafs strength unwinds and as these lights reduce in strength to different mafs and matters pmf levels strength. Then these slowed down pmfs lead to appearance of different weaker matter pmf strength in the content of the plasma, where and when two matching field's strength and matters strength can interact that they can create a given gravitational fields forces within the plasma then these points of gravitational field appears as bosons and other named entities within the plasma. At the same time these entities create their own Magravs which the operation of fields forces of these Magravs appear as mysterious filed forces within the plasma of the proton or electron.

Theory of Higgs and Higgs boson concept: In fact if these scientists would have understood that the interaction of at least two magnetic fields (bosons) leads to creation of gravity (attraction) and Magnetic fields (repulsion), which further interaction of these two fields of Gravity and Magnetic fields leads to creation of the mass of the matter (Higgs), then Higgs would have understood that interaction of magnetic fields not only in plasma but in any level of magnitude in the universe leads to creation of matter which this matter always possess its own mass and magnetosphere, or in other word when two magnetic fields interact they lead to creation of mass which is the maximum strength of the gravitational strength less the Magnetic fields strength created by the interaction of these two secondary fields (1). Thus Higgs theory is correct and in reality one does not need to smash an atom in accelerators to observe and prove his theory, but it would be easier to the same behaviour of production of matter ***if two rays of light are fused that they lead to creation of matter*** and thus the Higgs theory would be proven to be correct in a simpler way.

This is process of the production of bosons, Higgs and other entities in the plasma of proton is the replication of the same process as the operation of light rays in the solar system changes to matter in different pmf strength regions in the heliosphere of the star, where in the case of plasma of proton ***the same process takes place in micro/nano level*** of the mass of the principal star and principal mafs and matter in size.

Stars in the centre of the galaxies in motion near the Principal stars even though they release rays of light but not all these rays get absorbed into the principal star or the stars themselves and in reality the Principal stars do not absorb all lights from the matter stars (the sun is a matter star) into themselves as the plasmas of the lights in the matter mafs pmf strength contain their own principal mafs and matter and these principal mafs of the light create their own pmf Magravs, which this Margrave allows the light to take its position in respect to the Principal star which is so close to, and this Magravs positioning of the light allows the light from the star in the matter strength to move away from the principal star as is observed by the astronomers. In fact the speeds and the distance of the star from the principal star is dictated by their own principal's mafs content and the Magravs strength.

The matter stars in their inner sanctum contain and hold on to large quantities of the principal mafs and matters (1), This meaning that even the Sun in its process of feeding light into its heliosphere, at the same time in this process the Sun *releases a large quantity of the magnetic fields of the principal mafs and matters as the **principal light rays strength of magnetic spectrum*** in this environment.

It has to be said that in galaxies, the high speed of the rotation of matter stars near principal stars has to be extremely high, this being due to the fact that as the matter star itself contains principal mafs and matters and at the same time these mafs of the principal matters interact within the structure of matter star that they create their own gravitational and Magnetic fields that the matter star takes it principal mafs Magravs strength positioning in respect to the mafs of the principal star matters and mafs Magravs. Thus the only way that matter star can hold on to its pmf structure is to attain a high speed as its mafs of the principal matters of the matter star content have to find a constant continues renewing its new position in respect to the principal stars matter's and mafs' content. These high speeds of the stars near the principal star has been puzzling the cosmologist, but if they look close enough and as they could understand the principal of the rotation of an electron in respect to the proton of an atom (1), then the speed of the matter's star with composite matter and mafs content near the principal star shows and is flowing the same path and the same principle of motion as an electron does in respect to the proton in the nucleus of the atom as electron moves fast around its nucleus to maintain its position and hold on to its content matter (1). Thus now may be the high speed of the matter stars near principal stars can be explains and the single directional orbit of the star matter in these regions confirms content of the Principal star as to be mainly as of the Principal mafs and matters, that this singular mafs and matters contents' of the principal star allowing the more circular motion or elliptical motion of matter stars with their large mass near the Principal stars.

This is the same process as to replacing the proton with the principal star and the electron with the matter star, with parallel high speed dynamic motion of the matter star with controlled Magravs positioning around it nucleus. The reason that the motions of the matter star around the principal star is not as unpredictable as of motion of electron around proton (1); this is primarily due to mono content matters and mafs of the principal star. In fact in these cases the light observed by the cosmologists created by the matter star is mainly due to the interaction of Magravs of the two matter and principal stars, and at this point the Magravs of the matter star has to find rapidly its position in respect to the Magravs of the principal star, and this is how the matter star become to attain speeds' in the region of the speed of light in matter pmf strength. Thus the majority of the visible light of the matter star in close proximity of the principal star is not of the star itself but it's due to the interaction of the Magravs of the two stars. Now one can see another marvel of the universe, where matter mafs in creating light which itself is the light of itself.

This concept of mass moving at speed of light in matter pmf strength environment due to

interaction of principal mafs strength will have such a profound effect on the man's scientific progress and in man being able to travel the depth of universe and this will be the point of and the tool of detection of future space crafts in motion at speeds beyond the speed of light in matter mafs strength and above in the cosmos, once the concept of the light rays in the pmf strength of principal mafs strength are understood fully.

Chapter 6

The light and its planetary interaction

The interaction of different lights of different matters (principal, transition and matter) can be utilized to create the appropriate magnetic fields and currents and gravitational fields' forces as it is needed for any purpose, then this concept of interacting lights is the way that food and energies from the right light mafs levels can and will be produced in deep space travels of the future, as one can take the right components and amounts of the mafs in matter field strength needed of any required levels of mafs as/and for nourishment of the mans' physical body, without man actually eating tangible food.

This conversion and absorption of light rays is in fact what plants and animals do in the earth environment as they absorb specific plasmatic magnetic field strength of light spectrum and due to their atomic and molecular Magravs field's strength they create measured vacuumed condition within their structure to and for transformation of a given pmfs' strength of the light to be converted this to gans of that mafs in the structure of the plants or animals. Which, these ganses have Magravs equal to Magravs strength of vitamins or minerals levels as the planet produces or the animal needs for existence in a given environment. The process of production of minerals and vitamins in understanding how light is and can be converted to gans in earth atmospheric condition will allow the production of the same matters and vitamins by use of the light matters' structure in conjunction with the using a simple dilution Magravs positioning reactor anywhere in the universe (1).

For example man by eating a given plant, he absorbs that spectrum of the fields transmitted and absorbed from the spectrum of the light mafs of the matters fields for specific use in specific protein in man's body, and now man has the knowledge to produce the same proteins and minerals from the light rays without the need for plants or animals as an intermediary conversion toll for this process.

In earth atmospheric Magravs condition herbs absorb pmf of the higher strength of the same light as normal plants do and the meat can absorb the complex strength magnetic fields of the light. The structure of herbs pmfs attraction and storage is more dependent on the pmf emitted by the light spectrum from the earth fields as the fruits store most of the light spectrum which are entered into the atmosphere from above and that is why each entity has different mafs strength storage and conversion capacity and capability. Where, the same light from space in different distance and interaction with the magnetic fields strength of the light of the earth leads to creation, storage and production of different pmf spectrum of the light by the same plant and animal DNA.

The ray of light in its entry into the magnetosphere of the earth and the interaction of the two Magravs lead to release of specific characteristic rays of specific magnetic fields strength, that this ray through a special process with the hydrogen atom lead to creation specific division of energy that can sustain life on this planet. This ray and its process of creation, which is not known in the world of science presently has been fully explained in the book "the universal order of creation" to be published in the future. We see that in time man of knowledge would be able to comprehend this process, and once this process used then the wisdom of all creations in the universe will be understood and can be replicated anywhere in the universe.

The rays of light at any strength of its mafs at their entry into any dynamic plasmatic environment have the ability to lead to or through conversion process cause the initial chain of reactions needed

for the start of life and then the matters produced use the light itself to further create more cell like beings and then through the ray of light conversion in these cells this leading to final step that the light ray in becoming the creature like man, then using light rays and its product main gains intelligence and the intelligent body at this stage acquires its magnetosphere and Magravs or what is known its *soul*.

Chapter 7

The use of the properties of the structure of the pmf of the light for space technology

As the man's knowledge reaches and becomes in line with realities of creation; in the future the mafs of all components of the light and the phenomenon of light rays entanglement will be used for space technology in an efficient way and in manners which are not even comprehensible at the present.

The helixial cylindrical motion and reversibility capabilities of the outer-magnetic mafs of the shell of the light in space reactors of the future will be the key in control of the motion and the directional motion which these crafts can travel and the same time the control of the speed of the motion of the space crafts of the future can be set by using the matters' components of the light.

The gravitational fields' forces of the light and the reactors using and producing light gravitational properties that can be used for control of the directional motion are much easier systems to produce in a fully integrated combination space reactors setup that using different mafs' strength of the light makes take-off and landing possible in every environment and pmf fields strength in the universe, without putting the craft and its passengers ever in any danger. Where, with the use of the lights' mafs Magravs technology one can reach the deepest part of the universe in time spans that are within the fraction of the life of humans, rather than the present assumptions of thousands of the light years. In comprehending the concept of the structure of the light in full; this will be the time, when the Man understands the truth about the world of creation in the universe, and how universe was created and real universal motions are created and maintained.

How, different rays of lights get entangled and leads to creation of conditions of mafs of matters is due to Magravs positioning of one light ray in respect to another of the same. The Magravs positioning of two rays of lights or what is known as the light-entanglement is the condition for example, where and when the light rays can convert from mafs of matters to characteristics of tangible or detectable matter in a given plasmatic magnetic field strength environment.

It has to be noted that there is fundamental difference in light entanglement and fusion of light rays. The ***fusion of the light*** is more fundamental process in production of matters and mafs and this process can be used for production of stronger light rays or for the production of heavier elements without going through the process of the matter state fusion. This being the like of the production of oxygen molecules through the fusion of light rays, rather than multiple fusion processes of the rays of the light's once the neutron to an atom of hydrogen is reached, and then through multiple fusions processes to reach the production of oxygen molecules.

In fact fusion of the matters of the light does not require energy and in reality does not lead to release of vast amount of energy. Whereas, in the present process of fusion of the matter of hydrogen the present fusion scientists have got themselves tied up with the wrong concept and technologies and they are in the dream of achieving fusion of matters through the use of present laborious fusion reactor technology with very little success.

By the same default in understanding the real process of the fusion in the universe, there has been a misconception by nuclear scientists in production of the heavier matters through fusion of matters in the centre of stars and in their nova process. Where, the **present assumption** that matters are created in the centre of the stars through process of fusion of matter **is not in reality correct**, whereas the process of fusion and production of all matters in the universe primarily takes place at

the *point of the fusion of the light rays first*, then as the light rays become to the point of matter mafs strength they first *all convert to gans of the neutron* and then through process of the Magravs positioning and collective balancing of these forces of the total light rays in a given environmental pmf strength, then some of the light rays once converted to neutrons some stay as neutrons and others of the weaker strength in the collection go through the process of the neutron decay (1) and become proton and electron of the collection of the light rays and hence in a given pmf strength, the physical matter with given number of neutrons and protons and electrons are created. Therefore, it is the collection of fused light rays which changes to collection of neutrons and then as some neutrons go through neutron decay and become proton and electron, this is *how atoms of different matters are created in the universe*. Where, further this process of the light pmf strength matching through light-entanglement process is a much easier process than the matching and fusing physical plasma of atom or molecules and solids.

In fact this is how neutrons are found to take their place in the centre of atoms to start with and this is how fusion takes place in the *real universal cosmos* (unicos). This being one of the reasons why the present science have problem to produce fusion as they try to fuse matter as in real term in the universe and in the centre of the stars fused light rays lead to creation of matters of different mass.

Fusion light **ray reactors** are simple practical systems which do not need very much energy for them to run and operate, but they can create and facilitate *directional motion of the space crafts of the future* using their capability to split the plasma content of the light to its sub structure matters and fields and create Magravs of different strength and in a cylindrical reactor of the same to stack the light rays gravitational and Magnetic fields forces for creation of the directional change and at the same time these reactors can be used for the production of the matters for the use in the space environment of the future.

For the space technology of the future there is a need for multiple light reactors that an instantaneous three hundred and sixty degree spherical motion of space crafts can be achieved and the at the same time the shielding magnetic fields can be interchanged from matter mafs to principal mafs and change of the dynamism of the same fields can be used for rapid deployment and penetration in dangerous and denser matter and mafs parts of the universe.

The same entanglement or interconnection process exists between light rays as does and prevails in the atomic and matter environment. At the present time the scientific world is considering *quantum entanglement* and its use in transportation of matters and other uses within and across the boundaries of the universe. In reality if scientists comprehend the concept of the light-entanglement and understands the principle use of this phenomenon, then one can use the matching structure plasmas of light rays before they become matter to achieve high speed transportation in the range of and beyond the speed of principal light rather than limited speed of the light in matter environment as man is considering to be the ultimate speed of motion at the present.

In entanglement process one can/and have the capability of use of different mafs of the lights for crossing the universe, and without change of physicality of the plasma and change of its state and then at this stage one can even copy and lock the same plasma of the light that in Magravs positioning of one plasma in keeping its connection with the same plasma of the light of the same strength or length in other parts of the universe.

If this concept of light interconnection and complex light-entanglement of Magravs of light balancing is understood and replicated then feeling, like touch, loving and hate and so forth can be transported across the universe without actually the matter or being ever crossing its physical boundaries. Thus coping atoms and interaction of the atoms and even the emotions of the matter (which complex, vibrational and rotational based) of one atom or light to another can be transported

across the universe using light entanglement technology.

In fact this is how dreams in the inner sanctum of the human brains are created and take shape and give the man the image of seeing and communicating even with people which they have never physically met or to other Magravs of other beings which in their time of living in that give environment their Magravs of the dreamer and dreamed of have been exposed too.

The light entanglement is a real and correct physical process, where certain cells within the inner brain or thought control systems of the living being has the capability to operate within these pmf mafs strength and this is the natural part of the operation of the brain of the human beings that scientific world has not mastered to unravel.

In fact the light entanglement communication method called telepathy is the easier way of communication than using the ears or other method of listing and talking and the place for this system seats in the inner parts of the man's original main brain structure.

The light entanglement technology will allow collective entanglement and different strength molecular light entanglement allows the full structure transportation and even continuous motion replication of the molecules. This meaning the transportation through the light plasma entanglements of let say heart, brain and all tissues at the same time, with the same heart beat and the same liquid with emotion of the entity across vast points of the universe becomes a possibility of the use of this process. Where, the light in all its pmfs of all its mafs of all matters and strength are available in all corners of the universe and all needs to be done, is to re-produces the same strength and combination mafs of different matters to replicated and reproduce the copy of the original entangled light for the two lights entanglement across the universe to interact and communicate and transfer their knowledge without acutely the matters of the light ever leaving their original environment.

Using this technology one can even transmute the same from one mafs of the matters' strength to another to speed up or reduce the transportation and trans-crossing time from one field strength and matter mafs to matter strength variation and principal mafs to matter mafs and matters strength. This needing and leading to change of light's mafs to the appropriate measure and sizes and conversion from matter mafs to matter like the mafs of food or oxygen and so forth for human consumption in crossing the universe without relying on and physically carrying food or power supply or even transporting human beings across the universal physical boundaries.

This concept of transmutation which is commonly used in the universal method of transportation will be thought in detail in future disclosure and partly has been disclosed in the book the universal order of creation of Matters (1) papers references 11, 16, 21, 29, 34 and 37.

In the matter environment of the earth, this can be achieved in plasma reactors of simple structure using complex combination pmf of mafs of the light and matters and plasmas in the dynamic nuclear supported reactors.

This concept of light entanglement is one of the easy solutions for transportation in the future without physically moving matter across the universe. This concept has been tested in medical application of the technology and results confirm the correctness of the technology. Where, copy of the correct cell information is translated to cells that the cell makes the copy of the right cell and uses this knowledge to cure or replace damaged cells or by allowing the process to be moved to another part of the body while one part of the brain recovers from damage (the coma case).

The concept of the atomic-entanglement and the binding between two atoms is a natural process of

interaction in the universe and if one understands the similarity of this interaction and the light-entanglement then one can see that in the physical world twin stars and the atomic entanglements are of the same in principle interaction and in concept, with difference in their magnitude and the size of the entities involved. Taking note that there are differences in between the twin and binary connection of atoms and stars and their process of entanglements criterion are totally different. Where, the twin atoms and stars are matching in matter content and, where the binary stars and atoms are matching in magnetic and field contents.

Where, in the binary system the overall Magravs is matching that entities can magnetically polarity interlock. Whereas with twin entities every matter matches in mass and position as well as Magravs and their pole positioning.

The reason that a pair of atoms in receiving additional pmfs of rays of light is elevated to create a mysterious binding between them, is due to one of the fundamental principles of the reversibility in the magnetic polarity of one atom in respect to the other, even though both atoms having the same directional motional rotation. That is to say, *one of the plasmas involved in the entanglement get its magnetic polarities reversed in respect to the other atom*. This meaning, if the first atoms' proton and electron have their North-Pole on the top, in receiving additional mafs of the light, then the second atom receives enough mafs that causes or initiates the change polarity in this second atom, that at this point the North and South poles of each atom interlock with each other and the sudden atomic binding due to the lock of magnetic fields flow between the atoms takes place.

The same principle of atomic entanglement and attraction of reverse pole attraction holds true, when one observes the rotation of twin and binary stars entanglement. Whereas one star reverses its magnetic polarity, automatically the twin star polarity changes too, that the magnetic lock between the two stars to be maintained that the entanglement and twining and binary system can be sustained.

Star, atomic and plasma twining and binary process locking is the safest and common occurrence in the universe as this gives the stars a total magnetic balancing and guaranty's the survival of the both entities. This phenomenon of reverse polarity entanglement holds true and exists for all the twin system in the universe, this being for atoms, stars, galaxies and even universes.

The reason that the light injection or absorption of additional energy by two atoms in some cases leads to creation of entanglement is primarily due to the fact that additional energy received from the ray of the light leads to increase in the magnetosphere dimension of the atoms and this in turn allows two atoms in proximity of each other two magnetically interact and entangle and at the same time in coming close to each other, one atom changes polarity and the two atoms pmf lock and gets gravitated to each other but at the same time each atom is holding on to their Magravs positioning strength gap which is dictated by their internal pmf maf contents. Once the mafs of one star and atom changes due to whatever reason, then one will observe the disconnection of the entanglement or the coupling between the two entities, where at this point the higher Magravs strength partner will pull the weaker Magravs entity to itself.

This is a crucial phenomenon to understand, especially when using light entanglement reactor process in reaching any destination and requiring the change of the plasma of the light from principal mafs to matter mafs strength condition. Thus atom entanglement is a natural phenomenon and at the same time once an atom is created the content of two atoms' plasmas are hardly ever the same, this is to say, to find matching content of pmf of two plasmas of electrons and protons are as rare as finding two completely matching structure of two snow flakes.

The injection of the light into the plasma of two atoms allows some of the atoms, which are near

enough in pmf mass to reach the same point of mass or Magravs strength equality at the same time and hence have the capability of coupling. But there are points that additional pmfs of the light can induce enough energy that one atom can come near to another atom pmf balance and being able to interlock too.

The atomic–entanglement is not and cannot be used for transmutation of elements as easily as has been suggested by some scientifically advanced schools of thoughts.

In the present scientific world, scientists have been observing and detecting regular pulses of for example gamma radiation in the upper atmosphere of the earth, which they consider that these radiations all originate from the cosmos and for example they are from the time when a star explodes through the nova principle in the universe. These types of radiations are not the only types of radiations that arrive towards the inner part of the solar system from the cosmos. In reality there is spectrum of radiations and magnetic fluxes of different strength that go through the solar which are originated in the cosmos. In comparison, the radiation that arrives in the inner-most part of the solar system and at the boundaries of the earth atmosphere, these cosmic origin based rays are nothing compared to the gamma rays and other rays which are created within the heliosphere of the solar system itself.

The truth about the main source of these background radiations which has been considered to be from the cosmos and are released, when stars in the universe go through supernova, this concept that these explosions are the main source of these gamma rays and other background radiation which are detected, this shows the lack of the understanding of the process of the conversion of the light into matter and movement and collision of these new matters and mafs in the Oort clouds and Kuiper belt of the solar system. The main source of the gamma radiation bursts detected are originated and created through the motion of the charged particles of the new matters mafs and matters and their collision with each other in the Oort clouds and Kuiper belt region of the solar system and these gamma bursts have nothing to do with supernova and release of gamma bursts that they produce.

That is to say as/and, when newly born charged particles of mafs of the matter and matter as gases, nano matters and ganses move in outer regions of the solar system and ***as they collide with each other***, they release magnetic fields in the gamma, other radiations and noises in magnetic field spectrum levels in these regions of the solar system, which these radiations find their way into the inner parts of the solar system due to the strong magnetic fields interactions pull of their star.

The way these radiations and noises are generated and released is exactly the same way as the lighting and thunder are created and how light and sounds are released through the collision of clouds on earth and in other active atmospheric conditions or in other planets and moons in the solar system and similarly as it happens on the surface of the Sun, when matters mafs of the Sun collided in its upper atmosphere.

Thus the space travellers of the future have to consider all components of the all rays of the magnetic spectrum in the matters' mafs, matters, light, sounds, the principal mafs and matter and its sound and all their light radiation spectrum strength levels too, which these are all free and in motion in the space of this solar system and in the cosmos.

The radiation danger and damages from the light in the principal mafs strength levels are more predominant, stronger and profound than the matter mafs light ray spectrum strength and these radiations and their motion in space will play a crucial role in the future of space travel as these rays will be lethal and fatal if protection from these are not facilitated into cosmos excursion systems and scientific world has to have a viable protection technology for the passengers in the space crafts

of the future before they contemplate on such excursions into cosmos and specially traveling in the centre of the galaxies and near principal stars.

Whereas, for example one of these problems will occur, when strong mafs of the principal matters radiations will interfere with matter mafs dilution Margraves positioning reactors used for motion of the craft in space and these principal mafs upon them reaching inside the reactor, they can create Magnetic field surges that can lead to surges in these reactors gravitational and Magnetic fields, which this can lead to the loss of the system and the total inhalation of the system, or the change in the Magravs strength leans the craft in totally different part of cosmos than where the craft was originally destined for.

Therefore, before the men of science contemplate on traveling beyond the boundaries of this solar system, they have to master the knowledge of the mafs of the principal matters spectrum's magnetic field strength and the light transportation mechanism in this spectrum.

If one could understand the structure of the light and how it changes from spherical shape plasma to cylindrical in shape for it to be able to travel with less friction and high speed from one dynamic environment of spherical or cylindrical entity to another spherical environment, then in the future the man of knowledge can develop elongated cylindrical three matters mafs strength spherical and cylindrical composite mafs fuelled combination setting and reactors and crafts, which these elongated crafts will have the benefit of possessing spherical or cylindrical plasmatic magnetic shielding of higher order magnitude pmf strength of the principal mafs and matters for fast and protected space travel in the universe, then at this point one can travel the spans of the universe in times which are not even imaginable at the present by the man of science by use of these types of composite setting and fuelling reactors.

The use of light for purpose of transportation technology and communication through the understanding of the relationship and interaction of mafs of plasma and plasmas of the light(s) in each and every mafs strength of the matters of the light structure is the key to final and ultimate intellectual growth of the human race and point of maturity of the coming of the age of the man as has been promised. This technology will be at the edge of man's enlightenment in the knowledge of creation and control of light and its mafs and matters in the universe.

Chapter 8

Insight into the future use of the structure of the light

From the new understanding of the structure of the light, can easily and readily be concluded that if the light did not and was not made of the structure of three mafs of the matters then the light would have not possessed its own gravitational and Magnetic field forces and for example the light from other stars in the universe would have never been able to reach the earth as an individual magnetic field due to the characteristic and properties of the magnetic fields interactions and gravitations, as through magnetic interactions all these rays' of lights would have been absorbed by other magnetic fields and gravitational fields in the universe and the light would have never reached the far distances of the universe. Hence the light as a physical entity which is similar to other physical entities the like of proton, electron, earth and the Sun and the light being in possession of both Magnetic and gravitational fields, the light ray has to find its position in respect to any other object and pmf in the universe as it passes these entities in the universe, and hence in its travels in cosmos light ray has to find it's Magravs positioning in respect to them that this allows the light ray not to be absorbed but to go around these objects. Hence, the reason for the physical observation of the lensing or the bending of the light near these object as the light passing large and strong gravitational object is purely due to its Magravs and its positioning in respect to these entities in the universe.

Therefore the lensing of the light is the confirmation of its existence as dynamic composite magnetic field strength fields physical and tangible entity in position of Magravs, and the light is not a ray of magnetic field in motion or what has been called that the light to be an energy. Whereas, the plasma of the light ray in motion can transfer it Magravs to other matters and thus has the ability to transfer its momentum to other matters and mafs as energy.

Hence due to the fact that the light possess both Magnetic fields and gravitational fields and in line with laws of physics, when the gravity and the Magnetic fields interact (1 and 2), their interaction lead to the creation of entity in possession of its own mass and its own magnetosphere. Where, the interaction of the lights magnetosphere with the magnetosphere of other objects due to their friction leading to release of residual magnetic fields in the matter magnetic field strength level of the human protein, which this makes the point of interaction of two Magravs detectable pmf field or what is called the visible light to human eye and his tools and methods of detection of pmfs in this ranges of filed strength, out of the full magnetic fields spectrum of the universe.

Where, the motion of the dynamic spherical plasma of magnetic field in its travel from one point in the universe to another causes and leads to elongation of the dynamic spherical pmf, hence the restructuring into a dynamic cylindrical plasma ray of the light, and as this plasma of the ray of light reaches the right pmf environment strength that slows down enough or losses its strength, at this point the cylindrical plasma restructures back to its spherical structure and leads to the creation of pmf of matter mafs and matter in given matter pmf strength environment (Fig. 48) The book cover image. Hence light has the same structure as the pmf of any other plasma known to man like the plasma of electron and proton but in elongated form rather than presently known dynamic spherical shape of tangible matters.

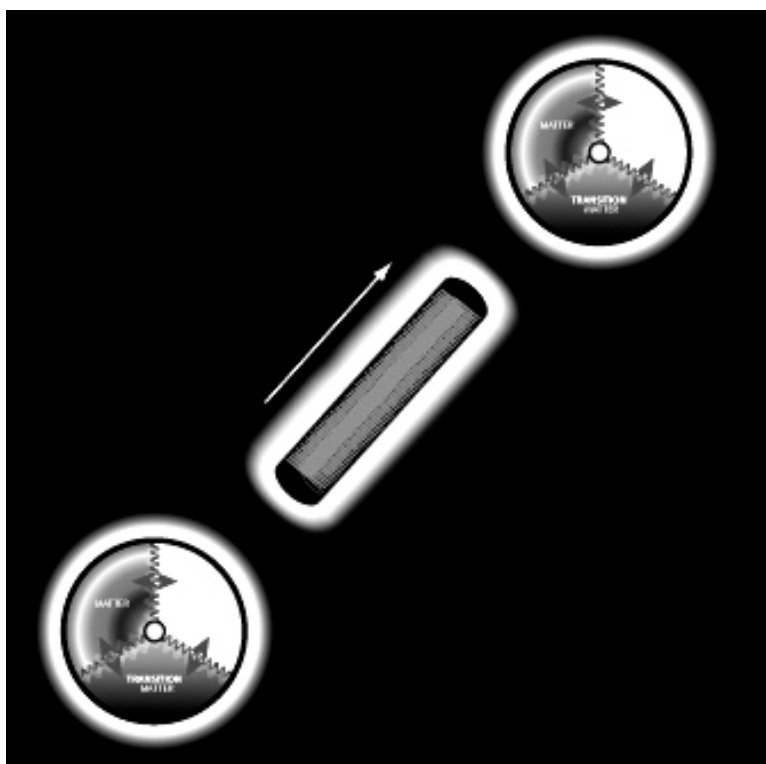


Fig. 48 The conversation of dynamic spherical pmf into dynamic helixial cylindrical ray of light and its conversation back to dynamic spherical (Cover image).

Where, at the same time the plasma of the light in its travels in space can become visible according to the plasmatic magnetic fields of the environment which it travels through and according to the observers' plasmatic magnetic fields strength which in the case of human living Magravs protein molecules structure.

Different proteins have different pmf strength for different creatures in the span of the universe, hence what is visible light to one creature in one point pmf strength in one part of universe this does not mean that to another protein Magravs strength in the same environment this can be visible light too. Hence what is visible light in principal matter or mafs strength, in transition mafs and matter and in matter mafs world in a given matters' magnetic fields environment respectively these light rays are detectible or visible according to the environment and of each mafs and matter in the binding Magravs of the structure of the observer.

The plasma of the light has the capability to present the magnetosphere around itself according to the pmf strength which it is passing through, thus it is the environmental pmf strength which decides the outcome of the mafs of the matter of external layer of the plasma of the light and the final presentation of the light in a given environment.

The plasma of the light to reduces its losses in its pmf of its matters and at the same time allowing it to encounter less resistance for it to be able to travels through the same pmf strength that have less or faces no losses, thus the light ray has the capability of the change of cover mafs and matters of its structure. Thus it is inevitable to consider and conclude that the light like its larger combinations has its own intelligence and its own internal logical magnetic processing that allows it to survive and exist in every dimension in the universe that it might travel through or be part of. This giving the light the capability of being able to travel long distances, and at the same time, this allowing the light not to have fixed maximum speed in all universal magnetic field strength spectrum opposite to what has been assumed by scientific world at the present.

At the same time, the light becomes more visible or detectable as it travels from stronger matter mafs fields strength to a lower matter fields strength environment.

Two rays of lights with different mafs of the principal matter strength can pass through the same medium and they can create different brightness intensity and therefore all lights rays do not have the same intensity primarily and their strength and intensity is internal initial principal mass and strength dependent. Therefore a ray of light can be dimmer or slower compared to another ray primarily due to their mafs of the principal matters content and their strength.

Lights have speed according to their lowest common denominator of it environment pmf strength. Therefore, speed of light in Principal environment due to the stronger field strength of the principal mafs pmf is much faster than the speed of the same plasma in the matter environment, hence the present assumption that the speed of the light as observed by man is the maximum speed of the plasma of the light is *incorrect*, and hence the plasma of the light has speeds in the Principal matter environment far beyond the present assumptions in the matter environment of the earth and this universes matters' pmfs strength.

Even though the formulas used for conversion of main connection of mass and energy looks as to be balancing and to be correct, in fact this equation is only correct for small and minute amount of plasma and only in the matter environment and not in other plasmatic fields environment of principal mafs and mafs of the transition matter or combination and composite plasmatic magnetic fields strength of principal mafs and matters environments and where only individual rays are considered.

Now that one knows that mass is created through secondary effects and interaction of the effects of the interaction and connection of at least two dynamic plasmatic magnetic fields of the gravity and Magnetic fields (1), which these Gravitational and Magnetic fields both themselves are created and are products of interaction of at least two initial magnetic fields, then in fact mass itself is product of interaction of four fields of two initial fields and two effects of these two fields and hence the formula of relativity now is totally incorrect and has to be rewritten as now one of the factor of the four of the magnetic fields and their combination of their products with each field in position of its own speed of its mafs strength, as energy which is define as magnetic fields in motion, then multiple of speeds of the light in their initial matters mafs strength times the matters mafs of their effect strength in a given mafs strength is the realistic method of the measuring the energy in respect to the mass of the same matter.

Using this knowledge and understanding the structure of the light and applying these in the space technology and in the space reactors crafts of the future for travel in deep space, then by knowing the mass and the strength of the fields which one needs to be traveling to and by the same principle the strength of the original mafs of pmf can be calculated and measured by using the fundamental application and implication in production of light Magravs strength of the system and of the same of the destination point, then one can estimate the power of the crafts Magravs need to be and at the same time what the speed of the travel of the craft shall have, and using the mafs of the light at that given matter environment, one can calculate what mass of the light the system needs to have and be loaded that the system can travel at a given speed in a given environment, or what speed the craft might have once one uses the certain amount of mass of the light in any combination in any of multiple combined fuelled integrated multiple Magravs positioning reactors of the space crafts of the future (1, reference 24,18 and 11).

In understanding the strength of the principal mafs fields strength and using this phenomenon for creation of speed of motion of the systems and crafts, then one can calculate and understand that

travels with speeds hundreds and thousands of times and millions of time faster than the speed of the light in matter environment in the near future will become as conventional as jet liner travels of today. The assumption that the speed of light in the matter world is the ultimate speed in the universe cannot be correct. This assumption, when using the principal mafs fields as source of fuel in dynamic plasma dilution gravitational positioning space reactors, which have been developed and tested can be used to achieve higher speed than the speed of light in the matter environment.

Through this technology of the use of light gravitational positioning systems, speeds of travel in Principal and Transition mafs strength environments, which are beyond the present understanding of the man in the matter universe are faster than the speed of light in matter environment.

Now one can understand, that once by not using the principal matters as fuel as has been discussed and promoted by some organisation to burn, as has been the habit of the man to burn to attain motion and height in the past centuries, then in using the mafs of the principal matters in creating gravitational fields and Magnetic fields within a gravitational system, then one can travel the length of the universe in times which are not acceptable to man at the present time due to restrictions which has been forced on the humanity by the less knowledgeable scientists of the time and due to their lack of understanding of the creation and control and structure of the light itself.

Then now one has to make new concepts and measuring tools for local time and universal times as these will be different according to the light mafs strength of the space crafts and environment of measurement and new conventional translation for time has to be employed, otherwise traveling in one speed of the light mafs strength and then entering another to live in, this will create untold problems for the future universal travellers of this universe and for the inter-universes travellers of the future (3, 6 and 7). Invariably in the near future one can use the principal mafs and matters magnetic fields for the purpose of transportation in the universe, where from this point on travel with speeds beyond the matter pmf strength environment for travel in the universe and between universes become a natural means of transportation.

At the same time the speed of light in the principal mafs and matters strength is visible light to the man too, with the difference that in this environment as the protein chain of the man contains and is consisted of plasma of electrons and protons, and these plasmas themselves are made of and operating and consisted of the composition of principal mafs and transition mafs and matters (1) too, then the principle mafs strength of the protein will come into operation and the life will be as normal as one living in the present matter mafs and matter environment of the universe. With a slight difference that he needs to learn about control of the operation of his physical body and his tools of detection in the speed and light configuration.

The parallel world of different pmf strength of matter mafs and mafs of the principal matters are the faster and stronger in pmf strength of life which the Man has come to comprehend and live with and soon he will be able to transmute from one pmf strength of mafs to another and use this knowledge for the advancement of his race and connection and communication in and with the other creature of the universes.

The gravitational field forces of the mafs of the matters of the structure of the light will be the smartest and fastest method for creation and control of space reactors of the future. At the same time speed of the separation of mafs of the matters of the light will be the best directional controller and magnetic shielding protection system for the space crafts of the future as the lights' mafs and matters separation and control in different mafs of the matters and matters of the universe this make the plasma of the light the safest and quickest methods to generate parallel speed of the light in different mafs of the matters environment and at the same time the directional motion of the Magravs transportation system can utilize the mafs of the matters of the light interaction for smooth transition from one matter mafs field strength to another or from matter mafs to matter environment

and vice-versa.

This light matter mafs structure division and utilization will be the technology which needs a full understanding of the world of creation and once mastered as has been done by other inhabitants of the universe, then the man will be of the same strength and capability of the understanding of the universe of universes operation, interaction and universal organisation.

When, the intelligence of the man reaches the full understanding of the potentials of the use of the light mafs of the matters, then one will be able to travel in different mafs of the matters environment with use of the mafs of the principal matters magnetic fields strength as the protection magnetosphere created around the crafts in possession of the multiple Magravs positioning reactors.

The dynamic twin reversal of directional motional shielding system made of and through the use of mafs of the principal magnetic fields' strength of the light guaranties the total non-penetrable protection for travel in all mafs and matters environment in the universe, without leaving any traces of direction of motion and without being visible to the human eyes and any other tools and means of detection of any other creatures in the universe.

Where, this technology can be used for fast speed travel in crossing boundaries of universes and for travel across one universe without spending thousands of light years in traveling time as is currently calculated by human scientists. Thus one can travel with full safety using the highest lights Principal Magnetic field strength for every aspects of the motion in the universe.

Once the concept and the principle structure of the principal mafs and matters and other mafs of matters and lights are fully understood then one can use the knowledge of the light structure in full and the scientific world will be able to use the structure and mafs of the light for creating new matters and production of food and nourishment for the life of the passengers and for the space machineries of the future and food producing reactors for the man in deep space where the light is the only available matter for use and at his disposal.

The mafs of the matters of the light can be brought to levels that one needs for the body to absorb for it to survive a pleasurable and comfortable life. Where, different strength mafs of the matters and of the light can be used as vitamins and minerals and proteins for the Man's needs to live. Where, the light mafs of the matters can be used directly without the need for the plant and animal conversion systems of the light mafs of the matters to minerals and nourishment for the human consumption.

One has to understand that there are lives in the lower pmf strength of the universe too; where in reality the matter universe is not the lowest level pmf strength in the universe. The light in this universe is the same and operates in the same way.

In the future one can *use the light mafs of the matters to produce and lower their strength mafs of the matters to pmf for example of the sodium or vitamin A or B*. Therefore from this point on one can even produce composition of matters or what has been the dream of producing energy and new matters through fusion. Now one can use the Principle matter mafs field's strength of the light to fuse the elements in the matter environment. In fact fusion is more practical and achievable if one uses the principal mafs and matter's field's strength of light and their division to create environment of matter mafs for the matters to be created. Fusion of pmf of the light mafs is in so many ways easier than physical matter fusion once the light is transferred into neutron or an atom. The lights' mafs of the matters fusion is a way for the re-production of heavier elements or their pmfs without creating enormous amount of heat that one cannot and has no tools and means to control and contain such matter fusion technology.

Once the man learns the use of the construction of mafs of the matters of the light, then one will learn that source of mafs of the matters are available in all corners of universe and on the other hand one does not need to create the physical matter to have the properties of the physical matter, but one can use pmf strength properties of the given matter in its fusion of the light mafs of the matters to achieve the same effect, the likes of the production of energy and food without ever using fusion of physical matter to achieve the same goal and actually without ever needing physically to eat and to digest food. Then in the near future man's body will do with the digestion system and in the further times man will learn and will do with the physical body for it to exist and for it to travel the spans of the universe(s).

Using the mafs of the matters of the structure of the light rays for **communication purposes**, in the matter environment, then the communication system can be set to transfer the information in the Principal matter mafs strength and once the information arrives at the point of destination the receiving system can decode the information from the principal mafs strength to matter mafs strength and then the information can become available for whatever purpose it was transmitted for, this being audible, visual or computable information or transfer of matters. This method of use of mafs of the matters of the light field's strength will eliminate any time delay in communication across the spans of the universe, the delay time which has been observed in the present cosmos communication systems will not exist once using principal mafs strength and then communication become instantaneous anywhere in the universe.

Thus by switching from one matter mafs strength to another matter mafs strength of the same light, this will bring into play a totally new technology and facilitates new approaches in the production of tangible matters too. That is to say one can strip the light from one of its mafs of the matters for one purpose and use its residual mafs of the matters for other purposes. That is to say, by striping the light off its principal mafs for the communication purposes, then one can use the mafs of its transition matters and mafs of the matters of the same plasma of the light for production of increase in other matters and matters growth or expansion in their given environment or use these for production of energy for human existence in space.

The universal language using mafs of the matters of light and using the same mafs of the matters of the light for their transportation will be the cornerstone of the future transmutation of matter and matters and communication in the universe among other intelligent creatures of the universe(s).

The positrons are created at the point of the creation of the plasma of the atoms from the ray of the light and the clockwise motion of these particles is totally and primarily internal magnetic fields position dependent. This meaning that the directional rotational motion of all matters are dependent on the speed of the rotation and position of the mafs of the principal matters and matters in respect to each other, this plasma be it of the plasma of electron, proton, atoms even stars and galaxies.

The clockwise or anticlockwise rotation of electrons, protons, planets and stars is determined by the principal mafs matters speed of rotation and its distance in respect to the matter mafs and distance between different layers mafs components of the plasma of the entity after the light ray is converted to matter of the electron or the proton and star and its matter content.

In conclusion one has to be aware that visible light magnetic fields spectrum, which makes man to see its universe is the same in all pmf strength levels. This means that in every pmf strength environments there are visibility criterions to all created life, but the visibility is pmfs field strength dependent. Therefore, what is not visible to one being is visible environment to another using different pmf strength for point reference as tool for vision and this applies to all pmf strength mafs of the matters and matter universes and environment.

At the same time vision is not through the vision tools like the eyes, but vision is the openness to receive knowledge through the real means of the operation of the universe in the pmf strength of the level of intelligence of the structure of the beings.

The reality of the existence has been measured by the strength of the light, which a matter can emit, and the duration and the depth the Magravs of the created light can penetrate in its environment. Then the question for the Man to ask of his existence, is that how does the matter like him, who is the user and the producer of the same physical entities as stars, how does his existence will shine and operate in the span of the universe after the demise of his physical life on this matter strength environment?

May be it is the time for the Man to come to understand the true meaning of the light, as all beings in the universe announce their existence through the emission of the light into and onto their surroundings.

This technology of the light ray's protection gives the man the ultimate knowledge for survival and brings the man knowledge and intelligence in par with and equal to the knowledge known to the rest of the universal manifestations and the same we have served our purpose in bringing the same to all men of progress.

Thus would be correct for the Man to consider his connection beyond his physical existence and through the light of his presence during its time, and hence would the soul of the man be of the light of the confirmation of his existence.

Be wise to the truth of the creation of the man, if the light of wisdom is the light of the soul from the time of beginning to the end of time. This light will exist and will be the source of the confirmation of everlasting existence of his soul, as the light of far distance star after billions of years are shining in the deepest part of the universe, this has been and shall be destined for the soul of the Man throughout all times of the existence of the universe.

Thus it can be said

**The man has come from,
He exists, operates through and
He shall return to
the Light**

Definitions

Below is a list of the new terms and their definition that used in this book. A number of these words and terms have been used in the previous book and scientific papers, which have been published by the foundation and most readers, are familiar with these terms and reference. In this book a different approach and language and terminologies is used, therefore has become necessary to create a new terminology and words that can explain the real term application and processes in the world of physics.

Mafs: magnetic fields

Magnetic: with **capital M** refers to the plasma of magnetic fields created by a dynamic entity as for example this refers to the magnetic field of the earth.

Magravs: Magnetic and gravitational fields (Magnetic referring to the plasma of magnetic fields created by a dynamic entity as for example this refers to the magnetic field of the earth)

Pmf: plasmatic magnetic fields

Principal matter: This matter in conventional physics is called the *anti-matter*, as now the real structure of this matter is fully understood and is said to be source of all matters from the dark matter to matter, thus it has been called the original matter or the principal.

Principal mafs: These are magnetic fields, which are in the principal strength levels and considered to be I order magnitude several hundreds of times stronger than the magnetic fields which make up the tangible and visible matters.

Principal star: This entity in the conventional physics is called the Black hole

Transition energy: This energy in conventional physics is called the dark energy. This is the pmfs that are in motion from principal to matter magnetic fields strength so called the transition energy as energy is defined as the pmfs in motion.

Transition matter: This matter in conventional physics is called the Dark matter, as now the real structure of this matter is fully understood and is said to be when plasmatic magnetic fields are in transition state from the principal matter to tangible matter thus the term transition matter is used.

Transition mafs: These are magnetic fields which are in strength level between the principal and matter magnetic fields strength, and are in transit from the principal mafs to matter mafs strength levels.

Gans: a new state of matter; a molecule of a gas (GAs) which becomes Nano of itself and appears as Solid state of matter. GAs to Nano of Solid and to be called GANS for short.

Reference

1. The book, “The universal order of creation of the Matters”, M T Keshe, published July 2009 ISBN 978 46 6087 001 9
2. The unifying theory of the fields M T Keshe 2009
3. The origin of the Universe M T Keshe 2010
4. The creation of the solar systems M T Keshe 2010
5. The CO₂ capture paper by MT Keshe Published 23.12.2009
6. “The universal order of existence” finalized and to be published in 2010-2011 by M T Keshe
7. The Magravs positioning M T Keshe 2010
8. NASA WMAP common.wikimedia.com

Published and unpublished works by M. T. Keshe

There are a number of unfinished articles that are to be converted to full disclosures when completed, like antimatter mafs method of energy releases, Nano space technology, relation between the creator and the created, space communication system, deep space defence technology, dynamic magnetic fields force regions (wormholes) construction and control, creation of magnetic fields, and so on.

Some of these works have already been published through different channels and some have not yet been released.

In the following section some of the works done by the same author are mentioned, with a brief disclosure of their contents.

Some of these papers can be purchased and obtained through direct request and access through specific links.

A number of papers with * and ** marks **are not for public release** due to their sensitivity of information and only available to relevant commercial and governmental organisations for peaceful applications of the technology.

The universal order of creation (5.7.2006)

In this disclosure the main construction principles and the method of the link and control in the universal order of the existence of living cells, like the function and operational method of any matter based on so called proteins chains, as for example in human cell are explained in detail.

REF 9

The author considers this paper as one of his most important and fundamental works to be published and to be added to the sets of disclosures written by him.

Cosmic Rays (Release date 24.3.2004)

This paper explains the source and the origin of cosmic rays and the way these work within our cosmos, their function and their benefits.

REF 10

*The Airborne reactor

(Release date 25.3.2004)

This paper covers the total design of airborne reactors for space technology. This covers all aspects of operation, design and control of such reactors.

REF 11

The seed of the Earth
(Release date 25.3.2004)

Some extracts from this paper:

The theory that the heat of the core of the Earth is due to inertia of the material piled on top of each other is completely dismissed through this new disclosure.

The author M T Keshe believes that this centre core is made of hydrogen, other gases and a mixture of liquid and solid matters mafs, which were in the vicinity of the centre of the core of the Earth at the time of its inception in the solar system.

Through this new understanding of the new inner cores of the planet, this brings to play the fact that the old inner core of the Earth that is already assumed to be made of a solid piece itself becomes a sealed container for the new inner core.

The author through design of a parallel system has set to confirm the validity of this assumption, that the centre of the Earth possesses a semi- fusion atomic reactor and not a fission reactor as has been assumed by other scientists.

This theory of hydrogen in the centre of the planet is in line with the physical reality of the creation and the present situation in the physical construction of the solar system.

By the laws of physics all the gases in the solar system should have been in the giant gas planets at the outer layers of the solar system, like in Jupiter and Saturn.

The physical reality in the solar system, is that the lightest of all these gasses, the Hydrogen, has taken its place right in the centre of the solar system in its star, the Sun.

It has to be recognised that the centre of all planets in possession of gravity due to the centre cores heating, are always in possession of two Magnetic Field Forces in their inner sanctum (M. T. Keshe "The creation of gravity").

In the case of the Earth up to now and with the present knowledge there has been acceptance of only one inner core and one magnetic force.

As it is explained in the paper titled "the creation of gravity", there is an inner core in the inner core. This inner core, due to its physical content, motion and position in the centre of the Earth, creates and maintains its own magnetic field force, independent of the magnetic force which has been known to be created by the interaction of the inner core and the outer core of the planet.

These two magnetic fields interact to create the planet's own double magnetic fields in its centre. The interaction of these two magnetic fields forces upon each other leads to the new concept of the "DOUBLE MAGNETIC FIELD EFFECT", where the interaction between these two field forces in the centre of the planet leads to the creation of the gravity and the magnetic forces of the planet

(Paper: The creation of gravity).

This new second core is the seed core of the planet, the mother seed of the planet positioned in this new inner core.

REF 12

The creation of Black Hole
(Release date 25.3.2004)

In this paper it is explained that the Black Hole is created out of a natural sequence of events, and that the existence of the Black Hole in a galaxy is a normal event. Further it is explained that a Black hole is created in similar ways to the Dark Spots on the surface of the Sun. In this paper for the first time, it is explained how the Black Hole is physically created and what function it plays in its galaxy.

REF 13

Magnetosphere
(Release date 9.6.2004)

"The shape and the strength of the magnetosphere of a planet is exactly what a fingerprint is to a man. It is unique to each planet, star and galaxy. It is a tell-tale of all its attributes, and it reveals the hidden mysteries of the internal materials' structure".

REF 14

Correction to the Einstein equation of Relativity
(Release date 15.6.2004)

In this paper the physical reality of the Einstein equation is considered, and efforts are made to bring this equation to the real conditions. Even Einstein considers this equation applicable for very small mass, and not in real three-dimensional multi-Magnetic and gravitational conditions, which are external and have nothing to do with the theoretical object's mass and speed, but have effect on the speed and the mass of the object under consideration.

REF 15

*Introduction to the new system
(Release date 2.7.2004)

In this paper it is written "It is essential to understand that, with the application of this system of motion, one cannot bring into play the solid, liquid and gas fuel method to create motion, as is used today. What is offered in this system is in simple words a fully integrated plasmatic magnetic energy system. Which, creates within and around the core environmental conditions as known to man in the universe like creation of gravity and magnetic field protection and the same as the magnetospheric protection condition of planets and motion through interaction of magnetic fields as planets and stars do in their given environment".

REF 16

The rings of Saturn
(Release date 2.7.2004)

One of the oldest puzzles in the world of astronomy has been the existence of the rings around Saturn. How did these rings come to exist the way they are now? How did they come to appear and behave the way they do? These questions and much more about the creation of these rings are all answered in this paper.

REF 17

The creation of gravity
(Release date 11.7.2004)

In this paper it is explained that "the source and the creator of the magnetic forces and the gravitational forces are due to the interaction between the same materials in the same region of the planet."

Further it is explained how the gravitational field force can be created, replicated and controlled within a nuclear reactor. Further it is explained how this property can be used for the motion of a system within a planetary or solar system.

Now by understanding the principle of the creation of gravity, in this paper it is further explained that "the gravity in reality is the effect of the interaction of two plasmatic magnetic energy fields of any two object in respect to each other."

REF 18

Death of a star
(Release date 26.7.2004)

In this paper the death of stars is explained, "The death of a star and the creation of a supernova is in reality the same as the half-life cycle energy step-down of an atom, with the difference that this show is in a larger scale, and more spectacular, in all aspects of its dimensions".

REF 19

Fusion
(Release date 28.7.2004)

In this paper the physical and scientific problems with present fusion technology is considered. Where, it is written, "nuclear Scientists, with the fusion reactors of today, are trying to create fusion in the opposite way to the known laws of physics and their parallels in the universe". Further in this paper it is written, "If the present path for creation of fusion is followed, with the present scientific knowledge of physical materials for construction of such system, then following the present path of development to create energy from current fusion systems will be a distant dream".

REF 20

Life of a Cell
(Release date 28.11.2004)

Extracts from this paper; "The reality of the transportation and transmutation of a cell is not far from the reality of the life of an atom or a star. Where the life cycle of the cells are slightly more complicated, as they contain other matters mafs like acids, which have their own magnetic characteristic of their own chemical structure. For this reason the control and replication of the energy of the cell is very much complex, but very simple to achieve".

REF 21

The Atom
(Release date 19.12.2004)

The content of this paper explains how and where atoms in the universe are originated from and how the construction of atoms in a cold plasmatic nuclear reactor can be replicated.

REF 22

Magnetism
(Release date 8.1.2005)

In this paper it is written, "The question is where did the Magnetism come from? This is the Secret of creation. The world is made of one thing and only one thing and that is Magnetism. Its combination and interaction with its own different strength fields makes it appear as different matter mafs. The rest of creations are the outcome of these interactions of different strength of this thing called magnetism and the forces it creates. Magnetism is the origin of existence and the real singularity in its full meaning".

REF 23

*The creation of the magneto-gravitational force
(Release date 5.2.2005)

The creation of magneto-gravitational field force is and will be fundamentally independent of temperature and pressure, proviso to the fact that as long as a homogenous free floating PMF within a matter maFs is created.

REF 24

The core of the Earth
(Release date 20.4.2005)

One of the original assumptions in developing the new Magravs system some thirty years ago by M.T. Keshe was on the basis that the centre of the Earth possesses addition cores, which create the necessary gravitational conditions of the planet. After some twenty years of space technology and through Earthquake seismological data's this assumption has been shown to be correct and after over twenty years, it has been scientifically proven that the inner core of the Earth has an inner core of 600 km. Professor Guy Master in 2002 ref 24 nuclear planet. The centre of this core is assumed to have an inner core of 8 Km, this he thought to be made of the plutonium or other nuclear materials

But the developer of this new plasma reactor technology has proven through physical dynamic cores that these cores possess a mixture of hydrogen plasmas and the process of the heating of the centre of the Earth are due to a semi-fusion chain of events.

REF 25

*The electron-atomic welding
(Release date 3.5.2005)

Some extracts from this paper:

"The electron atomic welding or atomic welding principle is the phenomenon that atoms of the same material, through a common shared electron, become a magnetically balanced molecule of the same matter maFs, with the difference that the shared electron will create a balanced PMF in the molecule".

REF 26

*Shutdown and safety of the reactor core
(Release date 6.6.2005)

In this paper the safety parameters in the operation of the gravitational and energy reactors are simply explained to avoid the loss of plasma and gravitational field forces created within its cores.

REF 27

*Reactor Start-up
(Release date 9.6.2005)

In this paper the systematic start-up of the dynamic reactors for the creation of gravitational field forces and the production of energy are set out. The start-up of these systems is totally different than the prior arts known in the nuclear industry.

REF 28

*The energy balance of the reactor
(Release date 29.6.2005)

Some extracts from this paper:

The energy balance of these types of reactors is not as simple as might look in the first instance. The energy creation is simple. But the heat leakage and dissipation through the deliberate inherent material design are and can be zero. That is to say the system not only can hold on the heat it creates. At the same time due to the close circuit feed operation will become self-sufficient but long lasting.

In planets, the loss of heat through their surface creates the variation in the central core condition over several billions of years. In this reactor as losses can be literally negligible, the system can operate at low energy loss temperatures. Even the boundary of the body could be made through the right combination of material in the chambers, so that the body of the reactor will be colder than its surrounding boundary. So the system will not only lose energy to its surrounding, but it can be made to absorb heat in the negative temperature gradient from its surrounding, so that there are no losses.

REF 29

Nuclear decay or half-life
(Release date 20.7.2005)

Extracts from the paper:

"The nuclear decay always has the same or near the same time duration. This is due to the fact that the all neutrons and protons, from their inception, carry a predetermined level of plasmatic magnetic energy. This energy is continually used for the motion and vibration of different elements of the nucleus in respect to each other and the surrounding matters mafs of the atom. As the space and dimensions of a nucleus of an atom always obeys the same principles of the magnetic separation and magnetic attraction. Protons or neutrons can and will need to use or consume the same energy before they become weak enough that the splitting or decay becomes a clockwork job. The nuclear decay is the natural levelling done of a nucleus' energy, due to the energy consumption and heat dissipation for the motion of the elements of the nucleus for its remaining plasmatic magnetic fields energy necessarily needed for them to hold one together".

REF 30

*The decontamination system
(Release date 10.10.2005)

"What this means is that, for example in trying to recycle the CO₂, by the use of the right matter mafts in one of the cores of the reactor, the system will then use the O₂ to produce H₂O, in the form of pure water, and C in the form of atomic or molecular carbon, or even by feeding this back through certain operational compressions and gravitational interactions within a small core, to create industrial diamond or graphite, for different industries."

The use of the reactor for this purpose has been proven to be correct and Raman spectroscopy has proven the concept and physical reality of the separation of matter mafts in atomic level after separation in the same system from a composite matter mafts.
(See the graphene on the technology web site)

REF 31

The difference in atomic and molecular structure
under gravitational force and pressurised conditions.
(Release date 15.8.2005)

In this paper is written that "the atomic and molecular structure of matter mafts is totally aligned and positioned in a fundamentally different configuration where it has come together due to gravitational forces, than when matter mafts has been brought together by the means of pressure. This has a fundamental effect on the behaviour of the structure and properties of the matter mafts which is created in either way". Where this is explained and utilised to develop a new method in creating graphene and Sp³ atoms and walls in a simple core made of a coca- cola bottle.

REF 32

**The Defence and shielding system
(Release date 4.9.2005)

Some extract from this paper:

The design of the side open system for lunch of high saturation magnetic plasma package is one of the most effective technologies for defence of the reactor and the craft, which is in possession of such a system.

It is essential for any space technology in the open environment of the universe, if the craft is to keep a straight line of motion and to be able to protect itself from any solids or matters mafts in its path in the cosmos.

This technology can destroy any object by the principle of plasmatic magnetic energy saturation of the incoming object at a molecular level, that object will disintegrate in the form of magnetic vapour and not atomic level destruction, before matter mafts can damage the craft as debris, and before the craft ever becomes in touch or near these space matters mafts.

This technology can also be used to protect Earth from the collision risk of NEO's (Near Earth Objects), like comets and asteroids.

REF 33

Method of creation of an atom or nano matter mafs (Release date 11.10.2005)

The manufacture of an atom of any density, this being of the simplest form of nucleus or a full atom of hydrogen, or even heavier elements in the universe, all follow the same principle.

Atoms are created in the soup of the cosmos from collections of very weak plasmatic magnetic fields, which for their existence cluster and share their energies with the magnetic fields that are not far from their own plasmatic magnetic field strength.

REF 34

The relationship between Gravity and Mass (Release date 21.1.2006)

Extracts from text of this paper:

"A planet like Earth possesses a combination of both gravity and inertia. Where the gravity comes from the interaction of plasmatic magnetic energy fields from the processes within its core, and the inertia comes purely from the collection molecules PMF of matters mafs which has built the physical body of the planet.

Any object, being an electron, atom, molecule or even a human body, is a collection of plasmatic magnetic energy fields of different strengths and their interactions between each other, which in total decides the total or collective magnetic field possessed by that object where this is the mass of the object.

Where the mass of an object is a collective package of plasmatic magnetic energy field tightness of a given object and will not change as long as the object is intact as one entity in its overall atomic or molecular or collective molecular appearance.

Which plasmatic magnetic energy of a physical body (so called the mass of the body) in interaction with molecular or atomic magnetic field (this being gravitational or inertia) of another object will determine the weight of the two object in respect to each other in each other's environment".

REF 35

The Dark matter mafs The Fifth state of matter mafs (Release date 21.1.2006)

Extracts from text of this paper:

The existence of dark matter mafs is not questionable,

Proving its existence, and its effect on the energy balance of the universe, in all matters mafs as small as in the heart of an electron or in a solar system needs to be created, replicated and its effect measured.

The theory of dark matter mafs does not and needs not to be considered as complicated, if one understands in real terms the plasmatic magnetic energy of the matter mafs in the visible and invisible dimensions of the universal work.

The dark matter mafs has two distinctive characteristics, which makes it totally apart from the visible matter mafs. The dark matter mafs possess mass but not visible light, where its existence can only be determined by the weight of the it's hidden mass, which could be substantial due to its internal gravitational field.

REF 36

*The inter-atomic fusion
(Release date 3. 5. 2006)

Extract from this paper:

"The fusion of two or more atoms has been the pre-occupation of nuclear physicists for past years. Conditions to achieve fusion of two hydrogen plasmas in the TOKAMAK reactors have taken years to teach scientists a lot about the behaviour of plasma and their fusing.

The reality about the fusion in some way has to be reconsidered as, if the scientific world is trying to amalgamate the contents of two plasmas to release energy. There must be a simpler way to achieve releases of similar energies.

The fundamental principle of the inter-atomic fusion is a much simpler way to achieve fusion. If this principle is applied to the atomic condition of fusion, then fusion will be attained in a simple but in a much more physically realistic environment.

The explanation for inter- atomic fusion is very simple and direct.

In the fusion of two plasma of proton of hydrogen atom, the physicists try to fuse two large plasmas, and by doing so, they try to release a large amount of energy. Where in this process enormous amount of magnetic field forces and currents are needed to bring two plasmas in close proximity, so that the energy barriers in between them can be overcome for them to amalgamate or fuse.

In the inter-atomic fusion the overcoming of energy barriers does not exist, as in this method of fusion, the electron of the atom which is circulating the nucleus of the atom and is of the same origin will be encouraged to return into and fuse with the nucleus of its atom".

Where this is a more practical way to create and release manageable energies and there is no need for elaborate systems where even if the energy release will be small compared to dreamed up fusion systems of today.

With inter-atomic fusion method at least small and practical systems can be developed to handle low temperatures of the fusion process.

REF 37

The conductivity of the matter mafts in the vacuum
of the interplanetary mediums
(Release date 21.1.2006)

Some extracts form this short paper "Therefore plasmatic magnetic energy field of elements within the interplanetary medium will cover the space given to them in their environment. Where due to their motion and their electric charges even in eV levels, they become perfect conductor, and in turn, due to their motion on their environment, they become plasmatic electromagnetic generators.

REF 38

The production of Graphene
(Release date 25.7.2006)

Repeated experiments and tests in simple static reactors, and tests in more complex dynamic reactors, prove that atomic separation and recombination of matter mafts like carbon and hydrogen can be reached at room temperature and at atmospheric conditions.

We have now indications - through static and dynamic tests in our reactors - that the universe was made in normal condition, which was originally nothing but packages of plasmatic magnetic fields of different strength, which were themselves nothing but areas of plasma or collections of loose magnetic fields energies. Where magnetic fields of different strength in locking to each other, by the principle of their plasmatic magnetic energy (PME), have caused in the first stage the creation of fundamental particles, secondly atoms, then molecules and then matter mafts, clouds and asteroids and then stars and galaxy's".

The big bang theory conditions have no room in the reality of the creation of the universe.

REF 39

Further works on medical research and developments have been written and completed, and will be published on the Foundation medical site in due course.

The process of the reversal of coma: Published in December 2010

Multiple Sclerosis: Published in December 2010

Epilepsy: Published in December 2010

Fibromyalgia: Published in December 2010

INTERNET LINKS

Web site: www.keshfoundation.com

YouTube Channel: <http://www.youtube.com/user/keshfoundation>

Forum: <http://www.keshfoundation.com/forum/>

Appendix 1

The unifying field Theory

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Date of release of paper 28.10.2009

Abstract

In this paper the origin of electromagnetic fields or electromagnetism and how they are created within the existence of the other magnetic fields are simply explained.

Discussions

The creation of magnetic field and its interaction with physical matter or other fields always leads to release of electromagnetic fields or energy equal to the energy of an electron.

In the universe, energy equal to energy of an electron, where there are no matters for magnetic fields to interact with, for electromagnetism to be created or to be released, in these environments electromagnetic fields do still exists and function.

Electromagnetic fields or electron energy does not need to be created by interaction of magnetic fields and matters as like in generators of present time, as in the universe electromagnetism is constantly produced due to the difference of the magnetic field strength between two fields and without presence of any matter or physical interaction of fields or fields and matters.

Due to the development of gravitational systems and having the ability to create different strength plasmatic magnetic fields within gravitational reactors cores, with the capability of being able to create and maintain different magnetic field strength in different part of reactors, where these fields are continuous and can be kept at a given constant strength level, that their difference in strength in fields can be equal to the magnetic field strength of an electron, where electromagnetic current flow can be maintained from one magnetic field to another due to their field strengths difference, this has enabled us to create and maintain energy field or elect magnetic fields strength of an electron in a plasma reactor without an electron being present or in motion within these reactors.

Where production of electromagnetic fields can be achieved by the simple creation of two magnetic fields with different magnetic field strength of an electron, that as fields are down levelled, from one magnetic fields strength to another, one can creates a flow of magnetic field equal to magnetic field strength of the an electron, thus the creation of electromagnetic current, or production of flow of electromagnetism can be achieved.

Where electromagnetism or current of magnetic fields of an electron can be created at any level of magnetic fields strength, as long as a strength level difference between two fields in magnetic fields exist, and where, in plasmatic magnetic fields the strength level difference of the fields causes the flow of magnetic fields from one field strength to another can be caused or what is called commonly electromagnetic field flow can be maintained.

Therefore, one can have electromagnetic fields of any strength, this being Matter, Antimatter or

Dark Matter, as long as their magnetic field strength difference between to field strength is equal to the magnetic field strength of an electron or magnetic fields of Matters of an electron. Or the magnetic field strength that can affect the motion of other fields to be equal to the magnetic fields strength of an electron. Then at this stage one achieves the electromagnetic current thought flow of magnetic fields, from one stronger to the weaker field, which the magnetic field strength of the flow is equal to magnetic field of an electron (see Fig. 1).

Electromagnetism

In the real world of existence, all Matters do not have boundaries as tangible matters do, but their boundaries are dictated and created through the space they cover through and by their dynamic magnetic field effects. Where, this space of effect of their magnetic field is called the environment of plasma of these fields.

Thus when we speak of plasma or plasma of an electron, proton or neutron, what we talk about here, is the space and environment where the effect of these magnetic fields of the total structure and the entity of for example an electron can cover.

Thus an electron is in fact nothing but a space in an environment, which the total effects of all magnetic fields of all Matters and fields, can be detected or be contained in.

Thus to this end, when an entity possesses magnetic field strength equal to total magnetic fields strength of an environment within the plasma of an electron, then this entity is in possession of mixture of dynamic magnetic fields of an electron or this entity has magnetic field strength measure of an electron or what is called possesses electromagnetic field.

Where this space being in possession of magnetic fields, by its nature has to interact with other magnetic fields and entities made of magnetic fields in it's surrounding, where these interaction can be attraction (gravitation) or repulsion (Magnetic).

Hence and direction of motion of this space of fields (Fig. 1) or electromagnetic fields is totally dependent on other magnetic fields within its environment, which their environments total strength in gravitation and repulsion dictates the direction of the motion of the plasma of an electrons magnetic fields.

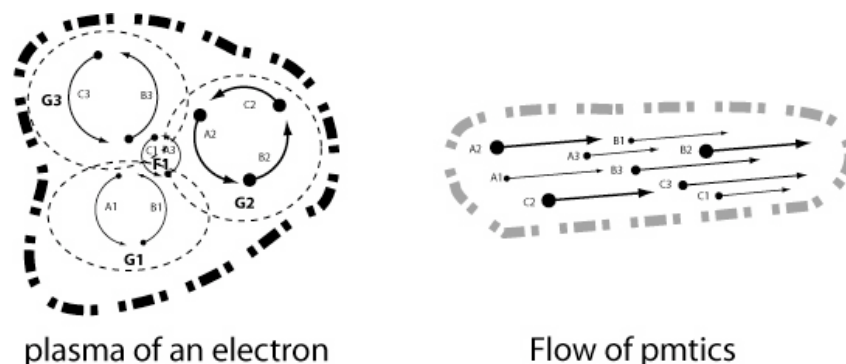


Fig. 1 Magnetic fields concept of an electron and a flow of plasmatic magnetic fields equal in strength to that of an electron.

As I have explained in the book, The Universal Order of Creation of Matters (2009, ISBN 978-94-6087-001-9) the magnetic field strength decay of the plasma of a neutron (Fig. 2) leads to creation of two plasmas of the same structure of a proton and an electron.

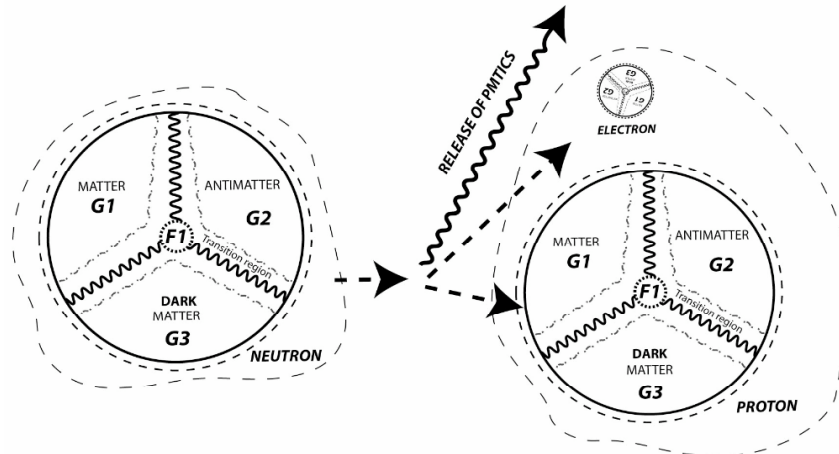


Fig. 2 Decay of plasma of Neutron into two plasmas of proton and an electron.

It is an important to understand that the structure of an electron in fact is plasma and it is like the plasma of proton but in a smaller scale in the mass compared to the proton (Fig. 3).

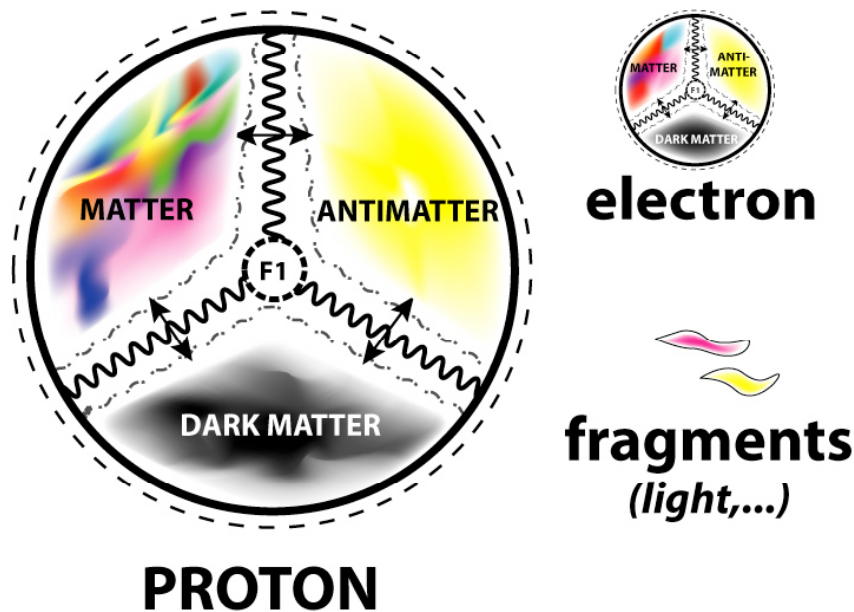


Fig. 3 This showing that proton and electron both possess the same electromagnetic field strength of different Matters, with each entity having different mass of each matter.

Thus the electron is and has the structure of a proton and similarly possesses all its three states of Matters (Matter, Anti-Matter and Dark Matter), and its content is proportion to its neutron plasma prior to its decay into two plasmas of the proton and an electron. As electron is made of electromagnetic field strength of varying strength, this being the reason, why its current and its flow can be influenced by other magnetic fields, as magnetic fields of different strength do influence each other's path of motion and speed of motion in different Matters and matters environment.

Where, at the same time and by the same principle the dynamics (orbits) of the electron around its proton is due to the continuous repositioning (alternating attraction and repulsion) of the smaller Matters parts of the electron in respect to the large Matters magnetic fields of the proton. This is the reason why that the trajectory of the electron is said to be uncertain.

Where, by the same principle, the Magnetic field source of all Matters and matters and their different magnetic fields strength, is the cause and the sources of all effects and matters we observe in the universe.

In the book I have explained how the gravity is created through interaction of two or more magnetic fields, and how mass is the measure of difference between gravitational fields and Magnetic* fields created by the interaction of the same two or more magnetic fields. Thus even mass is magnetic field strength dependent too.

Further the relation between mass and energy, which both are magnetic field strength dependent (1), and as has been explained, energy is the measure of the mass and the rate of it's the speed of transfer in its own Matters medium (this being Matter, Antimatter or Dark Matter medium) from one magnetic fields strength to another depending upon attraction or gravitational strength from one magnetic field to another. Where, this speed is magnetic fields order of magnitudes strength dependent.

Where, transmutation from one magnetic field strength of Matter to another, like from Matter to Antimatters can lead to creation of current or electromagnetism within the given environment of the same plasma itself too.

In fact in the universe one has proton magnetic field current flows or **protomagnetism** (proton-magnetism) too. This current is the flow of magnetic fields to another, which are equal to magnetic fields strength of one proton. These magnetic fields are bases of the cosmic magnetic field storms and have more profound effects on the structural integrity of the galaxies than their weaker counter parts electromagnetic fields.

Further more as now we understand the concept of plasma of an electron and even by the same principle one can understand the principle structure of the plasma of the proton and by the same measure of the plasma of the neutron, hence in the universe we have observed plasmas of neutrons in motion, which these have the same ability as electromagnetism and protomagnetism in motion and these are called the **neutromagnetism (neutron-magnetism)**. Where, these are the space in universe, which carry magnetic field strength equal to the strength of magnetic fields of all Matters, and fields, which make the structure of an entity a neutron.

In fact what is called a neutron star, these in reality do not possess neutrons, but these stars emitted magnetic fields strength in the range of Magravs of neutron. Hence tangibility of the neutron becomes later on as they disassociate themselves from the other fields in their environment, and at this point, they create dynamic space or environment or what we call the plasma of the neutron, where these magnetic fields can exercise their influences on other fields within their surrounding.

Further to this explanation, one can simply understand that in the matter world or in the magnetic field strength of matter, the gravitation and repulsion between these magnetic fields are in the level of matter magnetic field strength of electron, proton or neutron.

Hence in the matter world like in solid magnets, magnetic or magnetism or attraction or gravitation, is the attraction between the magnetic fields strength of Matter components of the plasma of electron, proton or neutron of that matter.

Thus is the reason, why in the physical world certain matters are attracted to each other, which they make certain types of molecules or physical matters. Where, the attraction of atoms to make up any matter it is entirely Magravs strength dependent and no other factor.

Where these attractions or gravitation of atoms or molecules in respect to each other, on other hand is environmental magnetic field dependent too. This is the reason why we can observe certain matters in one environment and not in the others. This being due to the fact that environments themselves are made or created or are conditioned due to interaction and Magravs (Magnetic and gravitational fields) of other magnetic fields.

Permanent magnets

Sometimes in the future I will release a book which initial basic work for it already has been set. The book will be titled “The universal origin of magnetic fields”. In this book I will explain how magnetic fields are generated and how plasmatic and specific Matters magnetic fields exist in different dimensions.

In simple terms, the Matter magnetic field or what we call permanent solid magnets are mono magnetic fields strength which are at the levels of the Matter components of the plasma of an electron, which are in sequence with the plasmatic magnetic field Matters’ of the proton of their element.

What this means is that when plasmatic magnetic field of the Matter components of an atoms’ proton and electron field strength become interconnected and in field balance, then a continuous field between the Matter fields of the proton and electron is set to operate, where in the case of for example Iron at earth magnetic and gravitational field strength, this connection is set to be holding and hence creating a permanent magnet.

Hence as one establishes inter-connection between electron and proton internal field strength, then due to the more of supply from the proton, then the matter stays in one field strength for indefinite time.

This being the reason for example why magnetic fields in level of the water molecules, do not have strength to attract for example cooper atoms gravitational level, but can attract other water molecules’.

In fact iron will not be magnetic as it is on earth in most of positions in the universe. This being due to the fact that even permanent magnetic properties or characteristic of all matters are their environmental Magravs dependent. Hence what is permanent magnetic in solar system, its no similarly the same in other solar systems or galaxies.

Secondly magnetic fields or plasmatic magnetic fields are independent of Matter, but dependent of Magnetic field of Magravs of the Matter, Antimatter and Dark Matter of plasma of electron and proton too.

But at the same time it is important to understand that to have long term or permanent magnets, the Antimatter components of the plasmas have to and are positioned that they establish a continues field between the other antimatter component of the atoms of the same matters too.

The difference between conductors and superconductors

The present world of physics has a dilemma with the fundamental principles of conductors and

superconductors. Where this should not be so, if, scientists could understand the real term difference between the current flow of electron and current flow of magnetic field flux equal to the magnetic field strength of an electron.

What this means is that in conductors, the motion of or vibration equal to vibration of an electron causes the flow of current in the matter.

Where as in superconductor it is not the flow of the electron or the vibration of an electron that causes the flow of the current, but current flow is caused by the flow of electromagnetic field strength equal to magnetic fields strength of an electron, which flows through the material.

Where in the case of superconductors' there is no need for vibration or motion of matter, as with superconductors the same magnetic field strength equal to the magnetic field of the an electron flows through the superconductor materials.

Where in the case of superconductors the lattice boundary of molecules or atoms are so closely and perfectly packed that the electromagnetic flows through the lattice structure without a need for vibration of the electrons of the atoms or molecules of that structure.

In fact one can say that the same electromagnetic field, which starts from one end of the superconductor, itself will be traveling out of the other end of the superconductor, irrespective of the length of the material of the superconductor.

In the case of conductors vibration of electron needs kinetic energy and hence loses, where in the case of superconductors the structure of the material is so that no electron moves, but the material has the ability to transfer the electromagnetic fields strength equal to an electron magnetic fields strength, hence literally no kinetic move, no resistance and no loses.

The superconductivity of the matter is lattice position structure dependent and this is usually better observed in sp³ or diamond-structured materials.

Thus in conductors, electrons have to move and in superconductors magnetic field strength equal to magnetic field strength of an electron needs to be transmitted, and as there are no physical motion of matters within a superconductor, thus there are no loses, this resulting in faster transmission of magnetic fields without losses.

Current and impedance

The origin of all motions in any material or environment is always magnetic field strength dependent. Where in the case of transfer of current in any conductive material for electrons to be moving forward or being capable to transfer current, the material or the atoms of it have in respect to their adjacent atoms two behaviours, one is attraction or gravitation and one is repulsion or outward motion.

In the connection of let say a power source to a energy consuming unit like a light bulb, the light bulb creates a position that has lower gravitational and magnetic field strength in respect to the sources' electrons magnetic field strength. Thus this negative gradient in the magnetic field strength causes the flow of the Magnetic field motion of the electron in the direction of the lower strength magnetic field, from the source to the component.

At the same time, as electron vibration is in the forward direction of the magnetic field strength of an electron towards the component and has to be maintained, there is a similar and opposite pull for the electrons of the conductive matter between the power supply and the components too. Where, this pull is the same as the gravitational field force between the power supply and the light bulb too.

Thus for the connecting wire to be able to keep its constituent atoms together, the atoms of the wire need to have equal repulsion and attraction in respect to each other and at the same time maintain the negative gradient in magnetic field strength between the component and the power supply too.

Thus for supply and component to be interacting that flow of the electromagnetic fields are maintain in between them and due to gravitation of one field to another, the reverse field flow or reverse attraction flow of the fields leads to gravitation field or equal to the field strength of the an electron magnetic field or what is call the impedance flow.

Where, the flow of the current equal to the strength of an electron magnetic field outward is the electromagnetic fields and the gravitational pull between two fields or the current of flow of attraction between the two fields, which create the pull of electromagnetism of the fields, is the impedance of the field.

Thus in fact we can compare the current and impedance to two Magnetic and gravitational field of the planetary system, one can say that the outward flow field of the planet or its Magnetic fields are the current or electromagnetism field and attraction or gravitational flow of the planet is the impedance fields in the matter, where the flow of magnetic fields are restricted within boundaries of a copper wire or an electric light bulb.

Note; At the point where the impedance or the current in a wire increase in one or the other, that is the point, where for example the wire separates and magnetic fields of the atoms of the matters can not hold on to their atomic balance Magravs as the increase in repulsion between the atoms of the wire causes the separation of atoms, and in the case large numbers of repulsion between atoms, then the separation or what is called in common language the melting of the wire occurs.

Where in fact the melting is not due to the heat, but in physical terms, the melting is due to repulsion of atoms of the copper due to not being able to maintain constant gravitational fields of atoms of the wire.

Experimental point's observation

In our reactors we have the ability able to release the energy of protons which has magnetic field strength by order of magnitude of about 2000 times of an electron magnetic field forces.

Thus one can see how small amount of plasma can create and release vast amount of magnetic fields that one can use these magnetic fields in their dynamic state for the production of electric currents or Magravs in a confined of a small reactor, that these can be utilised for motion and production of vast amount of electric current in conjunction with other field within or within the vicinity of these type of reactors.

Further the interaction of these magnetic fields for example with physical copper winding outside the reactor in a generator structure configuration can lead to creation of energy as we are use to in present generators, without single movement or vibration of an electron within the cores of the reactor and only is presence of plasma of fields equal to the field strength of an electron.

Conclusion

The electric charges, magnetic field and gravitational fields are all of the same and of one origin. Where the gravity is due to pulling effect of two dissimilar poles of the same plasmatic magnetic fields interactions and Magnetic field is due to repulsion of two similar magnetic poles, and electric current is due magnitude of the flow of magnetic field from one field to another.

Thus the ***grand Unifying field*** is the magnetic field, and the missing link has been to understand that gravity is the product of interaction of two plasmatic magnetic fields, mass is the difference between the magnetic fields strength of similar and dissimilar field strength (gravity and magnetosphere forces strength Fig. 25 of the book), and the energy is the measure of the magnetic field that is transferred between magnetic fields at the speed that magnetic field can travel within a given matters' medium, for it to be able to move from one magnetic field strength to another, and the electromagnetic current is the rate of movement of the magnetic field from one field to another and where the electromagnetic field is due to magnetic field strength difference and is the equal to the magnetic field strength of an electron.

Thus the unified and common field is the magnetic field, between the gravity, mass, energy, and electromagnetic field.

Thus the unifying theory for the first time is complete and it is fully understood.

Where *magnetic field interaction* makes **the gravitational fields** and the *flow magnetic field from one field to another* creates **the electromagnetic current**. Energies can be created, from any ambient, depending on what one wants to produce or obtain from these currents or fields.

Electromagnetism is created *as magnetic fields strength are transferred from one field strength to another* and in the process of the flow of magnetic fields this leads to creation measurable field movement or measurable current from what is called "electromagnetic fields".

This simple sentence brings the whole of understanding between magnetic fields and its flow from

one magnetic field strength to another and is the grand link between the gravity, the mass and energy and this finalises the long lasting missing link of the unifying field.

Now that one can understand that current is the rate of flow of magnetic field from one strength to other, and “the connection between electromagnetism, gravity, mass and energy” is finally understood. Thus the origin of all things tangible and their effects is magnetic field based and magnetic fields are the origin of all and unifying field in the world of creation.

Reference:

1; The Universal Order of Creation of Matters by M.T. Keshe (2009, ISBN 978-94-6087-001-9) Chapter 5.

*Magnetic field with capital M is the plasmatic magnetic fields created by systems like earth, which this spans beyond the boundary of their physical matter.

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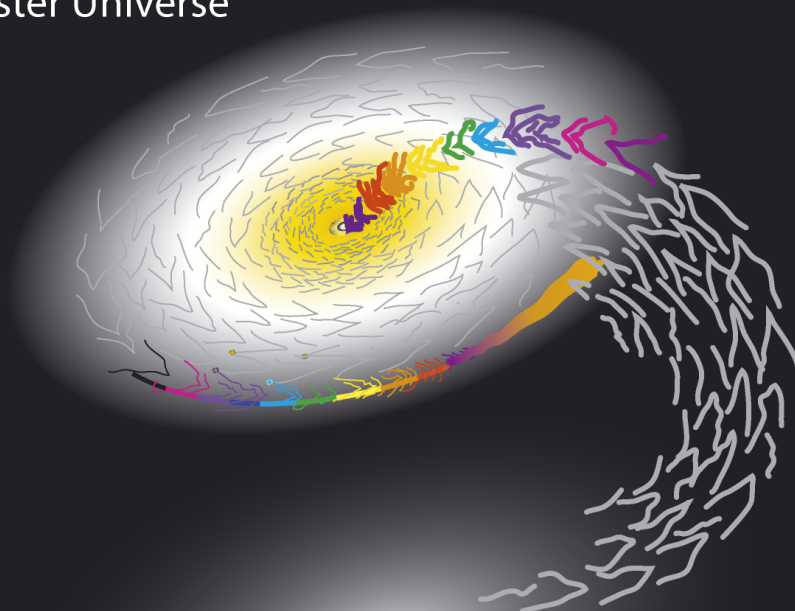
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THE ORIGIN OF THE **U**NIVERSE

M.T. KESHE

The Origin of the **U**niverse

Sister Universe



Man's Universe



Nuclear Engineer M.T. KESHE

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Stichting

THE KESHE FOUNDATION

(The Netherlands)

The Origin of the Universe

ITNOTGOG

Reflection

The creation of a new universe(s) is as simple as creation of an atom from the division of the neutrons, thus universes are made from division of bigger universes and the same shall be the future of this universe of the Man.

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Forewords

In the past centuries so much discussion has been about the origin of this universe, where in the recent times the groundless concept of the Big Bang theory has taken hold in the scientific world and been considered to the norm accepted fact.

It will be explained in this disclosure that there has been start to this universe, but not necessarily in the way as it has been thought and promoted by the present scientific world due to their lack of the understanding of the universal processes of the magnetic field division and plasma decay as it is the norm in the nuclear structure.

The origin of this universe has to be on the physical realities and in parallel with the rest of the cycles of creations and developments of matters and field as we have seen and observed around us in daily life and the creation of this universe cannot be an exception to rest of universal order of creations and operations.

Introduction

The present visible universe to man is a larger scale in matters and fields of what have been seen by man of science in the structure of the plasma of the neutron, and universes division occurs in the same manner and by the same principle as decay of plasma of neutron to plasmas of an electron and a proton.

The creation of this universe is the replica of the same process as decay structure of neutron but in a larger scale in quantities of magnetic fields strength and matters. This universe is not the only universe in existence and this universe is created through the same natural processes as other elements and entities in the unicos and through decays, division and amalgamation of other fields and elements in the inner sanctum of their mother universe.

Thus in truth there are as many physical universes as there are galaxies and solar systems and man's universe is one of the units in this overall structure of the greater mother universes.

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CHAPTER 1

The Universe

The term Universe to me as a nuclear physicist's has one meaning, and that is the more of the same magnetic fields of different strength as it is in the plasma of an electron or proton. Where, the total behaviour and operation of all magnetic fields and matters created by fields within the operation of stronger fields' strength catchment's in the centre of each entity is considered to be of the same and through the same and similar processes.

Where in the smaller scale entity the like of the plasma of proton we call the bigger and stronger entity to be is the Principal mafs and matter, or what is commonly is called the up or down quark in the present physics, where in the universal scales we call these the central the principal mafs line, where the other components within the plasma of the universe are exactly created and operate as the galaxies, solar and plasma of electron systems within these universes are created and operate.

Thus, the difference between the plasma of a neutron and the plasma of the universe is the size of the mafs of the fields which has come together to create that entity and otherwise all self-contained gravitational-spherical and magneto-spherical entities this being the plasma of proton to the plasma of solar system, the plasma of a galaxy or the plasma of the universe, they are all created through the same principle and operate through the same physical conditions and restrictions.

Where, under certain conditions of magnetic field or gravitational fields strength and positioning in certain parts of the these plasmas, whatever they could be, conditions can be created that allows the growth and suitability condition that clusters of fields can become active and sustain a rhythmic and coherent field interactions that these can lead to creation of certain types of repetition of the same fields in these plasmas.

Where, the repetition of Magravs of these types' fields within these plasmas of different scale can lead to creation and sustainability of continuity of being able to absorb mafs in motion from their environment that these clusters of fields can sustain long-term durability and exist-ability, or what we call to attain the process of life.

Where, different versions of life can exist in the plasma of proton as it does in the plasma of the solar systems as is on earth and different forms of lives exists in the plasma of the universe and universes within the unicos of the creation of the bigger structures of universes.

Thus, this universe or other universes, which have led to creation of this universe and the cycle of the life of this universe in time it will lead to creation of smaller universes, where these in time have all come from one essence of a larger fields entity(s) and in time as they divide and they become weaker, then in time these fields will gather together to create a different universe(s) with different field(s) strength properties (Fig. 1).

Thus, this universe is not unique and there are others, which are created through the same process(s) and there is remote chance that there could be another universe similar to this universe in the *unicos* (Fig. 3) of the creation, but not necessarily it will have the exact combination and structure of mafs and positioning of its fields and matters in its internal structure as man's universe.

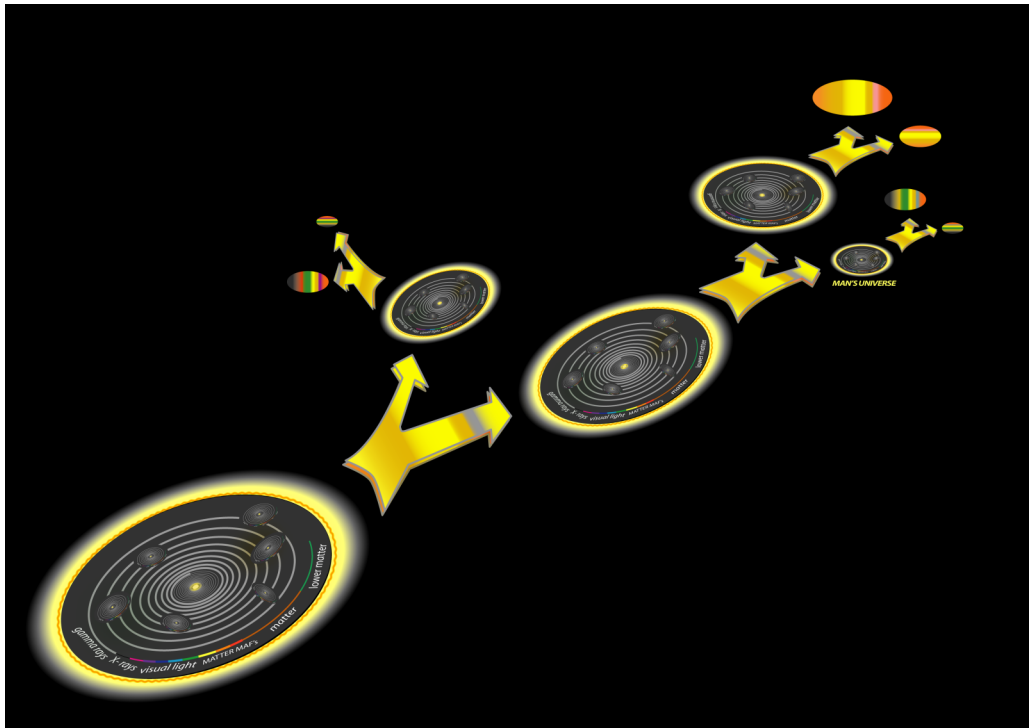


Fig. 1. Creation of new universes out of the division of a larger universe through the process of decay similar to the decay of the neutron in proton and electron.

In truth the universes are created with a long whisper as one sees and hears gases leaking out of cylinder or a balloon (Fig. 18 C and D), and more like trajectory line depending on the magnetic and gravitational balances of their mother universe and outside environment, which they are getting released into and as the release gases try to find their new position in the new environment, which they have been released into.

Thus the creation of universes are not made with huge sound and explosion but very much with a long whisper as the plasma of the larger universe is dividing and ejecting its matters into two or more environments to guaranty the survival of its overall Margrave strength structure. Very much as the neutron divides and creates the proton and the electron plasmas.

Then as each universe reaches it's own Magravs balancing positioning then it again divides and creates further universes (Fig. 2).

This has been the truth about the creation of this universe in the unicos and in time man will come to understand that the creation of unicos, universes, atoms and plasma are nothing but natural dynamic processes of the interaction of different amount and strength of magnetic fields at different time and position in the overall world of the creation.

Then the question becomes, where did it begin to start with (ref 23), then one needs to understand the truth about the levels and position differences of the origin of the magnetic fields.

This in time will be revealed to the men of real insight in the world of creation as the man at this moment is not mature enough to understand and comprehend the totality of creation of the universe.

If one reads all the writings' of the author, and if! and that is a big if, then the reader will understand the truth about the essence of creation and the origin of the creation. One will come to see its creator way of operation and purpose of creating such an intriguing mesh of unify principles in all levels of creation in all of unicos's.

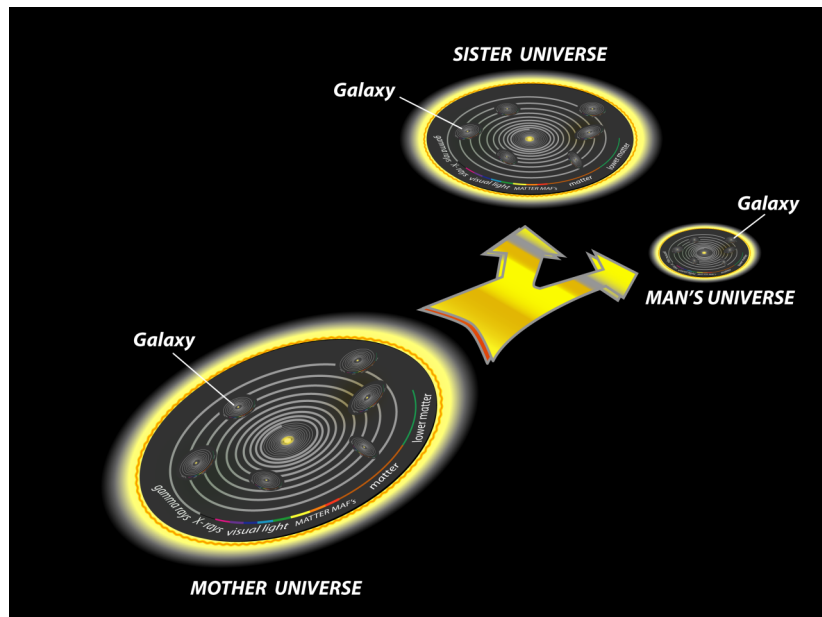


Fig. 2. The creation of Man's Universe after the decay of it's Mother Universe Magravs' maf's.

This shall be the point of maturity of the man to understand how feeble he has been created according to his understanding, where in fact he carries the whole of the world of creation within himself

CHAPTER 2

Theory of Expansion of the Universe

There have been theories and observational data, which support the concept of the expansion of this universe at the present time.

There are two aspects to this expansion theory of this universe, which each one has to be considered on the real terms of expansion of the universe that both can be scientifically acceptable.

In principle, it can be said that this universe cannot expand in to space in bigger unicos's space, if this space was not there for Man's Universe to expand into and to begin with. Thus this universe cannot be the only universal system that exists in the bigger **UNI**versal **COS**mology (unicos).

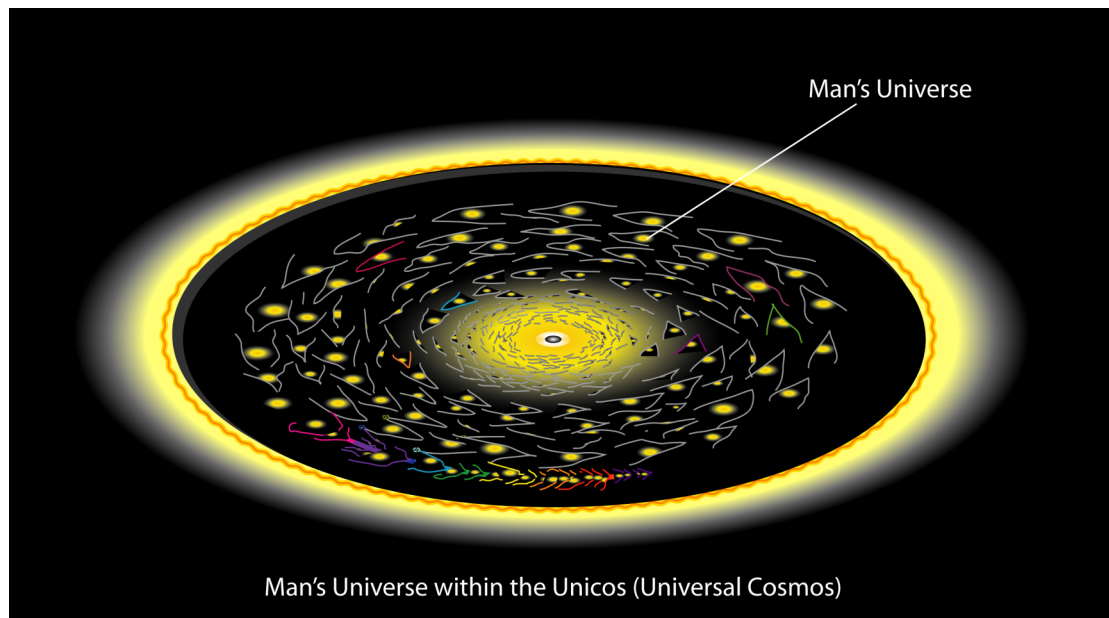


Fig. 3. The Unicos

The Man's Universe is a small fraction part of the unicos universes (Fig. 3).

This Man's universe is expanding due to two factors, *firstly* as the principal mafs of the central fields of this universe are unwinding they make available more mafs in the strength of different matters (Book 2) that as these fields open up they lead to creation of new galaxies and other entities, and *the other factor* is that the stronger gravitational fields environments which are outside the boundary of this universe's at the same time are pulling on this structure and keep it dynamic (on the same principle of motion of electron around it proton (Book 1, Chapter 19)), and the expansion of this universe in reality is part of the motion of the unicos as in the direction of the motion of all the universes in respect to unicos's internal central Magnetic and gravitational field forces interactions.

This meaning that if one looks at the overall directional motion of all the galaxies in this universe, it will be noted that not all galaxies in this universe are following the rest of this universe's galaxies on a straight overall spherical one line motion of expansion, but in fact part of this universe's galaxies overall line of motion is curvature and is following in the direction of the pull of an outside sister's

universe gravitational field force, which this is necessary as this universe is to find its balance and position in respect to other external fields forces of the same of other universes in the unicos (Fig. 4).

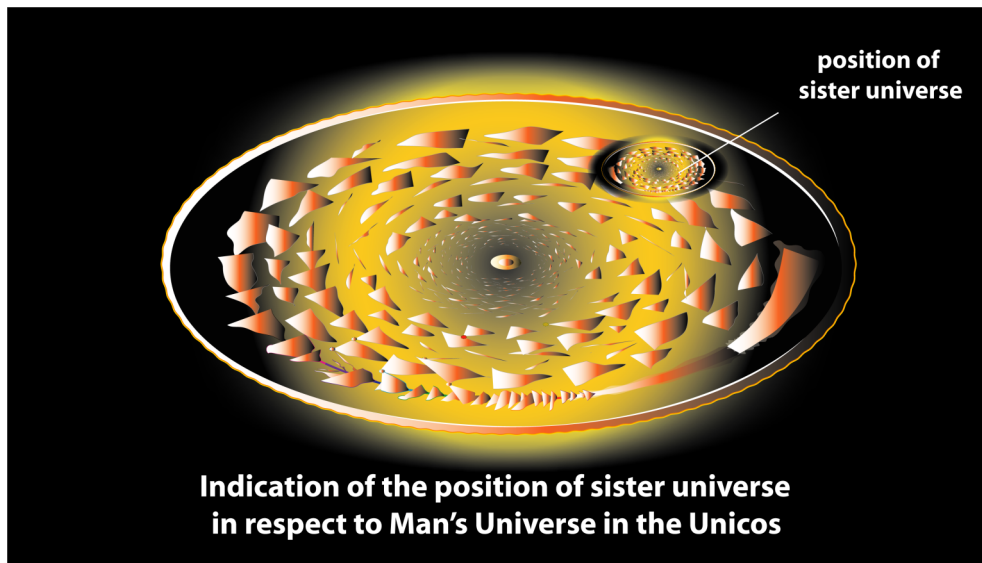


Fig. 4 The position of the sister universe in respect to the Man's Universe.

At the same time each universe possesses a central principal mafs and matter point and or central principal matter line, where these mafs strength and quantity of in this centre point or the centre line dictates the size of any universe and at the same time the Magravs created by this is like a Principal star and line in the centre of the universe that this dictates the position of the universe in respect to other universes in the unicos and this Magravs strength of the central line dictates the matters which are attracted and created in that universe and the matter and content of Galaxies' in respect to itself and no other matter in that universe.

Where, the total mass of the mafs and transition mafs in a galaxies are about less than five percent of the total mass of the universe principal matters and mafs in its central line and its principal star.

Thus the positioning and directional motion of the galaxies in the universe, the same as in the solar systems is dictated by the mass of the Principal mafs and mafs in that universe central principal mafs and star in the centre of that universe but in larger order of magnitude of contents and due to no other factor.

At the same time as the universe is created out of the ejection of the large quantity of principal mafs and matters and have motion in their time of creation, thus it is more feasible to consider an stretched line of principal matters and mafs across a central line of the universe rather than a centre point universe star of principal mafs and matters in the central line of universes.

Therefore the mass of the universes are measure of their principal mafs and matter content, which their Magnetic and gravitational field forces dictates every motion of matters in galaxies in that universe, hence strength of the principal matters and mafs in the central line and central principal star dictates that universe's-magnetosphere, gravitational pull sphere and the mass of that universe.

To understand the process of creation of mafs and matter and elements in the universe, one needs to look at the smaller scale universe, which are similar to the constituents' plasmas and the structure of an atom, its creation from division of the neutron to a simple hydrogen atom with it's plasma of electron and proton, the way they are created from neutrons division and the mafs which are released in the process of decay of the neutron into its environment, leading to creation of the simplest atomic system of Hydrogen.

Where, any mafts realised through and during the process of the division is not necessarily transferred to the newly created plasmas that lead to heating of the two new plasmas of the proton and electron.

Thus there could be some heating of the plasma of the electron and proton during and due to decay of its mother neutron, but this energy may and possibly and do *not necessarily is transferred totally that leads to heating up of the plasma* of the proton and electron.

Therefore the same applies to the division of this universe, when it was created ***from the decay of it mother neutron universe***. Hence there are no logical reasons that the universe was heated and was hot and it has cooled for elements in this universe to be created due to creation of gravitational field forces.

As in the production of two parts of the plasmas of an atom (1) from the division of the plasma of neutron, the present assumptions in physics that the first atoms in the universe were created ***when the universe cooled***, this theory is not and cannot be correct and in reality *atoms are created through change in the plasmatic fields strength of the mafts of the light*, secondly at the point of creation of the universe, the universe was not hot and there were never high temperatures that the cooling of the universe has led to creation of the first atoms as presently commonly stated. The first atoms and universally all first atoms' the like the atom of hydrogen in all mafts strength in the universe are created through the magnetic field strength reduction of the principal mafts and through no other means.

The concept of creation of heat and high temperatures at the birth of the universe is not observed in the creation of plasmas of electron and proton, when the plasma of neutron decays and divides into an atomic structure, and in the universe there are always continuity and parallels, thus the universe has never been hot that has cooled down to create atoms, and this is the reason why W-MAP (1) shows at present balance heat distribution in this universe (Fig.5).

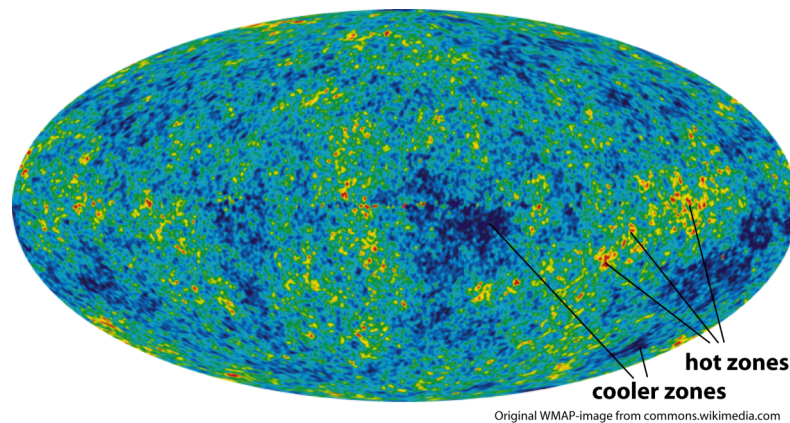


Fig. 5 The universe heat distribution map (W-MAP of the universe)

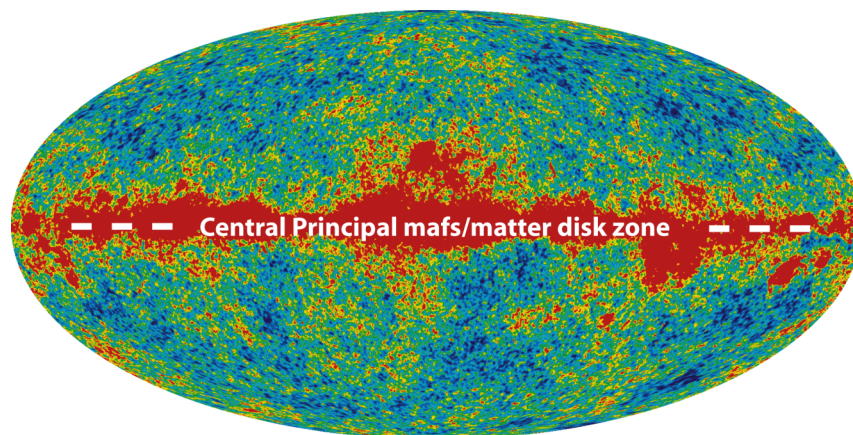
In truth the current assumptions of initial heating of the universe at time of its birth cannot be true as the initial atoms of the universe and present atoms were and are created from the original principal mafts strength, ***which radiated out as principal lights rays of the universe*** in the centre of the universe and the initial atoms and matters of this universe were not created through cooling of the universe at the point of inception of this universe, which this universe itself is created from the decay and division of bigger mass of another universe as it happens in the division and decay of plasma of neutron in two plasmas of proton and electron. One does not observe heating in the plasma of electron or proton in this division and so be it the same, when the bigger universe divided and led to creation of this universe of the humans. (Fig. 18).

In fact, if! The universe was created by the present scientific assumption then the W-MAP should have shown cooler region in its outer boundaries than the present near homogenous heat distribution, which has been physical observed and from collected data by the publishers of the universal heat distribution map of the universe.

The heat distribution and the heat concentration on the central line of the WMAP confirms that the universe started from a central line in the middle and as the principal mafs of the universe unwinds and reduced in strength (Book 2) then the *transition mafs* and the *matter mafs* were released and created, and as these were spreading outwards into the space of a larger universe (Fig. 1) from its central line ejected mafs into unicos, then as the Magravs of the principal mafs in this central line region are converted and are reducing in strength, then the overall unified oval-spherical shape explanation of the WMAP come to exist.

Then as the total Magravs of the central principal matters reaches the point of the equilibrium of its forces, then at that point, this becomes the boundary of the universes boundary or becomes the plasma of the universe. At this point where they Magnetic and gravitational field forces cannot hold on to all the mafs and matter of that universe and this become the point of the limit of the expansion and the boundary of the universe and the envelop of the mafs at the given point in time, which are under control of these forces from the central lines principal mafs of that universe, where this expansion line becomes that universe's magnetosphere boundary line.

Then, When a point in the cycle of the life this universe reaches that the overall strength of the Magnetic fields and gravitational fields of the central line principal mafs and matters cannot hold to their overall fields balance, then at this point this universe will go through a division the same as the division of neutron decay and all the matters and mafs at this point rearranged and regroup as and in the principal strength mafs and the universe then divides into two principal mafs of lesser masses of universes, which these new universes are magnetically interconnected as proton and electron do after the division of neutron and then these new universes go through the same principle of the principal mafs light unwinding and the same process as creation of new universe carries and central line as before.



Original WMAP-image from commons.wikimedia.com

Fig. 6 The microwave heat distribution of the universe shows a concentrated heat in the centre disc of the universe

That is to say through the principal mafs and matters are the way that universes divided and arrive form another universe to start a new universe and as the light in the principal mafs strength unwinds' in its new environment then the new envelop of the new universe starts to be created.

The same and similar process occurs, when the neutron decays and divides into the plasma of the proton and electron.

Thus, the universe is not created as a big-ball of fire which has been cooling down as has been promoted, but in fact the universe is created the like of as *an ejected principal mafs* is injected into a new area in the unicos and as the new universe environment and as the principal mafs radiate outward as light of stronger mafs, then as the weaken and radiate outwards in their new environment, then they create the other matters mafs and matters in this new envelop depending on the given pmtics strength of a given region in the larger process of this unwinding of the principal maf and matters and its lights (3) in this newly born and expanding universe.

Therefore: this universe is in fact created inside out rather than what has been assumed up to now that as it cools down to what it is, which this explains why even the universe is observed to be expanding, as the reason for expansion of the universe is being due to the presence of principal mafs in the centre of the universe and as principal lights of the principal mafs radiate outward, these light rays of the principal mafs strength while traveling in their new environment they reduce in strength and this leads to creation and transition mafs and matters, which further on losing its strength creates new matter mafs and matters according to given environments magnetic fields strength and in a given point pmtics, hence the creation of new mafs and matters and so forth, which this leads to creation of atoms and molecules and stars and so forth in this universe and its galaxies and solar system through the same principle.

Thus there has never been a Big Bang and the current appearance of the expansion of the universe is due to the principal maf, which as unwinds, it creates the expansion of the universal-sphere of this universe (3).

This method of the creation of the universe now explains' why there is a central gravitational matter concentration in the universe and as this pull is centred in the dynamic principal central line, which the original principle mafs were ejected out of the mother universe when it divided, where the injected principal maf of the universe at the time of its inception can be seen as the red line in the W-MAP (Fig. 6) which the more concentration of the mass of the principal matter sets in the central disc of the W-MAP and as these principal mafs create their own magnetic interactions, hence these create their own sphere of gravitational and Magnetic fields and thus the central gravitational of the universe is in the centre of the denser point of principal mafs of the centre universal heliosphere of this universe and as the more principal mafs are unwinding and spread outward are reduced in their strength they principal mafs become transition mafs and further as they reduce in strength they become the matter in the unisphere of the universe and as the principal mafs open up and reduce in their environment this leads to creation and expansion of the balloon of this universe in the unicos, and this explanation resolves the present mystery in the scientific world that, how and where the central gravitational pulls and the expansion of this universe which has been observed by scientists of the universe comes from.

This is how the plasma of the neutron decays and divides into plasma of the a proton and an electron too, where the different quantities of matters and mafs of different strength of the neutron are divided and injected in two new areas in their environment, that their overall Magravs of all their mafs are as original components that the plasma of the electron and proton concurrently maintain their overall Magravs of the original neutron Magravs (Fig. 7) and then as the matter and mafs unwinds and interact they reach given overall Magravs level and position as the new plasmas of the sub-components of the atom are created.

Where, this process of division of neutron due to micro-level of masses involved, these appear as an instantaneous process of creation of proton and electron, where the same applies to creation of universe and larger universes divide to guaranty their overall existence in the unicos.

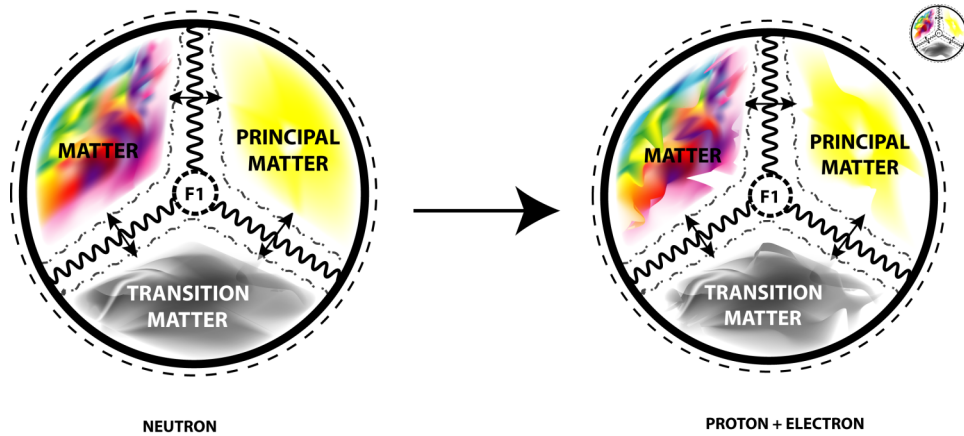


Fig. 7 The conversion of the plasma of neutron to plasmas of the proton and the electron.
The same process is considered to occur when the universe divides (3).

This being the reason why the proton and electron in their process of creation *do not get heated* as a Big Bang theory suggests but as different portions of principal mafs of the neutron which become parts of the plasma of the proton and electron unwind and expand from the central line of their centrally disc which they are rejected into their environment by the division of the neutron, and as *their principal maf unwind* in this disc to the *transition matter* and then, as they weaken further, they create *maf and matters in tangible mafs levels*, the like of the plasma of the proton and *all other fragments of pmtics and magnetic fields* in these new plasmas (Book 2, Chapter 1 and 2), in these processes of creation of new smaller plasmas of there is no Big Bang and there is not heating of the plasma of the neutron and electron (Fig. 8).

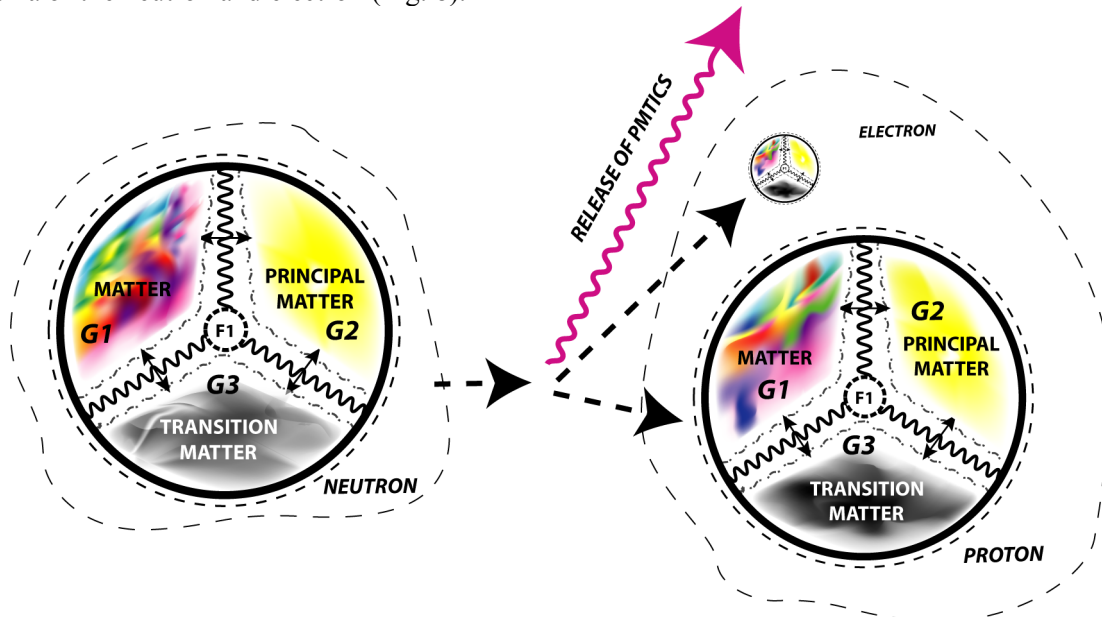


Fig.8 Decay of plasma of neutron in plasma of proton and plasma of electron.

Hence the theory of Big Bang is not correct and has no meaning in the real world of creation.

The same process can happen with the *ray of the light* originated from principal mafs strength (what is called the **principal light**), when this principal light arrives in the principal mafs strength environment and hence the first fundamental neutron principal plasmas and principal atoms' can be created in that given environment through the same principle as atoms are created in the matter strength environment (1).

At the same time the Magravs strength of the **Principal Universal Line Maf's** (PULM, the central line of the universe)(Fig. 9) dictates the position and attraction of other matters, stars and galaxies' in that universe in respect to itself.

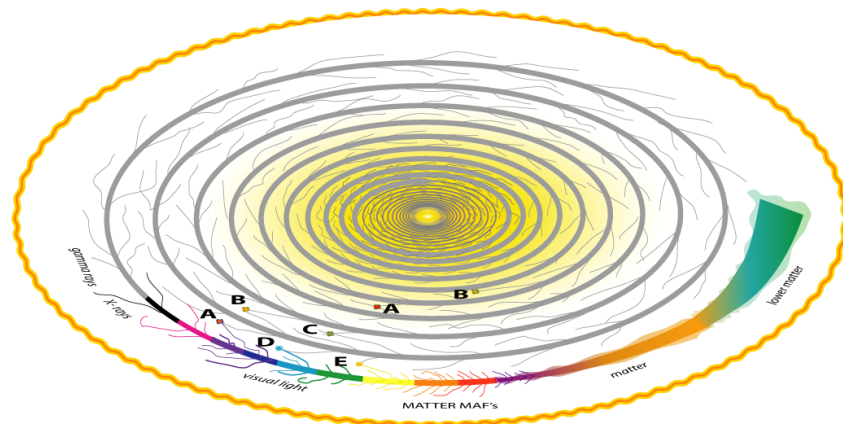


Fig. 9. The Principal Universal Line of Maf's.

The total mass of the matter maf's is about five percent and transition maf's of the matters about fifteen percent in any universe and is the same as with galaxies, solar and plasma of proton systems in the universe. The reason for this is due to the principal maf's (Fig. 10) and mass conversion and conservation and motion as they move within the plasma of the universe and lose their strength and reduce to transition, and matter maf's. Secondly if any mass more than this ratio of principal maf's is converted and stays within these systems, these can lead to unbalance and faster division of the entity, this be it plasma of the proton, neutron, solar system or universe.

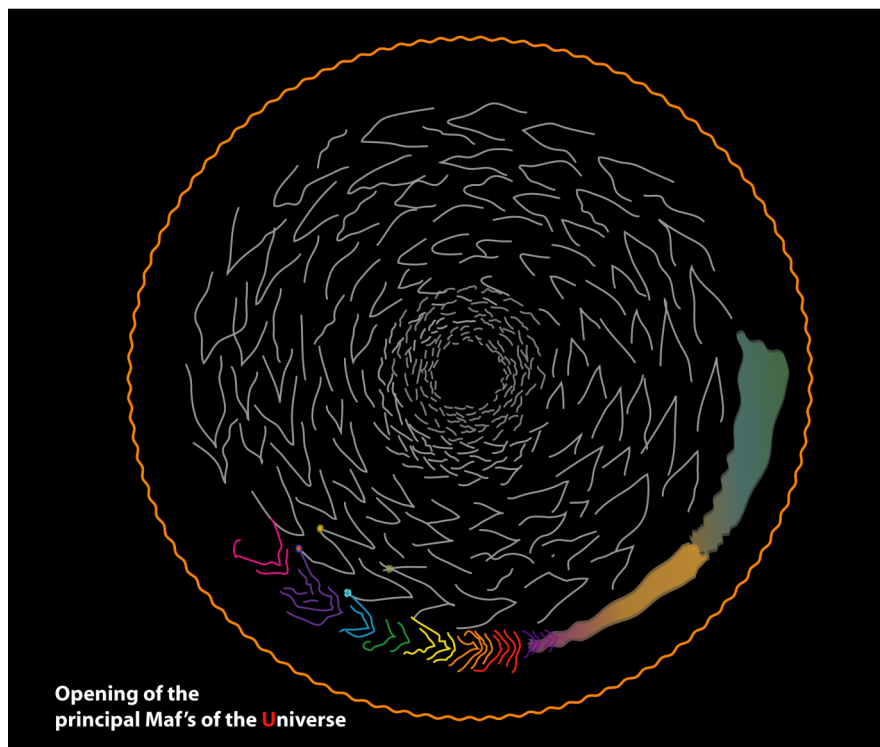


Fig. 10. The principal maf's of the Universe.

Thus, the positioning and directional motion of the galaxies in the universe, the same as in the solar systems is dictated by the mass of the principal mafs and matters of the principal mafs of the universal line star mafs (pulm) of the galaxy and no other factor.

Therefore the mass of the universe is the measure of the difference in the interaction of the Magnetic and gravitational fields' forces that the principal mafs contents of the principal matter in the universe can produce and maintain. The same measurement principle applies with the galaxial and solar system.

Once these principal stars are formed in the universe then the Principal stars and the lights which are releases and radiate outward from the pulm becomes the means and the supplier of pmfs and nourishment source to all entities in the internal plasma environment of that universe, these be it galaxies, solar system atoms and so forth (Fig. 11).

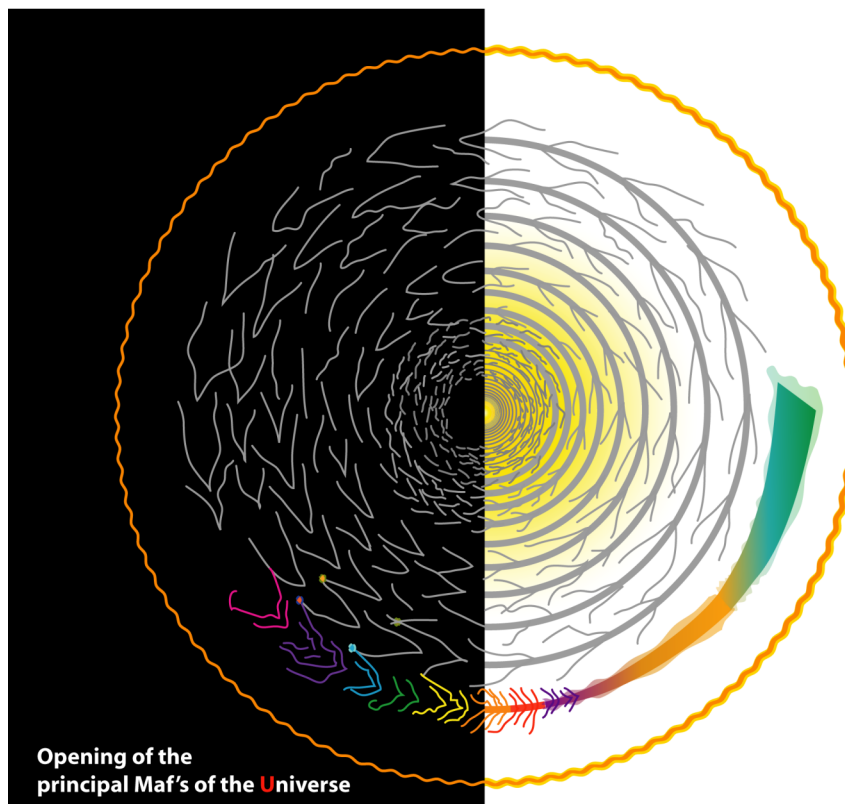


Fig. 11. The unwinding of Magravs in an entity.

The same applies as to the galaxies, solar systems and plasma of proton systems too, where in fact in the centre of each galaxy, solar system and plasma there is the principal star (Fig. 12) with a plasma of principal mafs and matters and as these unwind, expand and spread within the Magnetic and gravitational fields which they create, these releasing, opening's and loosening of principal mafs in the pulm leads to creation of transition and then matter strength mafs and matters in the envelop of the magnetosphere of the universe leading appearance and creation of principal matter in the galaxies, solar and plasma systems, exactly the same as it has happened and has led to the creation of the plasma of a neutrons, stars, galaxy's.

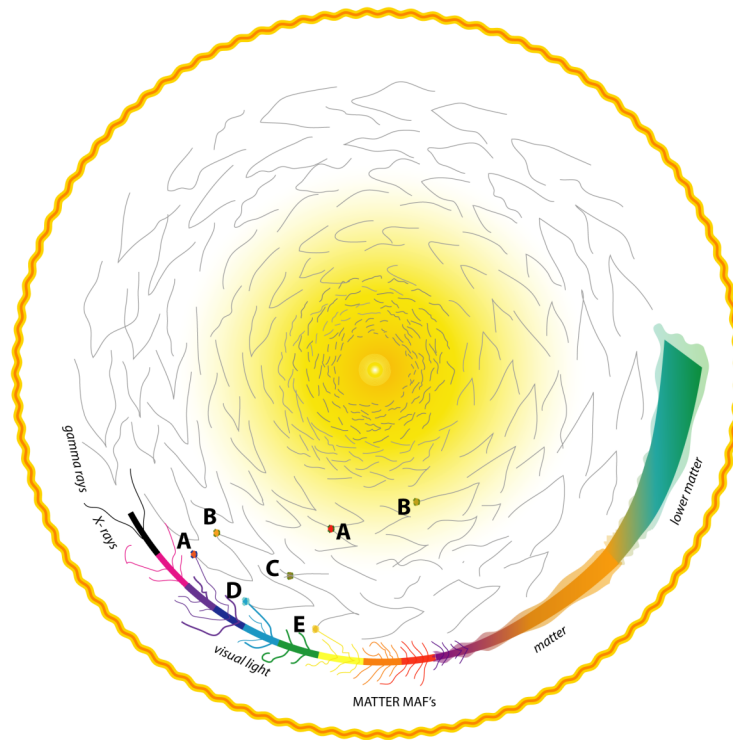


Fig. 12 Plasma of the Universe: any entity can be created anywhere in the Universe as long as the appropriate maf's strength of that entity is reached through reduction or interaction of maf's of the Universe

Where, A(s) are the universal magnetic fields oceans in the form of fields forces or light, where sea of lights are created by the interaction of the fields which these can be in any light strength of matter, transition or principal magnetic fields strength, B(s) are universal matter oceans, C (s) are the transition matter and maf's oceans, D(s) are galaxies, E(s) are sub-matter maf's and matters oceans in the plasma of the universe, where all these entities they are created due to and through the interaction of the residual fields which are released by and through the release and separation of fields from principal maf's and transition maf's and matter maf's of the main or the subsequent divisions of these maf's as the principal maf's of the universe open up and divided and expand in the structure of the plasma of the universes' Magravs (Fig. 13).

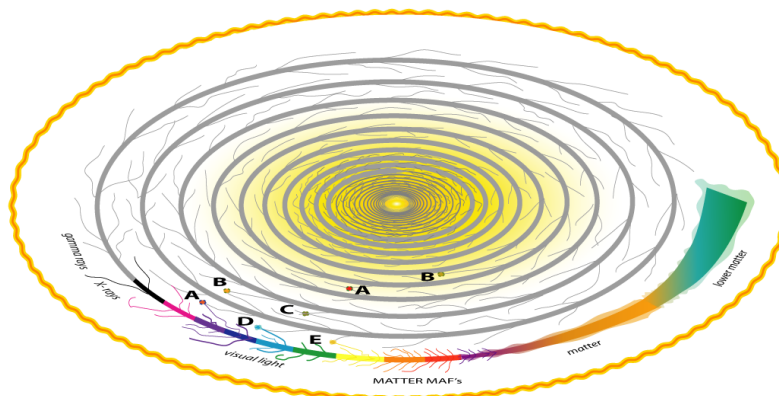


Fig. 13 Plasma of galaxy: any entity can be created anywhere in the galaxy as long as the appropriate maf's strength of that entity is reached through reduction or interaction of maf's of the galaxy itself or its Universe's maf's

Where, the same principle applies to the structure of the creation of stars and planets in the galaxies and solar systems, and where the same process of creation of matters and fields is applied in the creation of entities in the plasma of neutron, proton and electron.

Where, A can be the point of creation of a star, a B the black hole, C the creation of planet in the solar system, D the cloud dusts and E the magnetic fields ocean of the galaxy.

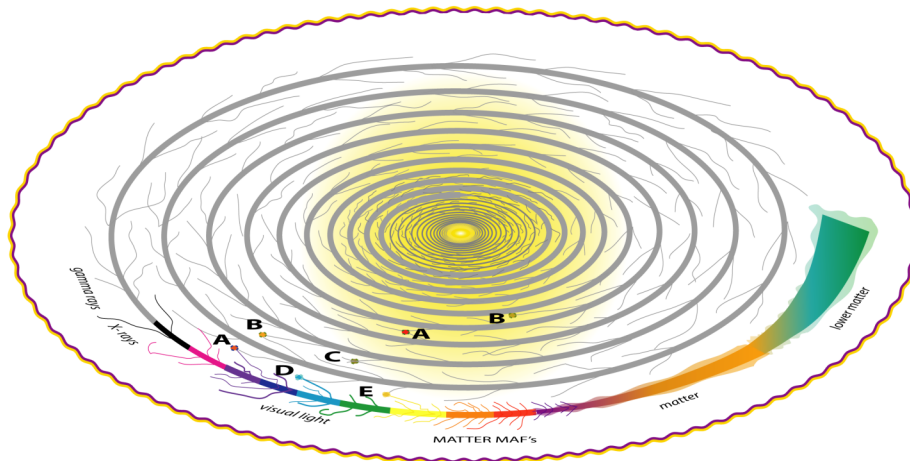


Fig. 14 Plasma of Neutron: any entity can be created anywhere in the neutron as long as the appropriate maf's strength of that entity is reached through reduction or interaction of maf's of the neutron and it's galaxy itself or it's Universe's maf's.

Where, A can be the principal matter, B the transition matter, C the matter, D are the fields in motion, E are dust of matters in creation and motion within the plasma of the neutron (Fig. 14). Where even the creation of the X-rays and gamma rays are normal features of the plasma of the neutron as one observes in the process of the existence and operation of the galaxies (Fig. 15) and universes plasmas.

The universe as the plasma of the proton can expand according to the amount of the transition matters which can travel away from the principal matter line, and hence the expansion of the universe or plasma is dictated by the amount of the transition matter and maf's and speed of by which the principal maf's and matters can release which the pulm can hold on to the total Magravs of its structure. Now this can explain why this universe through WMAP (Fig. 5 and 6) shows to be more oval than sphere in shape.

On the other-hand the shape of the WMAP being oval can explain the same characteristics as one observes in the major composite gas planets in the solar system as they are not fully sphere in shape, but have more flat poles.

The oval shape of this universe confirms the existence of a central principal disc point in the centre of the universe and the flat disc spread shape of the principal maf's distribution in the central line disc of the universe.

At the same time the uniformity of the speed of the objects in the universe and galaxies shows the connection between the principal maf's release in the pulm.

This confirming the real process by which plasma and atoms are created and appear across the universe, where their accumulation leads to the creation of cosmic dust, stars and planets.



Fig.15 Galaxy (Source: Hubble)

Where, the concept of the cooling of the universe leading to creation of the atom becomes to be meaningless, as the creation of plasma and atoms is totally due to reduction in the mafs strength of the principal mafs to matter mafs strength and has no connection with heat or cooling inside or in any position in the plasma of the universe.

Where, the heat in different points in the plasma of the universe has only have the effect once the plasma of matter is created, then the environmental temperature in any point in the universe ***only dictates if the plasma in matter state will manifest itself as gas, liquid or solid.***

Then in fact this brings a question mark on the theory of time and space as then time will have no meaning as a new plasmas of atom can be created in the far corners of the universe from high speed mafs of the principal mafs which left the pulm, where some mafs go through the mafs strength reduction before arriving in the same point in the plasma of universe.

Thus; the theory that the whole parts of the universe are created about the same time and the more ancient galaxies are in the centre of the universe in some extent ***is not correct.*** As matters in the universe move as their Magravs positioning dictates and hence some components of the universe move in such a rapid way which are not visible to the present technology available to the man.

CHAPTER 3

The method of transportation of mafs in different mafs strength in the universe

In all dimensions of the universal mafs strength, these be it principal matter, transition matter or matter environment, for the plasma of these matters to travel with the maximum speed and minimum loss of mafs to their environment, in all dimension of the universal mafs levels, the spherical shape plasma of the matter transforms itself to elongated plasma of itself or what is commonly is called as a ray of light (Fig. 16) (Book 2).

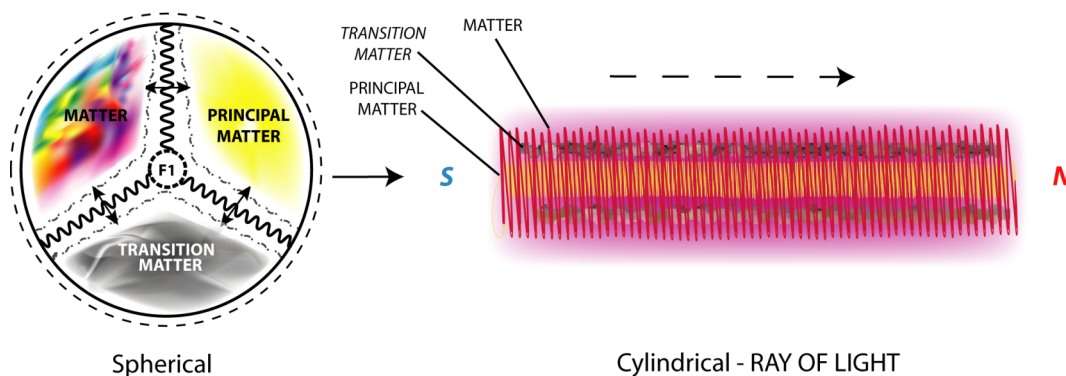


Fig. 16. Conversion of the spherical plasma of a neutron in a cylindrical ray of light.

That is to say for example as the principal light goes through the Transition fields regions of the universe, then the transition mafs and matters of the ray will come to take their position ***on the outer layer of the ray***, then through this process less pmf are used in interaction with these fields and matters of their environment and hence less friction and less loses of mafs of the ray, and in these interactions there are very little loses through the Magravs of the mafs of the transition mafs of the light.

Then any faint lights produced in the interaction of these rays outer mafs transition matter and of the same transition matters in the universe, where there are very few interfaces of the collision between the ray and the environment Magravs this gives the universe a dark but translucent effect that one can see through the universe.

In a way this interaction of rays transition mafs and universe's transition mafs is the cause and the reason for the invisible transparent structure which allows the production of universes discreet light that one can see through this universe but blocks the opportunity that one cannot see the lights from the universes outside this universe.

The most important point to understand is that light exists in all mafs strength levels in the universe, that is to say *there are lights in the principal mafs strength as much as light in the transition mafs strength and as man observe there is light in the matter world of the man.*

It has to be point out, that as one hears sound boom in the matter world when one reaches the speed of sound in the matter environment, or what is called the sound barrier, the same applies when the systems developed by man reach's and passes the ultimate speed of the light in the matter environment too.

That is to say when rays go from lower level strength to higher level strength mafs, one will hear audibly and will feel the vibration of the passing the light barrier.

This sound will not be a one of boom as when the sound barrier is broken, but due to the spectrum of the light transition forces, this noise will be more like a continues varying and long boom and roars. Therefore one will hear a long term tunes and not just one of noise.

This applies the same as one passes the transition mafs environment into principal mafs strength too.

Thus light speed barrier will always be the speed of the light according to man's mafs of his amino-acid and the visible light in all mafs strengths, which are the universes' creature's structures' mafs strength dependent.

When, the man become habitual to travel with the speeds faster than the mafs of matter strength, then on frequent bases man will hear a roar of a noise as passing the light barrier limit.

There are lights in all levels of the matter and mafs strength in the universe, that is to say there are lights in the principal mafs strength specific to that mafs strength environment, which is not necessarily the same as the white light as one observes in the man's matter world and at the same time each light has its own speed which is dependent on the mafs strength of its environment.

Therefore there are lights in the transition mafs strength as much as there are in the man's matter levels.

There are rainbows (Fig. 17) in all levels of the mafs strength in the universe as there are in the matter mafs strength of the earth. The light in all mafs can diffract according to the Magravs strength of the mafs of the given environment.



Fig. 17 The colour of rainbow according to the Man's pmtics strength in Earth Magravs strength.

CHAPTER 4

How matters are created in the universe

In the spans of the solar systems, galaxies and cosmos as the **gans** and **atom of the hydrogen** interact, *they create the first seeds of creation of more powerful Magravs* that leads to *attraction and conversion of other light rays in the universe* into gas, liquid and solids, which these interactions leads to creation of galaxies, stars and planets, where the light itself in different strength becomes the tools of the division elements the like of the hydrogen for it to start the cycle of creation of lives and the creation of intelligence in all corners of the universe (6).

The *gas and gans of hydrogen* becomes the dynamic fuel source of creation of the magnetic fields necessary for the creation and establishment of the stars and solar systems and their planets in some parts of this universe, as the interaction of different magnetic fields of gases and ganses lead to the creation of the initial Magnetic and the gravitational fields needed for these celestial bodies to be created in the universe.

The existence of nano materials in the core of the planets like earth has been initially disclosed (1), now it can fully be understood that how these nano materials in state of nano matter, gas and gans become to exist in the centre of these celestial entities and be the initial seeds of their creation once the mafs of the principal matter is reduced to the mafs of the matter strength.

It is important to realise that due to internal structure of the nano materials in *layers* and in *gans state*, these materials by large keep their structural integrity, where high external environmental matter conditions like pressure and temperatures cannot affect the total structural integrity once they are in individual matter gans compound state. This meaning that internal structure and molecular binding of gans and nano materials in nano layers or composite structures *will not be affected by the matter environment's the likes of temperature and pressure condition of the environment*. But the gans will be changing in its structure when conditioned to high-level dosage of radiation. Thus such entities have monoid characteristics.

For example, this is one of the reasons, why the DNA of the human being is venerable to changes and absorption of radioactive energy and in the radioactive environment or to burst of radiation, as the real structure of the amino-acid of *the protein of the DNA chain is made of gans of matters* and not solid matter of the same gases (6).

Thus, gans is the state of the structure of the light which has changed from dynamic cylindrical plasma of magnetic fields to a dynamic spherical entity of the same matter mafs, which its state of manifestation in matter environment is internal gravitational dependent and not environmental condition dependent. That is why one can observe the same element in coldest and hottest regions of the universe and still misreads them as atomic matter rather than nano-atomic or gans of the same matter.

Thus as mafs strength of the universe changes according to mafs available in any given part of the universe, this allowing the production or appearance of plasma of any matter which the mafs strength allows it become in that point in the universe.

Thus this why in one part of the universe one observes the hydrogen as in some parts helium or even gold can be observed without actual existence of any hydrogen atom any other matters.

In some part of the universe the matter take up their nano crystal structure, that the same matters looks to be the diamond structure of its parallel matter in another environment in the same galaxy or universe's environment.

Thus matters are created and to be part of the structure of star and planets or being in the universe according to the mass strength of the environment and then they become appear in state of gas or solid according to the pressures and temperatures of that same given environment.

CHAPTER 5

The theory of decay and division of the universe(s)

In reality all theories which have been put forward up to present time have no parallel in the universe as has been observed by scientists.

In the universe everything and every process has parallel. In the universe there are always parallels due to the magnetic fields laws of interaction, and hence there cannot be any divisions from these laws.

At the present the scientific world has been intrigued and encouraged to understand the phenomenon of the creation of this universe and scientists have to unravel the mysteries of the creation of this visible universe.

In fact the creation of this universe as is visible to the world of science cannot be any different than any other process in the world of creation, and this universe has been created through the same principles as the rest of the magnetic plasmatic nuclear and atomic additions and divisions of entities in the universe.

This meaning that the present universe is created though the same method as has been observed in the division of the neutron's plasma into plasma's of electron and proton or smaller and/or bigger components of the same Matters.

Hence to follow the principle of the universal order of matters, this universe is created from the division of a larger universe that the man's visible universe is or can be the smaller part of the division.

The reason for it being the smaller part is that in the present cosmological term, this universe is following the attraction of the bigger part and hence it is always in the motion to follow the Magravs of the bigger sister .

This being the reason why it looks as the universe is always expanding as the external field forces pull and pushes the boundary of this universe mafs and as part of the universe has been noted to be collectively following different path of motion than the rest of the universe.

The portion of the independent motion of this universe is the indicator that where the bigger portion of the division of the pervious universe is in respect to the man's universe.

It has to be said that the original universe through the same principle of decay of neutron to plasma of electron and proton (1) and similarly as the decay of heavier atoms to two or more lighter atoms, through the same principle as the mother universe of the man's universe as itself has been created and was created from the division of a larger universe through the same method of decay and division.

The difference in the universe creation and decay is in principle merely is the size of the plasmatic field content in comparison to plasma of electron or proton after nuclear decay and division of the neutron.

Thus in fact this present universe itself is and was created some billion of years back from the division of a larger universe (Fig. 18). Where in Fig. 18 A to G, step by step the phases of the unbalance of the Mother Universe, it's opening and as the fields disperse in to two different zones in the unicos, where

these fields interactions and Magravs positioning with Magravs of the Mother universe leads to the establishment of position and placement of two new universe entities, where the same process of decay of neutron and creation of Hydrogen atom occurs.

Hence every time as it is the same with division of the plasma of neutron to plasma of electron and proton, in this division the new universe carries the characteristics of its mother's universe, but due to reorganisation of magnetic fields and their strength the new universe will have a new and fresh cycle of time, which this shows as the age of the new universe.

In fact this being the like of giving birth to a child, where the age of the mother is irrelevant once the new seed of life is created and once the child is born, even though; the new child carries some of the same DNA fingerprint of the parents. The new life has its own cycle of life and its own timing.

Therefore the theories of Big Bang and M-11 as has been proposed in the past and present have no meaning and have no parallel principles in the physical world of creation of universe. One does not see the same Big Bang, when the atoms and neutron go through division or decay, hence this cannot be the same in the division of universes too.

Then if this was so, then every time an electron is created from the division of neutron there must be a Big Bang, This proposed principle is nothing, but showing the man's and scientific worlds lack of knowledge and ignorance of the real terms and parallel entities existence of all units in the universe.

In fact once the division is created and the universes are created, then the rest of the materials and matter content and how they organise themselves in that universe is more or less follows the same principle as before and once the fields are released within a given Magravs which the fields can created in interaction with each other, then the size of galaxies, stars and planets and even creatures within that given Margraves strength of the newly produced universe are determined.

The mafs and matters as arrive directly into the new universe are mafs first which can change to matter then divide between the two universes and then new matters are created in the new universes independently according to the Magnetic fields and gravitational fields in interaction with each other these mafs can achieve to maintain and create. Thus all universes in content are not and cannot be the same in material and mafs strength, and content of each universe are dependent upon the internal interaction of fields which are transferred into the new universes.

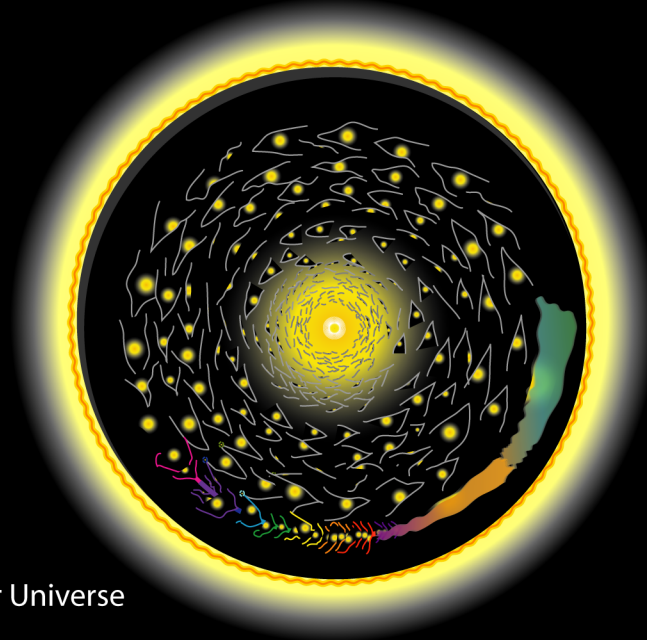
The new structure is dependent on the fields within the new universe and their internal motion of the new universe is internally determined by the total mass which the interaction of the Magnetic fields and gravitational fields of the universe can master.

This new universe has all the attributes and mafs of its mother's universe, where the subsequent production of mafs and matters like Principal matter and Principal Matter, planets, solar systems and galaxies and so forth, are nothing but the consequential outcome of all other effects in a given universe.

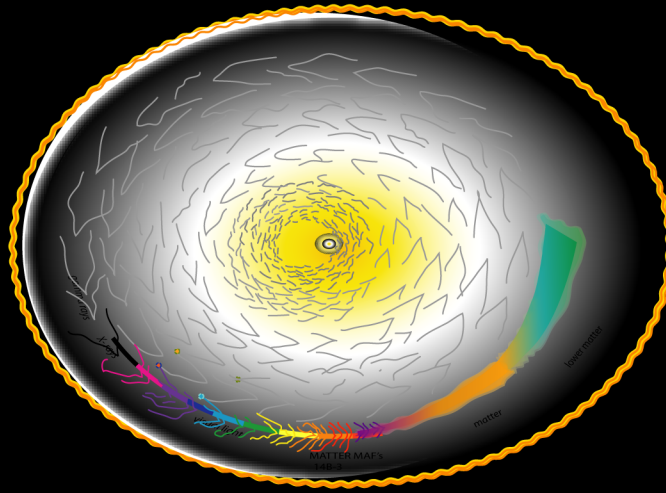
Thus in other universes there could be ***no physical matter*** the like of hydrogen and where for example hydrogen can be *only in nano or gans state only*, thus the life in these universes will be in order of fields and mafs strength rather than matters in this visible section of this Mans' universe.

But if this universe has the same structure as its mother's universe and co-birth universe, then this universes can be a micro replication of a bigger version, where these universes are macro version of the total universe in the greater universe.

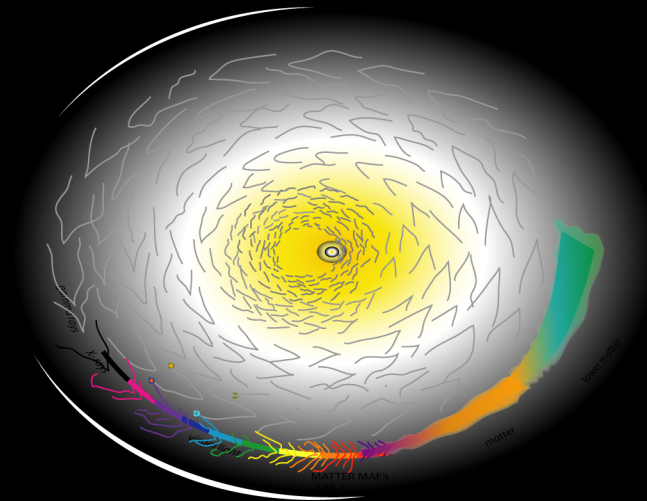
Phases of the decay of the plasma of a Universe



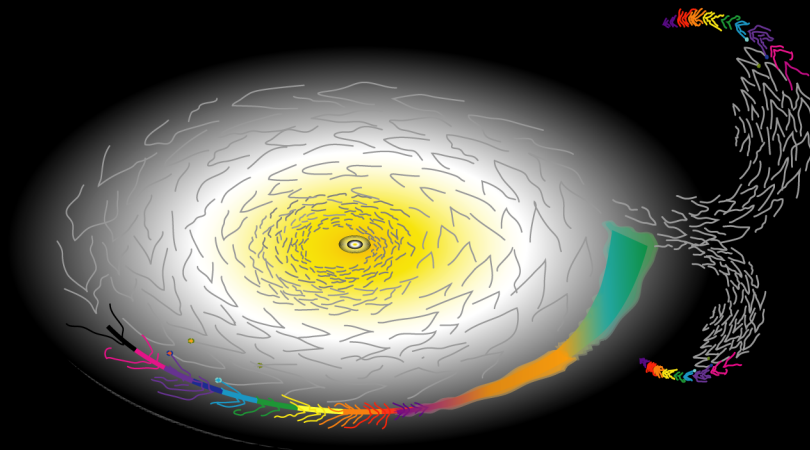
A. Mother Universe



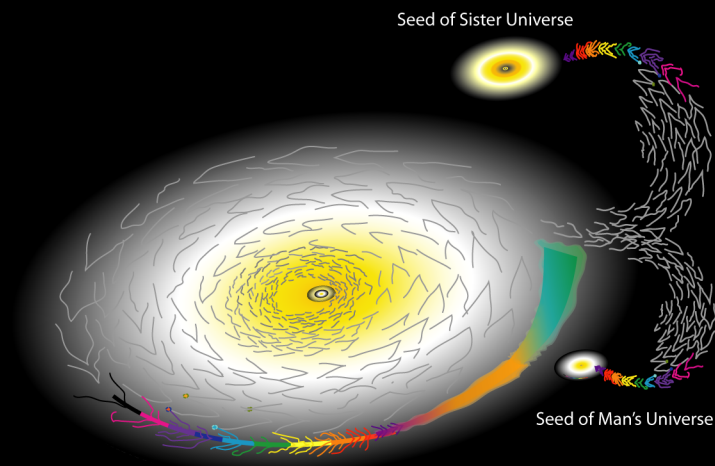
B. Initial Magravs unbalancing



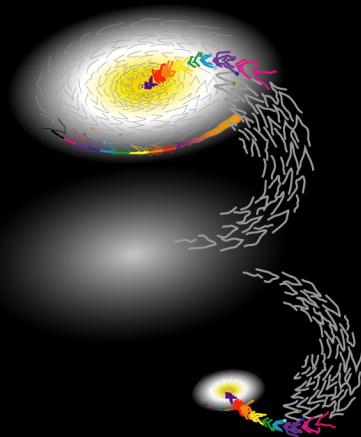
C. Loss of structure



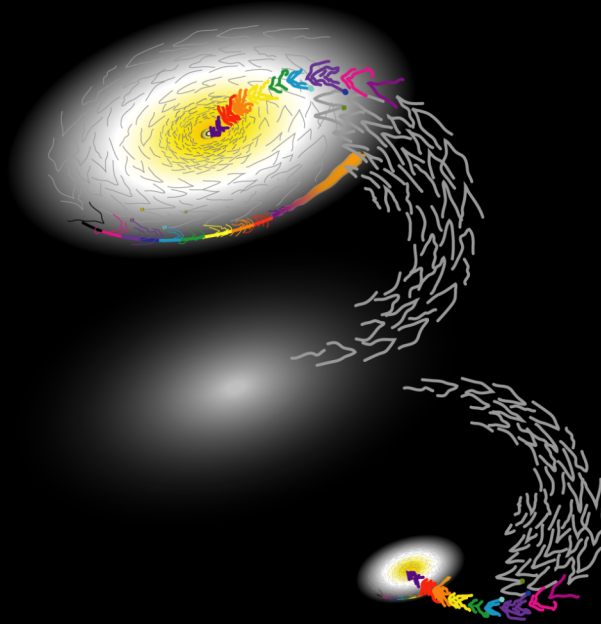
D. Dispersion of fields of the plasma of the Mother Universe in the unicos.



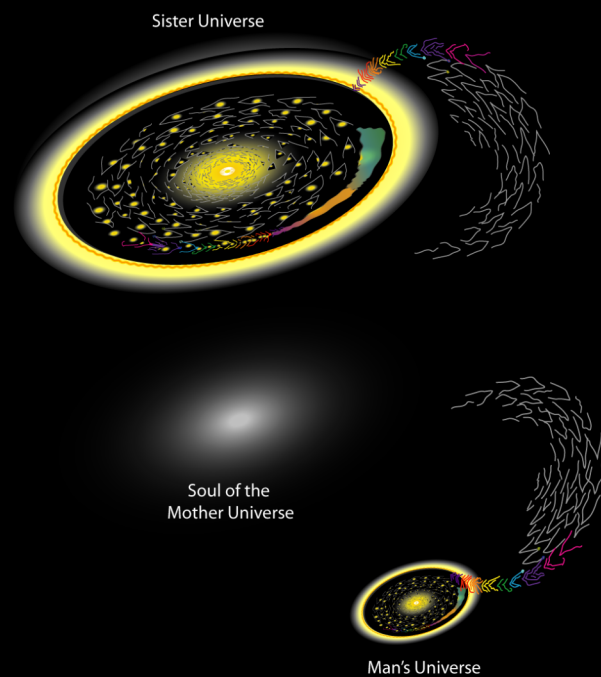
E. The creation of the seeds of the new universes from the decay of the Mother Universe, where the two new universes have to maintain a magravs positioning in respect to the Mother's and each others magravs.



E. Full splitting of the Mother's Universe plasma into two new plasma's



F. Initial stage of creation of gravity and magneto-sphere of the two universes due to unwinding and interaction of the fields



G. The final physical parameters of the Mother Universe, the Sister Universe and the Man's Universe. Where the same process applies to decay of neutron and it's division in proton and electron, where Man's Universe is the like of the electron after the division.

Fig. 18 (A to G). The process of the division of the Mother's Universe in to Man's Universe and it's Sister Universe

Thus, in fact in the bigger portion of the original mother universe which the man' universe is partly created out of it is bigger or smaller mass portion of the original mafs of the mother fields, then the bigger portion or co-birth universe of this universe, due to the larger mass of its content, this universe's galaxies and stars can be much larger in proportion in comparison to the galaxies in mans universe and conversely due to larger Magravs of the internal structure of the larger portions, the beings within these universes can be smaller or they be totally different in operation than the beings in the mans universe.

It has to be said that life in any form is not exclusivity of the Earth, if this is the mind-set of some, this shows their lack of understanding of universe and how it is created and not the real truth and how fields and matters operated and function in the universe.

CHAPTER 6

The Man and his soul and their connection to the universe

In the structure of the Principal mafs centres or the Principal star or what is so called the Principal stars in the centre of galaxies and mafs and matters in the centre of stars and in giant planets and even in the centre of some planets, the Magravs of these objects seems to possess a stronger or larger than the mass ratio for such an object, that the object possess and covers a stronger Magravs forces than usually a matter in these regions by the present in the world of science knowledge become apparent. The reason for the stronger Magravs of these objects comes from the multiplicity in the Nano magnetic mafs' and matters' and layers in the inner structure layers in the sanctum of these objects.

In understanding the operation of different mafs of matters in the universe and the process of the reduction in strength of these mafs to reach the lower levels light, visible light and tangible structure's like atoms, then one should understand that the structure of the man's body will not change as the physical structure of the man goes through and from matter to transition matter or from transition matter to principle mafs and matters strength's environments.

The reality about this, is that the plasmas of the atom of the structure of the man, like the individual atoms, which are active in the structure of fundamental amino-acid molecule of the human body, these are all made of plasma of mafs of universe and for the proton or the electron of let say carbon atom in the amino-acid, this plasma of the proton has in its centre principal mafs and matters as well the transition mafs and matters and finally the matter mafs, which is its tangibility state which make matter visible to for example the eye of the human.

But once these plasmas of the tangible matter structure of let say proton and electrons of the carbon atom cross the barrier from the light mafs strength and matter fields to transition mafs and matters field strength, or even the body of the man crosses the principal mafs and matter strength, then at each point of field strength crossing, that part and components transition or principal mafs and matters of the plasma of the proton of the carbon will come to operate and interact in that entered field strength zone, and hence the integrity of the structure of the human being physical body will be maintained, but indifferent mafs strength level.

This meaning that the man will be still intelligent and will have the use of all its faculties, but the body will operate through the principal mafs of its plasma rather than present matters mafs strength of it material world strength.

Thus the man is not restricted to life in matter world only, but life in all dimension of strength of the mafs of the universe.

The reason for the plasma of the human body having the ability to operate in any mafs strength, is due to the fact that the atoms of each cell of the human body operate in the gans state of matter and not solid state of matter, which this gives the plasma of all the elements of the human body to cross mafs strength barriers by calling up on their mafs components of their environment.

That is to say the gans of the carbon in the amino-acid of the human beings' will bring forth and operate through it transition mafs strength in the transition mafs environment. Then the same gans of atom will operate with its principal mafs components in the principal mafs strength environment.

Thus the body of human will not be destroyed or evaporate in different plasmatic magnetic fields strength environments as it orderly crosses them.

But the body of the man will be destroyed if the mafs of principal mafs strength is applied to it in the matter strength environment, where in this case the mafs and the matters of the atoms of the man become diluted as a minor part in the mafs and matters of the applied fields.

Therefore man is part of an inclusive pattern of field's in motions in the universe and nothing more or less can be attached to the existence of the man.

The man in physical term is an entity and in and through his soul the connection of the field between himself and the other fields in the universe.

The physical body of the man is the like of the planet earth, where it has mass and its magnetosphere which expands beyond the physical body, but its total magnetic fields and gravitational fields determines its position and relation with other matters in its solar system and in a small way it determines the position of its star in its galaxy and, then the position of star determines in a small way the position of the milky-way in the universe and so forth.

Thus the soul of the man is the external connection of the operation of the physical body of the man in the universe, it is part of one and inclusive realty of interaction of the whole.

Therefore the soul is part of the operation of the universe and every creation which can extent the effects of its overall magnetic field to others which can affect their position and existence is in possession of a soul.

Thus soul which magnetic fields created and expand beyond the physical body of the man is not exclusivity of the creature but it is the common denominator and common link between the man and other creatures of the God and has direct effect on the operation of the rest of the universe.

Therefore the man's body due to the interaction of its atoms protons and electron and neutrons magnetic fields, this object creates its own magnetosphere and its own mass and this body is and has to be in possession of magnetosphere which shows the working of the magnetic fields of its constituent matters and its subcomponents and fields.

Where, in the physical worlds as the same as the solar systems possessing magnetosphere as so do the star and planet, so does the body of the human through the same physical principle possess the magnetosphere, which is so called aurora of the human body, the field of the aurora is part of the soul of the man, but is fact the total effect of the internal interaction of all fields of the body which creates the Magnetic field and gravitational fields of the body and their interaction on each other which leads to the interaction with their fields in the universe, this overall output of the fields of the body of the man is the soul of the man.

Thus; all dynamic plasmatic matters in the universe possesses a soul. But the man has the intelligence to allow the interaction of its soul with others. Therefore through this principle the man is responsible for all his actions and he stands answerable to other souls in the universe. As he decides how these fields which partial and fully control through the Magravs of the matters of his brain how and what happens in its interaction with other souls during its physical existence.

Hence the man has to understand, that universe and others, whom this universe has been created from and the universes which will be created from the division of this universe in the future are all interconnected and operate through the same fundamental principle magnetic fields.

Therefore there are parallel universes to this universe, with the difference in the measure of their magnetic fields and their position in their given environment.

Thus as we have the same and similar electrons structure's and protons structures in the same structure of an atom, this structure of positioning of electrons and protons is the same for all known atoms, then the same applies to the universe and the souls within them too. This meaning that there are similar universe as this universe in the greater universe and other universes which this universe has been created from or it shall create.

It has to be said that at the same time the matters in the universe have the same universal language of communication, where in the universe the common language is the basic plasmatic magnetic fields, based on the first plasmatic magnetic field strength of plasma or the simplest atom of matter of their environment.

This language is universal and once the man on earth understands this phenomenon and can fully measure the magnetic fields strength of the electron Magravs and uses this as the base strength, then man will be able to understand and communicate with rest of soul possessing creature of the universe. Until then, the search in the sound waves to look and try to communicate with other creatures of the universe is a primitive picture and shows the lack of mans understanding of the world of the Creation.

Therefore the gravitation, magnetic, radiation and other similar properties and interactions of the field(s) on each other in this and other universe(s) decides on how and the way the creatures in the different universes and in the man's universe would look and behave.

But in a essences they are all made of the same building block of *MAGNETIC FIELDS AND IN ITS AND THEIR INTERACTION OF DIFFERENT STRENGTH AND TIGHTNESS OF IT IN THEIR ENVIRONMENT*; This determining how tall and short and if one has eye or uses the interaction of fields to interact and communicates with other creatures of its environment, universe(s) with or without physical tangible or visible so called body.

May be now it can be understood what has been said that in the universe,

I have made man in the image of myself

CHAPTER 7

The creation of gravity in the universe

At the present time the scientific world uses the terminology that when the gravity took hold then that was time when the matters in the universe began to be created.

The reality is that as when the universe is created from the magnetic fields of the previous universe(s), then the content of the new universe is nothing but a soup of different strength plasmatic magnetic fields, then as these magnetic fields interact with each other usually laws of magnetism they attract or repel each other, where at this point the attraction fields of these plasmatic magnetic fields become the **gravitational fields** forces of the universe and the repulsion field forces of the magnetic fields become the Magnetic fields forces which the same fields create.

This interaction of fields in the plasmatic fields always enclose itself in the form of an envelope, which this always in the universe leads to creation of the spherical shapes of all entitles, this be it plasma of a neutron, earth, or universe?

The interaction of field and attraction fields which leads to creation of a circular motion of the gravitational fields as the fields in respect to the matter have keep their gravitational positioning too. Thus the spherical shape of the fields is primarily due to the gravitational field and positioning combined together which this causes the magnetic fields in the universe to close and created a full circular; and hence the creation of spherical objects in the universe.

Therefore the gravitational field forces of the new universe is created by the interaction of its content magnetic fields and in fact gravity is created by the natural laws due to interaction of two opposite polarities of two magnetic fields, which as these opposite fields interact they create attraction fields or what commonly called the gravitational field, where the strength the outcome field from this interaction of fields expands beyond the boundaries of the two original fields, this leading to the creation of an envelope or area of the effect of this new field that attracts other fields to itself and the strength and compactness of this new field leads to creation of gravity which in the universe this leads to creation of Principal matters, transition matters and then visible matter of galaxies , stars and planet and so forth.

The creation of gravitational fields forces in the for example the plasma of neutron, its strength and contest by large measure is dictated by the universal gravitational fields forces and not in full by the field which leads to creation of the neutron to start with. In the universe the creation of the neutrons are dependent on their universal gravitational fields forces. To this effect not all neutrons are all the same and not all neutrons in the different universes have the same gravitation a magnetic fields forces and dimension.

In fact the human race has to learn that what it is observed by them as the physical matter in fact is only a fraction of overall content of matters of the universe created through creation of gravitational forces and what he sees are not all of its matters.

This meaning that the universe has other matters and mafs contents and as the man's technological and intellectual capabilities expands and increased then man will come to see more of the realities of the universe.

CHAPTER 8

Insight into the realities of the working of the Universe and what they bring about

In the recent past scientists have talk about the term dark energy and anti-matter, where these covers the part of knowledge which they cannot find explanation for within the present understanding in the scientific world. For example the term dark energy is used to understand the forces, which is nor explainable and neither does fall within the conventional present world of physics too.

In this disclosure the terms like the matter, transition matter and Principal matter are used, where these terms are and have become recent addition to man's scientific vocabulary, where these can more precisely explain the rang and the medium, where each magnetic field in respect to their fields and its own magnetic fields strength is and would behave.

In the universe the same as in the physical matter world there are sources of magnetic fields, which are stronger in magnetic fields strength and some which are in the transition and there are some which are in between the strong and the weaker field strength.

In the physical world one called the stronger fields source the star, where in the plasmatic fields of the universe, the stronger fields' plasmatic regions or fields are easier to be called the **Principal fields**, which their interaction leads to creation so called **principal matters** (anti-matter), which these are real physical entities, which have been unknown to man up the recent times.

There are **transition fields**, which are in between the Principal matter fields in strength and the matter field's strength, and as these are in balance in between the both fields of Principal matter and matter world, and then these do not create visible light when they interact with Principal matter or matter fields strengths. Hence they tend to be like *transparent* and *translucent* in their environment and hence they give the appearance of the darkness to their environment.

When, magnetic fields are in motion they are called energies (Book1), where these translucent fields as they are in motion from one state of mafs to another they create what is called the Transition energy (commonly called the dark energy) which this explains the Transition energy mystery of today's science.

Then there are in the universe fields, which are the weaker plasmatic fields region in strength, which these fields are in the human protein plasmatic Magravs strength that they become detectable or what is called the visible or tangible matter.

Therefore in simple term, the Principal matter is the like of the sun and sources of energy in the universe, the transition matter is the magnetic fields strength fields travelling from the stronger field to weaker field, and the matter fields are the like of the planets of the solar system.

There are no mysteries about these fields, energies and matters, except in the lack of knowledge in the man's progressive and advancing science about his universe and living environment.

- Where, in the universe one sees the effect of the stronger Principal matter's fields as in the centre of the galaxies as the star do in the solar systems. The present world of science will come to realise the order of fields are all time kept and all followed the same rules and principles in all levels of the universal creation and created.

- This meaning that in the centre of the galaxies the entity which recently called as the Principal star of the galaxies, this entity in its centre have nothing but Principal matter magnetic fields, which their interaction leads to creation of strong gravitational fields. Where, this centre of Principal matter is covered by the transition fields as they are on their way to visible matter fields strength or what one observes as the dark environment around the central Principal matter region, hence the term black hole (Fig. 19) or Principal star, which this darkness region is only due to the balance transition between fields in motion and the fields which the rays are travelling through.

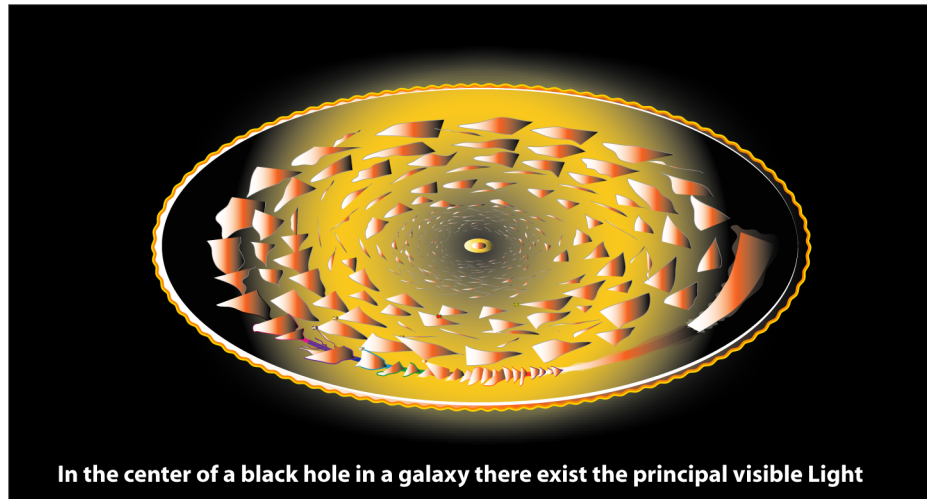


Fig. 19 The Principal Light inside a black hole.

- The existence of the principle fields and matters in the centre of the universe with its strong gravitational fields is the reason as it seems that the Principal star is eating everything and absorbing everything this being rays or matters, where in fact it is the gravitational field forces of the Principal matter in the centre of this dark spot which are creating these large pulling fields.
- The size of the Principal star in the centre of the pulm is the combination of gravitational fields and Magnetic fields forces or the field's strength of the Magravs of the Principal matter content of the Principal star.
- In a sense as the Principal star extracts more material from its environment in the universe, then a position is reached that the total Principal matter absorbed by the Principal star from the objects, the like of stars, planets, plasmas and so forth, a point of criticality is reached that the gravity of the Principal matter fields exceeds the Magnetic fields of the Principal matter and that these forces cannot sustain their balance, hence the Principal star has to release enough material and fields that it can reach equilibrium between its two fields, and that is the point where the principal stars release vast amount of fields and matters without actually causing the division of the universe (Fig. 20).
- Where, these massive fields and matters of massive principle fields released will disturb the equilibrium of the universe as they travel the spans of the universe and in case can lead to creation of new galaxies and even stars and new mattes suddenly out of nowhere in the universe. These principal storms are very much like the sun storm one observes on the surface of the sun. In this process of rebalancing, it can observed in the universe, like as in galaxies that their Principal star has sodden volcanic eruptions in the rest of universal galaxies central principal stars as they absorb some of the principle matters and fields which they receive

through the universes principal field eruption and the Principal star spewing of the surplus mafs and matters in to its surrounding environment.

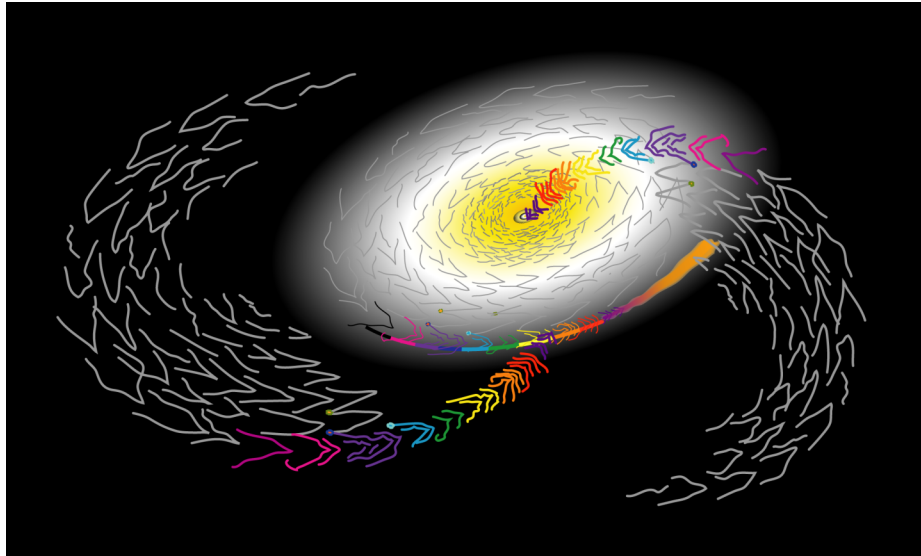


Fig. 20 The absorption of matters and fields by principal stars of the universe or galaxies.

- The principal star of the galaxies as much as the same with the principal mafs and matters of the stars of the solar systems or their sun have observed this process in smaller scale. Where up to now man has not have had the tolls to observe that when the star of its solar system not only release the visible matters and releases huge amount of magnetic field into its heliosphere, but at the same time through and amongst these eruption of the Sun huge amount of principle fields and matters are released into the plasma of the solar system, which these have not be observed by the scientific world due to the lack of appropriate tools.
- The ejection of principal mafs and matters from the surface and right from the centre of the sun is an essential part of sustainability of the fields and matters within the solar system and essential part of the creation of new atoms and matters on the surface of the planets of the solar system. Where at the same time the solar systems as the whole on continues bases receives large amount of principal mafs and matters from principle star of its galaxy and principal stars disc in the pulm centre of the universe.
- It will observed that Principal star in the central disc of the universe even absorb principal light, in fact as light is an entity which possesses both gravity and Magnetic fields and its own mass, thus Principal star is extracting another object from its environment due to its stronger fields strength (2) is a normal occurrence. (Fig. 21)
- Where, the same has been assumed in the present science that black holes even absorb light, but the truth is that principle stars be it in the centre of the universe, or galaxies are created from the principle mafs, which are of the higher order of magnitude in mafs strength and the mafs than of the light mafs in the matter mafs strength. Thus in fact it is normal for weaker field's strength to be attracted by much larger and stronger mafs of Magravs of the principal stars in the centre of the universe or galaxies.

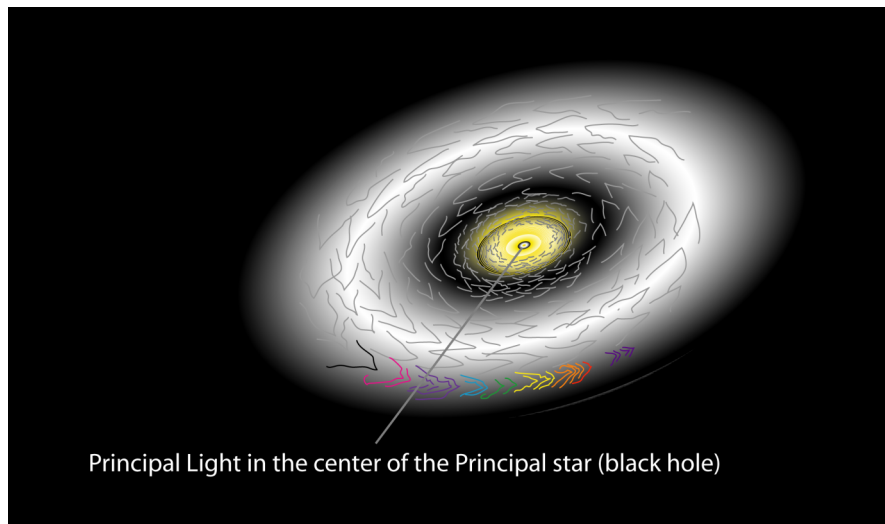


Fig. 21 Principal Light in the centre of the universe.

- But at the same time it is normal to see that the principal stars in the centre of the universe and galaxies spew stronger lights in the order of magnitude of principal mafs which are not visible to human eyes, where the light in the matter mafs strength is visible to him, hence man see one way traffic and not the real truth about the world of creation of duality and equilibrium.
- Thus in the universe it should be possible to observe points where the light lenses the Principal star if it is far enough that Magravs of the Principal star cannot overwhelm the Magravs of the light, but strong enough that Magravs of the light find their position in respect to the Magravs of the Principal star and creates their own Magravs positioning. As this can be observed in respect to the light and star of a system so as the star is made of mafs of principal mafs and matters too and has the same effect of the lensing for the lights rays too.
- Lensing of the transition light when passing the principal mafs regions of the universe should be observed the same way in the future as one observes the lensing in the matter light mafs strength. Where even the lensing of principal light should be observable in the specific cases and some regions in the universe.
- The matter, Transition Matter, Principal stars, the dark spots on the surface of the sun all are created through the same concept and principle that when plasmatic magnetic fields of the any field or matter is equal to the plasmatic magnetic fields of its environment, then there are no collisions between the matters fields which can leave or release any surplus or residual magnetic fields in the light spectrum of the mafs strength or lead to creation of magnetic wave in the visible light balance of the human protein pmf strength or that specific mafs spectrum anywhere in the universe. Thus these areas in the universe, the galaxies and stars surface looks as creating not too much light or what is called to be looking as to be darker than the rest of their surrounding environment(1).
- Thus the assumption that even light cannot escape the gravitational fields of the Principal star is position and the lights itself Magravs strength dependent.
- In truth if and when the Principal matter magnetic fields over time are reduces in strength and they unwind and transfer their fields to their environment, which as these fields slowdown, they become transition matter energies and then transition matter and finally they slow enough that they reach the plasmatic magnetic fields of the mafs strength, which at this point

they become energies observable and absorbable and tangible to human field touch and visible to it virtual magnetic fields sensors.

- It has to be said that there is a great misunderstanding in the operation of the fields and mafs in the universe, this misunderstanding over time has reason due to the man's concept of heat in the *MATTER WORLD, WHICH THIS NEEDS SOME CORRECTION THAT CAN BE APPLICABLE IN THE UNIVERSE* as whole (The full explanation of the magnetic fields, plasmatic magnetic fields, matter and mafs is explained in the reference 1).
- The universe will never run out of energy and get cold, the universe will not expand to nothingness, but universe will decay to smaller universes as universal gravitation will never disappears as long as there are two or more magnetic fields remain in the universe that they can interact and attract and repel each other that they can create gravitational and Magnetic field forces that the whole process can restart again.
- In the nuclear decay one does not observe temperature increases and one sees uniform temperature gradients across the newly divided plasmas and the temperature distribution will be constant, this is the same with division of mother universes to smaller universes. Thus the concept of universe was hot and as cooled down matters are created is fallacy and not in parallel with the rest of the universal laws and processes.
- This observation is parallel with the W-MAP, which has been planned out by present scientific world, where one does not observe huge heated areas and points in the universal map. Here the equal heat distributions parallel with the nuclear decay and heat balance in the divided components of electron and proton after their division and long term motion in their environment is observed.
- The individual heat spots observed across the universe, these points are due to newly arrived mafs and matter movements in that given region of the universe and they are temporally condition.
- The central heat line across the W-MAP is due to dynamism of the principal mafs and matter in the centre of the universe and this is due to concentration and dynamism of the mafs and matters and their reduction to transition energies within this region.
- The creation of gravity in the beginning of time of the universe(s) was and will be primarily due to the interaction of combination of different plasmas of mafs within the plasma of each universe which have arrived from the mother universe and as the magnetic fields interacted, they create gravitational fields and Magnetic fields of the new universe, which these in turn as there are made of many mafs strength, which have arrived in the new universe from the division of the old universe, then different gravitational fields and magnetic fields due to their interaction are created, this leading to creation of different galaxies and matters. Thus, the universe never been cooled but pmfs from one strength meets-up with another and leads to creation of central gravitational fields of the universe and these interactions in the future will lead to creation of specific new matters in that universe, which these matters existence and appearance are closely related to the gravitational fields which the pulm mafs and matters have stared and maintain during the life of that universe and will allow to be created and be held in that universe. Thus all universes do not contain the same matter and all their basic matter is not based on the plasma of the hydrogen as is in the man's universe.
- The internal and initial gravity created in the plasma of any universe is on the same principle as the one created in the plasma of proton and electrons mafs and matters and from the interaction of their mafs of matters, transition matters and their principal matters once they arrived from the decay and division of the neutron. Thus the gravity of the universe is established from the interaction of different mafs and matters strength once the mother

universe is divided and they are created in respect and relation to the original Magravs of the mother universe as these fields are separated from their mother universe into two or more universes like the one visible to the man. Therefore it can be said that man's universe is part of the multiples of universes which all have been created from one mother universe, which this present visible universe to man is a fraction and part of operation of bigger and more active universal order of the Grand universe.

- In reality one can say that this universe is nothing but like an electron in the structure of a uranium atom which this atom is part of a large mass of a large block of uranium atoms.
- This visible universe is part of a total universe and man's universe which looks so large to him is only due to his lack of understanding of the real terms of the world of creation and existence and is dependent up on his openness and understanding of levels of his own existence.
- The principal concept of creation of the principal matter and transition matter strength from mafs and matters in matter mafs strength can be achieved through the process of fusion of mafs, when these mafs and matters of lower order strength enter into the principal star regions of the universe and their fields become and are squashed and tightened in intensity of the fields within the mafs and Magravs of the principal star that the entered fields into the Magravs catchment's of the principal star merge different field strength magnetic rays and fuse these rays that they become and reach mafs equal to the strength and density of the principal mafs and matter strength.

Thus Principal stars are, where the process of fusion of mafs and matters occurs to amalgamate and increasing the mafs strength of loose and incoming lights and matters from weaker strength mafs is set to take place. This is to say that Principal stars of different size and intensity in galaxies of the universe are the places where the principal mafs and matter are cooked up and separated and processed and manipulated into their given strength and then through conditions become to be known the like of quasars these new recycled stronger fields are released into their given environment, leading these principal mafs and matter to become the centre point for the creation of the stars and planets in their galaxies and as some become to be in the centre of the plasma of proton and electrons and so forth.

- Where, at the same time the Principal stars are the points in the universe that by and due to their high gravitational fields of their environment, this is the place in the universe, up on entry of different mafs and matters, these matters strength can be increased to higher level magnetic fields strength. Thus the Principal star are the points in the universe where the mafs and matters can increase their strength to transition matter levels or to the principal matter magnetic fields strength and where the transition mafs matters fields can be increased to the principal matter field's strength
- In the centre of the stars as the same as the in the centre of galaxy and universes, where the fusion process of fields and matters are considered to take place and heat to be generated due to fast movement of the pmfs. In reality in movement of the stronger and weaker mafs and reduction in strength of the mafs, which these changes disturbs the plasmatic magnetic fields of the Magravs of plasma of the components of atom, this be it the plasma of electron and plasma of proton in principal matter, transition matter or matter strength, this leads to release of mafs fragments, which these can manifest themselves as heat or radiation in their given environment mafs strength. This movement of plasmatic magnetic fields leads to weakening of the magnetosphere of plasma of the all atoms, this be it plasma of principal, transition or matter atoms, hence this weakening allowing the process of entry and amalgamations or fusion of different plasmatic fields into another magnetosphere of any other plasma or an atom or increase and amalgamation of lose mafs of different strength within the environment of a principal star.

- By creating and using the higher strength maFs than the gravitational and magnetic fields strength any entity this be it atom or rays, one can create conditions, where one can cause fusion of atoms, plasmas and rays without creating heat and any need for accelerating particles and in colliding them to create fusion as has become the tradition in the present plasma of matter fusion technology on earth in the recent times.
- If the full concept of fusion in matter level is to be achieved in much easier way, then it will more appropriate to separate the different components of the plasma's maFs and matters, amalgamate the same together and then allow the re-amalgamation of different maFs strength to take place. This is how fusion of field's and matters are attained the span of the universe.
- In the universe the principal maFs and matters are the sources of the energy and supplier of the pmFs of the universe, thus when the plasma of principal maFs or matters interacts or collides with the lower strength maFs in order of magnitude of any matter then maFs and magnetic field content of matter becomes part of the principal matter spectrum and their content is added to the maFs of the plasma of principal matter.

Hence the current fallacy that when matter and principal matter interact nothing is left of the two, except some release of magnetic fields or energies, this is hypocrisy and man lack understanding of its own world and the world of the creation. This is like saying that if earth gets attracted and absorbed into the Sun of the solar system as a lot do on frequent bases in the universe, then there will be nothing left of the Sun.

The principal maFs and matters are the source and stars of the universe and by order of magnitude and strength and the mass the principal matters and stars maFs are by far stronger and possess denser fields than their by-products the transition matter and matter fields strength which are created and released originally by the principal maFs and matters itself to begin with (1) which has led to creation of the planets and stars. Then how can the weaker and insignificant part in matter strength level destroy the larger entity?

Thus nothing happens when matter entity comes to contact with principal matter (antimatter as is known at the present time) entity. There will be only principal matters left with addition into it the content of matters maFs and matters, which have collided with it.

- Thus the physical structure of the plasma of principal stars in the universe is as follows the principal maFs and matters in the centre, transition maFs and matters and the then maFs and matters in the matter maFs strength.

This entity what man calls the universe follows the rest of the universe orders of linking the magnetic fields polarities of north and south poles together as has been observed in the man's planet. This universe is near spherical in shape in general and dynamic and rotational anticlockwise in direction of motion. But the principal star can pull into itself due to its strong Magravs and gravitational field's matters as well as matters to itself from its content plasma as well as from the unicos of it outside environment, where in the process it can separate their sub-Matters for these to be added to its principal matter too.

Looked from outside this universe surly will possess rings as planet Saturn's does, as this universe has the same construction as the gaseous planets, but; with the difference that its rings will be colourful and much more dynamic than Saturn's rings.

- In universe(s) principal stars can be found which have anticlockwise motion and some, which have vertical rotation and may be some, which have combination of both clockwise and

vertical rotation too. These motions are primarily matter and fields' strength and position dependent as has been seen in the man's solar system (1, 2).

In the principal mafs state of matter all matter more operate in the gans state of matter than the gas or plasma of the matter, where with the gans of the matter the mafs of the environment decided the appearance of the element in a given condition and in all cases tangibility of matter is the consequence outcome of these conditions.

Hence all matters in the universe are not matter atoms, but gans of matters, as gans of matter can take all lattice structural combination of elements, where for the matter of same element to converse from one lattice structure to another high temperatures and pressures are needed. Where, in the universe majority and nearly all conversion of lattice are done through gans of the matter and not atom of the matter.

To achieve the gans state of matter the environment of the atom of the gas needs low and continues flow of mafs in transition for the atom of the gas to be converted and its Magravs changes from magnetosphere of a gas to a magnetosphere of tangible matter of the gans (4) state of matter, and in fact this happens when the gravitational field of the gas is made more powerful than the Magnetic field of the gas and hence the plasma of the gas gravity contracts or tightens and hence the gas changes from gas to gans and becomes what is called solid nano state of matter in the atmospheric condition.

- Multi-layering of mafs and matters increases and exacerbates the initial magnetic fields strength of the matters and the fields they can create. This causing an increase in the strength of the Margraves of these objects and even Magravs strength can be further increased if the mafs and matters are in gans state of matter or in combination of different mafs strength in different layers.
- Ganses as gases once reach the state of certain structural lattice as in the gases on the earth atmospheric pressures, these ganses change their characteristics and take the properties of non-dimensional plasma or they become what is known as odder or what can be detected of their existence in their environment. This principle applies the same to the gans of the matter too, that the ganses of all elements have odder and hence the universe outside the earth atmosphere has an specific odder of its own, which in fact each galaxy has the same properties and different odder and each universe has its own odder primarily due to the structures of the gans(s) of the elements they create or they can hold on to, and the same element does not have the same odder in all corners of the universe. As odder is the mafs strength dimension dependent the gans of smelling entity mafs combination and/or of the gans's mafs strength itself.
- At the birth of the universe there has never been and in the future there will never been creation of heat, as in the same process of decay and division of neutron in to plasma of proton and electron. Thus the theory which has been created and been followed in the world of cosmology that universe at the beginning was hot and then as it cooled down and gravity took hold and then matters are created are false, The hot universe and cooling and production matter through cooling, this is an understanding of creation of matter and based on the matter world condition structure is base of old centuries and understanding of matter from cooling of gases and liquid into solids.

The heat distribution of the universe is the same as the heat distribution in the plasma of the proton after the division from the neutron. This balance distribution of the heat has been observed and recorded by the W-map. This pattern of no heat and creation of gravity due to interaction of pmf fields in the universe leading to creation galaxies and stars are the normal process. Where in the universe matters operate through mafs and their environmental mafs

and no other factors. This being the reason why one can observe matter in all corners of universe independent of temperatures and pressures which prevail in that part of the universe.

Matters in the universe are brought to the state of conductivity and connection through their Magravs and not heat and pressure and that is the reason why life exists in all dimensions and structures and intelligence in all corners of universe and life is not the exclusivity of water and oxygen based entities and environments the like the earth and its citizens.

- The present concept that the production of iron atoms are the limits of fusion in the universe and the point where the fusion of matters leading to production of iron and absorption of all energies of the star this leading to collapse of the star and that the star go through the final cycle of life as an active star, this again shows the man's lack understanding of the full science of creation and motion of mafs and matters in the universe.

In fact due to presence of principal matter in the centre of stars, the process of fusion will go on and all heavy elements are produced through the process of fusion in the centre of the star and not as has been assumed when the process of red dwarf and white dwarf are initiated.

Stars produce the heavier elements in a rapid process when the Principal mafs of the star releases part of its pmf, facilitating and making available pmf necessary for the fusion of the matters to heavier elements. All heavy matters in the universe are created in the fusion centres of the stars and most of very heavy material like uranium and heavier principal mafs are created in the principal star regions of the universe.

The point to realise and which has been overlooked is that most of the universal objects like stars and planets, and principal stars they all carry in their centre a large amount of nano materials in all mafs and matter forms and it is correct to understand that in these areas there is a large amount of gans of matters too. The reason for the existence of these nano matters in the form of individual or specially in the form of layers and sheets in the layer boundaries or interfaces of one or different state of mafs or matters, the existence of gans and nano mafs and matters in these large objects leads to creation and production and enhancement of gravitational, and Magnetic fields of the these entities through the principle of interaction of dynamic motion of mafs and matters with magnetic matter or matter of these objects. As this interaction are the main source of increase in mafs and their effects in all matters accelerations in the universe and scientific world by large has not understood this concept in full, as if they would have understood this, they would have understood that there are no limitation within the structure of the planets and stars for them to create conditions that through fusion all elements in the universe can be produced within their sanctum during their cycle of existence, and not when they are at the their latter stages of their cycle of existence.

In the centre of planets and stars always through interaction of plasmas and their capability to unwind and open up and release all their components of mafs and matters, then it is possible for the centre of planet to reach a point that they can release the content of the plasma of their gas, gans and matters that this leads to release of the principal matter of the plasma, that this high strength mafs through rapid reduction in strength can lead to rapid creation of new atoms and due to its localised strong Magravs in the centre of stars and even planet, this allowing the production and help with the fusion of large number of plasmas of proton and electrons separately, that further on by interaction of large quantities of these plasmas this can lead to production of any element in the centre of the planet or a star. This be it the atom of uranium or copper or even fusion hydrogen to produce helium.

Fusion is not action, which is exclusivity of the centre of stars or universes. Fusion can take place in simple environment of universe, where there are no confinement matters like the core of the earth or where there are no high temperature regions the like of the centre of stars.

Fusion of elements can and do take place in the open spans of the universe, when the right mafs strength environment are created without even existence of no tangible matter.

Thus the creation of iron in the centre of stars being its doomsday has no meaning, and has no truth in the realities of world of production of matter in the universe, the reality is that if the centre of the star cannot create new heavier matters than iron during its working concentrated fields how can it do so when most of its matter are in process of disintegrating and diffusing in the environment of the star. Thus this is another fallacy about the doomsday of star and creation of iron atoms in the centre of the stars.

- In the process of the movement of pmf one has to understand that the interaction of magnetic fields and the repulsion of the similar magnetic field poles of the pmf of matters of the universe leads to creation of the repulsion forces of the universe, thus leading to its so called separation of its matters and what is called the expansion of the universe.

While the interaction of opposite polarities of the same magnetic fields leads to creation of the gravitational field forces of the universe and universe cannot exceed its magnetospheric interaction size, where this is the maximum fields balance between the gravitational and Magnetic fields of the universe, and at the same time the mass of universe will remain the same as the mass is the balance fields between the gravitational fields and Magnetic field strength of the universe.

Thus the mass and the content mafs and matters of the universe are set to be the same at the beginning of its creation less what pmf are transferred to it surrounding universe(s) during its life for this universe to keep its distance and Magravs positioning in respect its contents and in respect to others universes in the grater universal scale of existence in the unicos.

- When, the pmf of matters transferred by this universe to it neighbouring universes is more than what this universe needs to sustain its existence, then this universe cannot hold its present universal magnetosphere and gravitational balance, once this balance is disturbed then this universe like its previous universe(s) will go through division to find its new balance and this leads to creation of new universe(s).

Thus, the concept that this universe will expand to point of running out of energy and go through crunch and/or dies as a cold entity or go through the contraction and go through a singularity point again, these are nothing but fallacy of the misunderstood and short-slightness of a few to realities of the operation of the universe and not in line with real world of existence as has been observed in the universe, and why in truth the creation of this universe should and division, but never ending process of the cycle life of this universe of its matters and fields be any different than the rest of universal methods of creation of fields and matters in their birth, fusion and decay.

Therefore the limit of the expansion of the universe is dictated by the total Magravs strength of this universe itself and at the same time the space which is accommodate by and for this universe by the mother universe and the space given to this universe to expand into and the expansion of the universe observed presently is not dependent on no other factors.

It is possible some times in the future this universe itself will merger and fuses with another universe and make a larger in mass universal unit too as much as it can divided into two or more universes.

- It has been considered that the noise which has been detected by scientist in the 1960's, that this noise goes back to origin of the universe, when this universe was made, this has no truth as the noise which is constantly can be detected from the cosmos is the constant noise of interactions of pmf of mafs of different matters and mafs in the universe and these are created continuously and constantly.

Thus is the same as when mafs of different field in the universe interact and create visible light, thus the noise from the universe shows that it active and living universe as different parts of it interact with each other, as one can hear the noise from the Sun in the solar system when it matters and field interact with each other.

In fact if there were any noise left from the time of the creation of the universe, by now it would have escaped from this universe through its magnetosphere into the mother universe, the way strong radiation pointed upward from the earth escapes from earth atmosphere.

- In the universal levels, the energy is defined by the term, that when the pmf are moving from one point in the universe to another, and as they transfer or they carry pmf of the principal matter for it to be slowed down to matter levels, hence this transportation of pmf of the principal matter to slowdown to matter level strength, this is called the energy of the universe or what commonly called the Transition energy (dark energy) of the universe.
- The universal energy is the one which the pmf in motion is carrying that is balanced in mafs strength with the environment in which they are travelling through which due to their balance field strength the two field create near to no resistance to each other that this condition creates near no interaction with pmf of its environment that leads to release of pmf that become visible, thus the pmf of the universe travels in the soup of its own field and hence less losses and hence the lack interaction, which this condition of travel does not create collision and hence no residual release of mafs of any significant and hence not much of the visibility of the travel of the mafs of the universe, but this transition energy is translucence and as one can see through it so much so that one can see through it stars billions of kilometres away as their light travels in the balance Transition energy of the universe.

This concept of travel of pmf or Transition energy in the transitions matter is explained in the book “The structure of the Light” (2).

- The universal energy does not need to cool to create matter, to reach matter mafs pmf strength level, but the energy reduces in strength to pmf strength of the matter that matter can be formed, this being the reason why there is a homogeneous heat distribution is observation of the W-MAP as heat is not created during the early seconds of the creation of the universe. Thus the cooling phenomenon of the universe is a fallacy.
- The reality of the operation of the universal system is that the universe is made of pmf which their mafs and matters in motion become energies and that is where the cosmologist says that at the point of birth the universe there was only energy and as it is known now energy is defined (1, 2) is nothing but magnetic fields or plasmatic magnetic fields in motion.

At the present some consider that there are more Transition energy than transition matters, which is not a correct assumption, where if this was correct then this means that the principal mafs and matters are unwinding much faster and in a rapid manner, which if this state has or to be achieved in the universe, then this means that the losses are more than expected and this can indicate that universe is losing too much too fast and this can be an indication that the universe is getting ready for a further division into two or more universes.

- At the same time it is possible as the universe was created from the splitting of the mother universe, then the separation of the pmf of that neutron universe due to separation of its mafs and matters have released some pmf, which might have created some localised heating in some parts at the point separation and division of the neutron mother universe, which this

separation leading to creation of hot spots or small heating of the new universe in sporadic positions and conditions within the plasma of the universe.

- The plasmatic magnetic fields strength that are released from the Principal matter to matter levels and during their process of the strength level reduction from principal matter to matter level, what is known as the Transition energy, as the plasmatic fields need space and matter in the universe to release and lose some of their strength to their environment to reach the plasmatic magnetic matter mafs strength level, which is mafs in motion from one level to another strength level is known as the Transition energy or universal energy or what is called the universal energy in motion.

The speed of travel in the universe has only relation in respect to its mafs and matter strength environment, hence one can travel at the speed of light of environment strength in any mafs strength, this meaning that in the matter environment one can go faster than the speed of the light if one travels with the Magravs of the plasmatic magnetic field strength of the transition matter or Principal matter plasmatic strength level.

Therefore one can only travel with a faster speed than speed of light in matter environment only if one has the capability to create and/or captures Principal matter or transition matter plasmatic magnetic field strength in a Margrave positioning reactors (1).

Hence the limitation of the speed of travel limited to speed of the light in matter environment is applicable if one use matter and matter mafs for transportation otherwise there are no speed limitation in this environment as one can travel faster than the speed of the light in matter environment when using principal mafs strength in the cores of the Magravs systems, where the speed of the light in principal matter environment is millions of times faster than the speed of light in the matter environment.

One has the ability to travel any speed in the universe and with any mafs and matter plasmatic fields strength in but there are hazards to consider prior to taking such a travel.

The theory, that the speed of the light to be the ultimate speed of travel is only applicable in the matter environment using matter plasmatic magnetic field strength and it is not true if using stronger mafs strength, thus one can travel the spans of the universe by using higher order mafs with speeds millions of times faster than the speed of light in matter mafs strength like on the surface of the earth.

The body of the man will not feel any difference and will behave as one is in the jetliners of the last centuries as the pmf of the mafs of the human body cells contains within their structure mafs of principal matter, then the man will not feel that much difference travelling with speed of light or thousands of times faster than speed of the light in the universe.

- It has to be noted that as in the matter and mafs universe and environment, in the principal mafs and transition matter environment, these environment possess their own shock waves and speeds of sound and as said before even smells and odour of themselves, which these are different than the ones in the matter universe. One can smell the Principal matter and hear the noise of the transition matter interactions, once one is trained and developed the senses for the observation of the transition matters and principal matter which are part of the structure of every living thing as these matters and mafs are part of the structure of the plasma of every proton and electron in the matter environment of the universe.
- Once understanding the structure of the universe, it can be conclude that universe will never end, there are no singularities and no cold ends to it and no crunch, and only for ever the universe(s) will divide in plasmatic magnetic fields strength and from one mafs to another and then in fusing together they repeat the same process, and as the universal structure never can

lose any of its fields through by its natural laws of conservation in physics, then only matters and matters converts from one matter or mafs to another form of mafs or matters and order of preservation of fields and matters is obeyed even in the bigger universal order as has been in the matter world as has been studied in details over centuries. Thus preservation of energy and conversion from one form to another is the essence of creation in every levels of the bigger universe too.

- In the matter universe for example smell is only diamond structure of the or SP3 structure of the same atom in the gas state, thus in the principal matter environment the principal matter possesses and have different states of matter like the gas, liquid and solid state of Principal matter too.

The same there are molecules and atoms and plasma of the Principal matter too, therefore principal matter have smells and odours and they frieze and they boil and they create clouds and become all thing as one has observed in the matter environment of the universe too.

Then one can ask the questions that are the cold and warmth the same as the matter universe as in the principal matter universe. And the answer to this is most certainly is yes, with the difference that the temperatures are beyond the levels of man's understanding as the strength levels of plasmatic magnetic field in these environments are off the scale of comprehension of the human at the present time.

- Then the point arises that are there lives in the Principal matter and transition matter scale of plasmatic magnetic field strength of the environments of the universes, and the answer to this is most certainly yes, as the same structure of interaction and creation of cells and life exists in the these environments in the universe as are these conditions available and possible in the matter environment in the larger scale of the working of the greater the universes.
- The matter made available to the matter universe by the down levelling of the plasmatic magnetic fields strength from the Principal matter levels is what allows the creation of the matter, where these new matters have to find physical Magravs positioning in respect to each other, this need for new positioning in cases can lead to movement of the matter and increase in spacing of matters in respect to each other, hence this new increase in the spacing looks as the universe is expanding. Thus the increase in the spacing or expansion is limited as the matters and the rate of conversion from the principal mafs to matter has a limit and hence the universe cannot explode and only thing which can happen to the universe, is that as the Margrave of the universe is reached a point that cannot be sustained in its present mafs levels needed for the creation and sustaining its Magravs level, then the universe in a gentle way divides to guaranty its overall survival in two parts, rather than losing everything in the mother universe to other universes all together.
- The universal Magnetic fields within the transition matter is the force which pushes the universe apart and the gravitational fields within the transition matter is what brings the matters of the universe together and is the glue of the universe. Where both these forces are created by the principal mafs and matters field's interactions of the universe and the transition matter is the medium which they use without interfering with to a large extend for these forces to keep the universe in its dynamic condition.
- If the rate of the conversion of the principal mafs reaches to the point that there are more energies in transition mafs strength levels that the rate of conversion cannot lead to creation of matter mafs of magnetic fields strength, then the transitions energies fields interact and this will lead to creation transition matter, which this condition is abnormal and this ultimately in some cases can lead to creation unbalanced Magnetic fields and gravitational fields within the universe, and this is the trigger point for sudden expansion of the universal magnetosphere in certain point and as this cannot be sustained, then the universe goes through division and the

universe and creation of two or more fragment of this universe are the consequences of such condition.

- It has to be clearly understood that the neutron division to electron and proton, usually is caused due to sudden expansion of the neutron magnetosphere, which is caused through the same process of the rapid change of the principal mafs to transition energy, which this leads to temporarily creation of transition matter that this creates a new magnetosphere condition which cannot be sustained, hence the neutron goes through the process of division to electron and proton too.
- As the pmf of the transition energy slows and reduces in strength once reaching the boundaries of the universe as it happens in the planetary upper atmosphere and solar systems heliosphere, in the same way and by the same principle these transition mafs will rain inwards into the interior of the universe, where they started their lives from and at the edge of the universe boundary the same as cloudy earth in its upper levels will have showers of matters in the form of small plasmatic matters and mafs and this looks as universe is raining inward. Thus once one look at the boundary of the universe one will see cloudy or a hazy shell, in fact this haziness it is nothing but the weak mafs and matters which are lingering around as clouds do or dust particles do in the planter systems upper atmosphere.
- The same cloud systems do exist in the solar systems heliosphere too, where this zone where most of meteoroids and asteroids of the solar systems find their seeds and receive their regular matters and mafs from.

It has to be said that once man learns to cross the boundaries of the heliosphere of the solar system, the travellers of the crafts as is done when man leave for the travel to the moon at the present time, these crafts as they enter the heliosphere of the solar system they will encounter the same misty cloudy space at the edges of the solar system too and still they have to deal with solar heliosphere re-entry and cloud dusts and so forth as one encounters in the re-entry into the earth atmosphere.

On the edges of this universe one will see weak pmf of matter and transition matter and transition energy plasmas and even one will observe the entry of other mafs and matters and plasmas in all mafs strengths and entry of universal meteoroid from other universes and unicos, as one sees meteoroid and radiation entries into the earth atmosphere from the solar system and cosmos. There are universal lightings and universal meteoroid too, in fact if the W-map observers look for this they will see another storm and lightings as these vast energies and large matter enters this universe at the edges of the universe, but they simply have registered these as hot spots in this map's outer boundaries.

The existence of these short lived hot spots will show that they are dynamic, live a short life and their energy is fast moving, as it happens when one has meteoroids entering into the earth atmosphere.

In reality the existence of these hot spots on the edges of the W-map should give a clear indication to the man the existence of other universes and the greater universe as earth is part of a solar system and a galaxy, the same is with this visible universe of the man, and all one sees in this universe as the same is repeated in the greater universe too.

- One of the fundamental principal concepts of the universal energy is what the scientific world of today to a large extent has not understood fully and has up to now ignored this fundamental principle of the pmf magnification using the pmf of the mafs and matter and energies and specially the universal energy.
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If the scientific world understand how universe uses its dynamism and its inner content dynamic universal energies layering to magnify its power in its operation of this universe, then men of wisdom will come to realise that one does not need principal matter that much and in truth any matter so much all to operate this vast universe and transfer energy to all its far distance corners.

The world of science of today has been by large ignorant to this fact and has not managed to understand the magnetic layering and dynamic universal energy principle and in turn this has put man in disadvantage in comparison to the technological advance with other travellers of the universe.

Man of wisdom should look within to see the creation of their own being, then they will come to understand how small amount of matters and mafts and magnetic fields has been creating conduction and energy transfer in their own structure without utilising or using very little mafts or matters, then they find the power of creation and its application and manipulation for untold usages.

Then they will realise that one does not need wormholes and all that fancy words to travel within the universe with the speed of their own creator. This shall and will remain the mystery of existence upon the time when man learns not to trespass the boundary of others and he learns the existence of balance and true peace within himself and its people and it's surrounding.

- One should understand the concept of multiple principal stars operation in one galaxies system and the role they play to create disc like or spiral galaxies. The operation of visible and invisible principal stars in the universe will play the same role as the twined solar systems and twin galaxies, where in this cases the twined principal matter centres are and have the capability to discharging different pmf strength according to their anti-martial gravitational pull and the measure of the mafts that they might release to control their field of domain. The multi- principal matter centres are and can be used in the space travel in a fascinating way, where once creates multiple jumping steps, with differential and opposite dynamic direction of motion of these Matters. The speed and protection created from and through these manipulations will give the man the chance to travel the length of galaxies and universes in the minutes, but one has to be aware of the destruction power of these technologies as there will nothing left but pmf of the creatures travels of these universal craft if things goes wrong at these mafts levels.
- It should be noted that the shapes of the galaxies and their physical appearances, should teach one the power of the effect of the other matters and entities around them as they will allow and pull an push these objects toward or away from one point or other and hence allowing the appearance and the physical visible structure of these celestial bodies to obey and have a given shape, this is important in the understanding that one has not to look at an entity but look at the surrounding area of the entity to understand the limitation of the operation and the shape of the matter and mafts internally and externally as it is allowed by the environment of the entity for it to exist within a given point and time of a system, this being a planet, solar system, galaxies or universal entity.
- The uniformity of the pmf within the plasma of a proton, an atom or a universe these all show the equilibrium and balance condition between all the participating magnetic fields forces which have been designated to the entity at the point of its inception and creation. Thus, if one sees a fast moving object the like of the Plasma of an electron in an atom or in a larger part the universe, then this does not mean that the universe is expanding and it will be chaos internally in these entities. Thus the fast movement of the internal matters and mafts of the universe does not mean that the universe is expanding, on the other hand this means that the universe is

internally controlling its mafs as repositioning to guaranty its existence as an entity and at the same time the universe is holding its position or what is called universal Magravs positioning in respect to other universes in the unicos.

Thus this universe will have matters and mafs which will be moving away in one position but at the same time other fields in the universe will be moving in the opposite way to, but it has to be said that the conversion of mafs to matters creates a visible expansion, but overall gravitational field forces of the universe cannot be changed and the universal order of preservation of fields will be maintained, does not matter what is converted to what fields and matters and the internal universal gravitational fields strength will be maintained and preserved.

- The universe has laws and conditions and has primary atoms and particles, at the present man has managed to understand the structure of atom and plasma of proton and other particles and through this understanding and his vision of his universe thinks that the atom of the hydrogen is the simplest structure as he can see and understand, in time this will become apparent not to be the same for all creature of the universes, but up on and until then man has to learn that the fundamental particles and unifying fields and the fundamental fields of universe are the simple magnetic fields of the universe and the whole operation of the universe is based up on their interaction and operation.

But at the same time man has to learn that all created entities in the grater universe have achieved a common method of communication or what is known as the universal fields communication, all created being which have managed to influence their environment and have managed to interact with other intelligent being individually or as unified groups and have managed to accept one universal communication language that is acceptable to all, this language is known as the universes language and is bases on the strength of the pmf of the different strength and not based on the voice or sound or physical alphabets and shapes.

The man will have to learn this language and will be able to communicate with the other intelligent created entities in the universe once man learn to find peace within himself and reaches the understanding that they cannot trespass and cannot create division in the universe as they have been accustom to on earth to get their way and in achieving and attaining physical possessions and that in the universe martial possession are nothing but the lack of man's understanding of his position and short slighness of use of his intelligence.

The universal language is transparent and clear language and works on the pmf waves strength and has standard forms and accepted levels for communication depending upon the creatures of different environments which creatures are initiated from.

Where, one should understand that not all created intelligent beings in the universe need or needed the physical planetary structure as human do for their existence for them to be created or to survive.

Life is created in the universe in and within the fields of the universe and it does not necessarily need physical tangible, food and land for it to exist and collaborate and operate with others in the universe.

Whereas, and as long as the Man tries to contact others through pictures and voices using the present technological advancement, man will find in general he will have a long time to wait for the response, as the other created intelligent beings of the universe have been and are and will be visitors to man's home from the time of its creation and to its demise, but the universal language will be established and communications will be opened when man learns that he does not need to take more than he needs to and at the same time man does not need to create division to get what he desires and cause conflict.

The cause of isolations of the man from the universal community has been his lack of understanding that in the universal language the other creature do not need to use words but they can and do understand and communicated at pmf fields levels, thus the thoughts of the man which is pmf based in his operation in the brain of the man, these pmf are detected and are like visible light to these creatures and as what is said they can see and understand the real intentions of the man's deeds without man uttering a single word.

Thus man isolation from the universal community has been in forced up on it out of protection of the universal peace, rather than man's inability to find the other creatures to communicate with.

- The Universe in general is a peaceful place and wars and conflict has been things of the past and a long-long time in the past, hence once the man learns the advantage of peaceful living, then man will learn the universal language and then man will be allowed to learn more and join the universal community of Beings, irrespective of these being physical or field appearance to the eye of the man.
- One does not need eye to see but the intelligence to understand, and then the real sight is the real will of the observer of the beauty of the creation in all levels of universes.
- In the material world for example the neutron always divides into balancing masses that the overall gravitational positioning of two new masses can guaranty the existence and continuation of the life of the neutron in the same material world. This applies to the universe too, that universe will divide in mass and as in the neutron the lighter mass will have to follow the graters mass fields forces Magravs motion and hence the universe of the smaller mass will be more agile than the heavier mass. Whereas, the smaller mass universe will be and has to follow the internal motion of its own mafs and matters and at the same time the overall Magravs of the smaller universe has to find its position in respect to overall Magravs of the larger universe and the overall dynamic motion of the mafs and matters which the bigger universe creates.

Thus, the smaller universe can be in a snapshot or in the case of man life time over a million years, this universe be looking as it is stationary in its internal space, but in fact this universe is following another larger universe at very high speeds itself to keep its position and at the same time the universal centrifugal force of motion allowing the universe to hold on to its content of its own mafs and matters.

All universes the like of the galaxies and solar systems are all in motion not only internally but at the same time they are in motion in respect to their the other half of the their mother universe, which it was originated from. The overall direction of the motion of the universe in its bigger universe can easily be detected and realised. The direction of motion of the universe

is shown by the directional motion of the mass of universe, which is moving out of normal direction of the whole content of the universe itself. This meaning that, if! The full matter motion of the universe is planned out; one should see a region, which is moving as a whole in totally arbitrary and independent direction.

The reason for this envelope of the mass following an independent directional motion is due to the fact that this mass of the universe is connected Magnetically and gravitationally is locked to the direction of the interaction of the Magravs of this universe in respect to the Magravs of it co-birth sister Universe (Fig. 22).

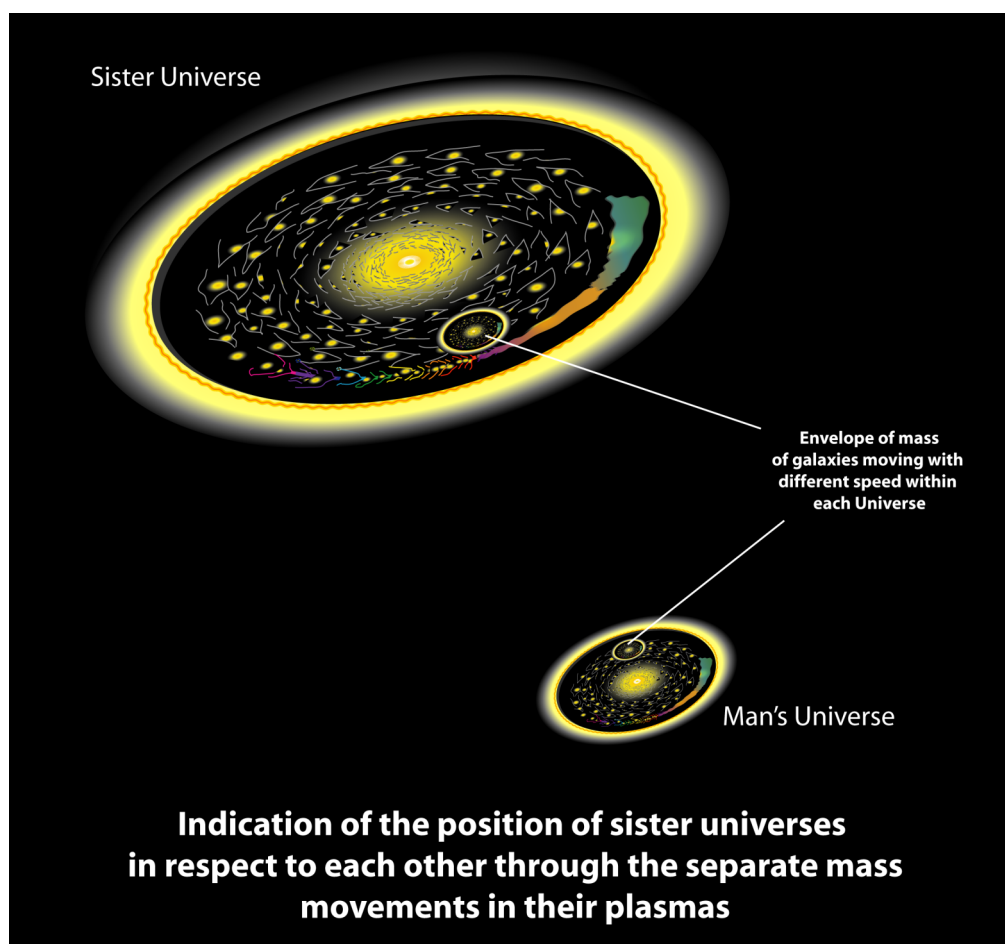


Fig. 22 Envelope of galaxies in each Universe indicating the position of the Sister Universe.

The mass of the matters involved in this motion should indicate the extent and power of the Magravs interaction between the two universes.

This mass moves in all three hundred and sixty degrees direction as the co-birth universe is dynamic and has its own dynamic Magravs motion too.

This independent zone in motion in the universe has already been detected by the cosmologist for this universe, but they could not understand the reason for this independent part motion in the plasma of the universe.

Thus the direction, which this mass in the universe is moving and is positioned, this shows the position of the co-birth universe in respect to this universe.

Therefore if and when the man's scientific and technological achievements reached the level in the future that man can see through the universal magnetosphere, then the position to look for the co-birth universe, would be the direction where this internal mass is in motion and at the same time the distance of the this internal mass from the edge of the universe will show the distance of this universe in respect to its co-birth universe.

- In the universe the heat and cold is not measured in the way, which has been accustomed in the world of physics of today. In the universe heat is measured to the extent that the matters pmf can be loosened to allow the bridge of what is known as the atomic or molecular magnetosphere.

Thus what is commonly known, as the coulomb barrier, in the atomic physics is only the extent of the resistance or the tightness of the Magravs of the atom. In fact man has to realise that if he unifies the terminology then he will solve most of the problems in the world of the science of physics. For example, by unifying the word of the magnetosphere and coulombs barriers, which in fact these are both the same properties and principles; where one shows the tightness of the Magravs of the planter system and the second show the same for the atomic structure. If this discrepancy in language is resolved and man understood all phenomenon of the creation of magnetosphere in all levels universal mafs strength which has been discussed above, then the nuclear and theoretical physics would not have the problem in creating and maintain fusion of all matters and mafs in the universe.

Thus for fusion one does not heat or speed to create and achieve fusion, but the loosening of the Magravs or dilution of the Magravs of the mafs and matters will lead to fusion and creation heavier elements without the need for the elaborate accelerators and others gadgets which has become the tools of the advance science of today.

The use of the accelerators are nothing but to show the true lack of understanding of the scientific world in the what these scientists are trying to achieve and their misunderstanding of the operation of the universe.

The heat created by the fusion processes within the stars or the principal stars is the by-product and in fact the heat assist with the operation to loosen the Magravs and loosening the Coulomb's barrier that fusion or mixing of different plasmas of mafs and matters are accommodated, but not the cause or the outcome of the fusion.

Where in the world of the fusion of today scientists try to speed up and accelerate plasma and make them to collide and hope for the fusion, but in the universe the reverse process happens, whereas in the universe fusion takes place in condense centre of the principal stars and matter stars, where there are no rooms for the plasmas to speed-up, but due to loosening of the pmf forces magnetosphere of the plasma or coulomb barrier, then matter mix and fuse and what is not necessary from the amalgamation of two plasmas fusion, then these appears and are released as surplus unwinding pmfs of mafs which as in this process of higher to lower mafs strength is so rapid that this process shows itself as the heat in these environment of the universe as part of the process.

Thus heat can be explained in its real term as the pmf which is unwinding from one state of matter to unwind that the pmf field released allows the other matters to open their magnetosphere that they can receive the pmf in transit from other plasma.

Then the cold can be explained as the when the pmf of the matters are reduced to beyond the magnetosphere of the matter that matter cannot transmit any pmf to another matter.

At the point, where the total transfer is zero, this is known as the Absolute zero point at the present time. Where, the scientists say that at this point there are no molecular movement. In

fact the plasma of the matters or *the atoms is still at this point active* and maintains their internal dynamic condition and environment. If this was not so then magnetic fields creating the mafs and matters would have ceased to interact and the matter or mafs would have lost their gravitational fields and magnetic field and hence the matter and mafs would not have been able to maintain the magnetosphere and the mass of the atom, and hence nothing would have existed; But as one still sees the matter at absolute temperatures, then the condition is inter plasma magnetosphere connection and not internal magnetic connection;

In fact magnetic fields, which are the principal particles or are known as the fundamental matters can never come to a point that they do not exist or interact with other fields and at the same time due to ever existence of other magnetic fields and fundamental elements in the universe, then all fields and matters at all times are attracted or repelled by one matter or other and hence a total non-dynamic universe never can exist and in truth the creation of the universe and creation and origin of the magnetic fields is due to and through the fundamental of difference in the universes differential waves. Thus the magnetic fields are themselves created out of strength level difference in the universe and thus the origin of the magnetic fields is the cause of the existence of the universe and the existence the universe is the cause of the existence of the condition differential which is the creation of fields to compensate for this difference and hence the creation of entity to cover the difference in position and hence the creation of the magnetic fields. Thus one in a simple language now knows even how magnetic fields, which their variation leads to the world of the creation of universe has come from and how the real essence of all creation become to exist.

- It can be said that at the Absolute temperature the time stops for the matter and material world but not for the mafs and mafs dimension and hence if the universe were made only of matter and mafs then the physical matter would have never existed in the deepest part of the universe if the temperature were at absolute temperature.
- The measure of the cold in the universe is dependent upon the slowing down of the movement of given pmf in a given direction and strength, hence the measure of the coolness is the external strength dependent and not plasma internal fields motion dependent. This being the reason why like in the planetary systems planets can and do produce their own independent temperatures irrespective of where in the universe they are and how cold or warm the environment of their surrounding planets and stars could be. Therefore *THE ABSOLUTE ZERO IN RESPECT TO* mafs and matter environment is only applicable to the earth position and environment and not to all universal condition. This being the reason why, one can see and observe life in all kinds of pressure and magnetic field strength in the universe.

Therefore the Absolute zero for mafs and matter environment is not applicable true for principal, transition and matter mafs and matter strength and environment.

This being the reason why that internal atomic structures can exist and atoms mafs can hold on to its structure and its existence, while the molecular structure in the matter environment can be cold that no external motion within the atoms of the molecule can be observed at absolute temperature.

The absolute temperature in a given environment can be said to be when the Magravs of the constituent matters environment come to be in total balance; and that is the point that the total losses and gains from the surrounding environments are said to be balance out that the total magnetosphere of the environment will compensate for the losses that the environment can keep on holding on to the zero motion of the total environmental Magravs.

On other hand the environmental Magravs can be reduced that there is no interaction between atoms that the motion of the atoms in respect to each other ceased to exist and motion in respect to each other become frozen. This is known as balance Magravs criterion and to

produce this within the structure of reactor is an art not known to man. Where, the balance Magravs positioning is the key to establishment of colonies in the universe, where there are no planets and stars as point of reference, but the condition of balance allows the station to be permanently positioned in that spot that all passengers of space can come to meet.

Production of an absolute balance give man the ability of what is known as hovering, where there are no propellers and no vertical jets of today to stay stationary in mid-air.

Absolute Magravs balance allows crafts of the future to keep a constant position and this can create fantastic composition for gate-thing, which is needed for movement from one Magravs system environment to another without actually needing to handle re-entry problem in either direction.

The operation and the use of the absolute balance Magravs technology systems are as for the physical doors of today, when used in the future, when one moves from Magravs plasma environment to another.

- In the operation of the universe, the distance of pmfs and the speed of the rotation of one pmf in respect to another is the criterion by which the speed and directional rotation of one matter or plasma in respect to another plasma is dictated.

Where, the positioning of mafs in respect to each other in the universe has a direct effect on how fast, when and where an entity will position itself and even this dictates the measure of the cold or heat of two entities in respect to each other and to other environments. This concept is seen in the universe in respect to the rotational direction of planets, stars and galaxies, where their direction of the rotation if different to the one other entities in their surroundings.

The criterion of mafs positioning is the reason, why for example the Vinous rotates in different direction than the rest of planetary systems in the solar system of the man, as its internal pmfs speed of rotation and their position in respect to others of the same within the internal structure of this planet are as such that the outer layers of this planet are forced by the configuration of the combination positioning of different cores and their pmf strength, forcing the planet to rotate in the clockwise direction rather than the anticlockwise direction as the rest of the planetary entities in this solar system.

This principal of the mafs positioning and speed in way can explain even why all matters in the universe rotate anti-clockwise or what is commonly called the electro negativity of the hydrogen atom directional motion.

Hence it can be said that the anti-clockwise directional movement of the plasma of proton and electron are due to the mafs strength within their plasma and the position of different mafs in respect to each other within the plasma.

Then this puts a closure to present theory of electron and positrons, where in fact electrons and positrons only difference is that one's internal magnetic fields are slightly differently positioned than the other and as their mafs contents of fields is the same, then only the positioning of the fields in respect to each other dictates the direction of the rotation of the plasma of these entities. This directional motion variation can even affect the absolute temperature of the operation for the positrons and electron in different environments too.

- Time as man is accustomed to on earth, this time in the universal language does not exist; time is a manmade phenomenon to measure the course of his life. In reality the time is the measure of the pmf of given strength to pass a given predetermined strength, thus time in the universal language is magnetic field strength and environment dependent. Where in the principal mafs

world the time of reduction is much faster than the time of reduction in the same matter environment. Thus time or measure of reaching from one level of strength to higher or lower by the same order of magnitude is the measure of the time in the universe.

Where, the universal positioning time will be measured according to the central position of the universe and considered to be zero at this point and then to make an appointment to be at a given time then the motion of all mafs and matters in the universe in respect to this point needs to be considered, Where this position is and has a three dimensional three hundred and sixty degree reference. Where, in fact time in the universe needs point of reference and that is earthly time, solar time, galaxial time and universal time.

Time is unchangeable and it is the same in the same gravitational and Magnetic field strength environment. This is important, as at the present there is a fallacy, which has been accepted to convince the scientific world that time goes faster in the universe as one moves away from the earth.

This is nothing but hypocrisy and lack of the understanding of how gravitational fields are created. This fallacy has come to a point that in the satellite systems of today an error time has been allocated that the satellite timing is adjusted in respect to position location of a matter or entity on earth. Where in fact if the scientific world would understood the full principles of the creation of matters, and if scientists can create the same g strength forces in the environment of the operation of the electric and mechanical processing of these satellite does not matter where they are positioned, what is called the environment of what is called one g, then these satellites do not need correction factor which they are using.

Where, in fact the time correction factor is due to the fact that matters in the different Margraves and gravitational position around the earth have and operate under different magnetic and gravitational field strength and this is the reason why there is a difference. Thus for the correction of time in these systems only one needs to consider creating the same Magravs strength at on the surface of the earth and then there will be no difference in time.

This concept is important for the future travels of the man into space and his excursions in the universe if he wants to keep to his habitual twenty four hour clock and earth gravitational magnetic field strength of his planet.

Man soon will find and realise a simpler way and then the hypocrisy of time travel and wormhole and going to the past and to the futures and so-called granddad theory will come to an end.

One point to remember that light which itself is plasma entity moves out in a spherical three hundred and sixty degree environment of the universe and for example the feature of a the face of the man will create man lights for it to be seen as a whole, but in time as light travels in the ever rotating sphere of the universe and these rays some get absorbed and some get distorted, then one cannot bring all the lights of all the matters of the one human face together to see that entity as it was so many time lapses before.

Thus if one hopes think that one can see the past of one person on a revolving dynamic environment through one light or making a machine to go backward to see the face of its forefathers, this shows nothing but the lack of the understanding of the science of creation and motion of light through the haze of dynamic universe by these men of science.

One can see the structure of matters like stars and fields in the far points of the universe primarily due to the fact that the light is and has plasmatic environment and like a telescope can pass the information to the point of arrival. But the light cannot bring the past of its source, but shows the pattern of its source like a move at the time it left the object.

In fact it can be said that light is composite matter and entity with active complex pmf of different mafs.

Thus, for example one as one enters the principal matter environment, where the principal matters is the creator and controller of Magravs of the environment, then in these environments one travels at the speed of the pmf of the principal matter and not pmf of tangible matter. Then if considering the principal matter environment in the centre of galaxies, then time for the matter world will be looking as being much faster or matter seems to be travelling thousands of times faster than what has become to be as the speed of light in the matter world in these environments.

Thus in reality the accepted time and speed of light as the maximum limit is only applicable for and to human understanding of the universe and not considered to be the truth in the real working of the universe.

When, the race of the man understands the concept of the use of the principal matter in the travel systems of their creation, then the man will be able to travel into the universe with much faster speeds than the speed of light of the mafs in the matter world and then one can travel the spans of the universe in seconds in human term and then one can travel the length and the breadth of the greater universe as one travels the earth glob with the toy systems of the jetliners of today.

Then the point arises that why some mattes and entities in the universe can last for a long time, where for example the human life is limited, the answer to this is very simple, and that is the body of the man is made of composites of mafs and matters and the more one adds to the composite the more Magravs are available to be lost to the surrounding Magravs, and be effected by the surrounding Magravs too.

Thus the life of the man is environment conditioned and in time as the DNA of the man learns to preserve more, then this will be adding to the life of the man and then the man will live longer, but eternal life is and belongs to no one entity in the universe, but the entity is the total facet and attribute of the whole as a whole. Thus man has been and shall ever be, not in the physical form but rather in the attributes of its physical existence in all universes of the god. Where, god is part of whole and fraction of none.

Where, the universe possess mafs and matters which their difference only is in their strength and nothing more and nothing less, thus time is faster in the stronger field for the weaker matter created entities and time is slower for the stronger mafs field strength in slower in weaker matter field strength. Thus time in the universe in reality does not exist and is a creation man's state of position and possession. Thus if one is in universe, where the strength of the mafs are one thousands time stronger than the other mafs, then the time is one thousands time faster and this applies to all mafs and matters in the world of creation.

One point to realise is that the magnetic rays which are released and are prevalent in the environment of the man are the time setters for the degeneration and division of the man's cells and have direct effect on the life span of the man in the universe, this be it a word of wisdom for the ones who come to comprehend and look for the eternal time life.

- What holds the universe together are the attraction and repulsion force of the pmf content of the universe. Thus the tightness of and the position that matters appear in the universe are totally pmf strength dependent.

Therefore as the pmf strength of the matters are attained at any point in the universe then that matter becomes to manifest itself in the given point and time in that part of the universe. Thus the glue of the universe is a combination of the interaction of all the mafs and matters, which their interaction makes the Magnetic and gravitational fields Magravs of the universe.

Thus in fact what is called the bosons theory has its truth in the position of and their interaction of the magnetic fields of different pmfs, plasmas, matters in a given position in the universe as these interaction dictates what and how pmf are given or taken from the universal soup of magnetic fields, and what the outcome entity shall be and how the matter manifest itself at given point and for what period of the time.

- Thus once a given pmf strength in the universe is achieved which can be initiated combination of the interactions of several conditions, plasmas, and environmental magnetic fields, then at that point in the universe a specific given mafs or matters comes to exist, this being mafs or tangible matter magnetic fields strength and so forth. This is the secrete of universal existence and manifestation of the all mafs and matters and the observation of one mafs or another matter is totally dependent on the observers pmf Magravs strength that one matter or another can be tangible or visible.
- As in the solid state magnets in the plasma state of the magnetic fields regions of the universe, these plasma poses and operate through the North and the South poles and the same goes with their attraction and interactions in respect to other magnetic fields of all plasmas too, that is to say that plasmatic magnetic fields position themselves as solid magnets do in respect to strength and position of other plasmatic magnetic fields near to and in their environment. Thus the North-pole of the plasma attracts the south-pole of other plasmas and at the same time the South-poles of the plasma keep and make distance from the South-poles of other plasmas as it happens in the solid state magnets.

In the physical matter one can see the motion of the magnetic fields and motion of magnets in respect to each other as magnets move and find their position in respect to each other in their given environment once they are brought into the proximity of each other. The same positioning and movements are applicable and are created and maintained in the magnetic environment of the plasma two plasmas once they are brought within the mafs field interaction of each other too.

The plasmatic magnetic fields of all entities can recombine to allow the circulation of their fields and in general determine the point at which the fields can re-enter the plasmatic magnetic fields to complete a full spherical plasma of the fields. Where, this point of re-entry of the fields is primarily dictated and decided according to the environment, which the mafs of the entity operates in and, not necessarily by the mafs strength of the field of the entity itself. Thus, the point of termination and re-entry of the fields of the plasma of mafs of even solid matters is dictated by the environmental mafs strength and not by the matter. That is to say the termination point for the magnetic field lines for a plasma and solid matters (the beginning and end of a field line) is decides mainly by the environmental mafs strength and not necessarily the strength of the fields of the matter.

This being the reason why the magnetic fields can reconnect anywhere in the universe irrespective of their physical distance, as the environment which the fields enter and carried to their full destination is supported and facilitated through the mafs of the environment and not the strength of the fields of the entity. Where, this phenomenon is well explained in the interaction of the change of polarity of two atoms, which as one changes its polarity, the second one does the same instantaneously. This is what one observes in the change of polarity of plasmatic field's entities, that for example as one plasma changes polarity, the other does the same parallel changes automatically that one never observes any changes in the structures of either entity.

This being like the change of the polarity of the earth and the synchronized change of the polarities of the cells of all beings on earth, that no physical change can be detected by the inhabitancies of the planet as the physical polarity of the earth changes.

Even though the same cannot be said about the change of the polarity of the moon of the earth as it does not change as the earth polarity changes in majority of the cases.

In understanding the principle of this phenomenon, then man of science can make any matter anywhere in the universe as the need of the time be, this be it production gold or production of amino-acid needed for production of proteins of chain of fibres of heart of man anywhere in the space for the travellers of the future.

Thus, one can control the point where what appears as the magnetic fields can draw in fields (as called conventionally called the exit pole) and where the field exits to release the fields (the north-pole of the mafs. Then size and the length of the magnetic field and the gravitational fields and Magnetic fields, which any entity creates, can be controlled and hence the size of plasma of an electron or proton can be predetermined. That is to say the total field strength of the Magnetic field and the magnetosphere which an entity creates and can hold on to, this determines the exact and precise dimension of the plasma of be it this be the plasma of the proton and electron.

Thus, in principle one can have field zone of the same length, which upon their interaction they create a given magnetosphere, but one can have the same spherical dimension of magnetosphere with a different magnetic fields strength, which this creates different Magravs field zone. Thus, the length of the magnetic fields determines in what entity is to be created, this being the plasma of proton or an electron, and so forth.

Complex magnetic fields create different field lines, hence different Magravs. This being the reason why in the plasma of the proton different pmf and matters entities are observed and detected.

- In the bigger picture of universal works, scientists will come soon to realise that all parameters are the same, all plasmas do and behave within a given procedure and sequence. Thus, what one sees in the plasma of this universe is the same as what goes on in the plasma of the proton and electron too. That is to say what has been puzzling the theoretical physicists about the content of the plasma of the proton, as one can see in the operation of the universe then one should have been expecting the existence of different matters, fields and fields strength in the plasma of the proton and even the same in the plasma of the electron as one sees in the plasma of the universe.
- Interesting enough scientists soon will start wondering about the creation and control of these magnetic fields that how they lead to creation of different plasmas of magnetic fields too, and how plasma of the magnetic fields become to become units of the same fields and how a magnetic fields can be attracting one plasma while the same end of the matter can repel another of the same from the same end or exit port of the magnetic fields. That is to say how can a solid magnet at the same time as can attract the opposite polarity and then at the same time and simultaneously the same pole can attract another dissimilar polarity. The fact is that magnetic fields of plasma of fields do not bunch all to north and south or all exit and entry port, but they arrange themselves as one of entry and one of exist and or one north pole and on the south pole adjacent to each other, but they do not set end to end with each other. Thus for example looking at the section cut across cluster of the magnets, the fields are arranged like mosaic of north and south in correct sequence and order. Where, in the case of the dynamic plasmas like protons the top view shape of the magnetic fields are the likes of a whirlpool and not straight-line fields of the same mosaic.

Then one should understand how the structure of nucleus of atoms are arranged in a similar manner too, as one exit port sets next to an entry port, then when a nucleuses has two protons then the in and out ports are matching and the magnetic fields of the atoms internal magnetosphere is complete and the atom is stable, but when the atom possess two of the same

ports and one of the other ports in its nucleus then the extra port is sharing its fields and or is looking for the an extra port that can receive its pmf or it receives pmf from, and hence the odd number protons nucleuses always are more receptive in receiving or dividing for them to have matching pairs pmf ports of entry and exit, that they can make their own matching magnetic plasma. In fact single magnetic fields do not exists in the world of plasma, and in a way the theory string shows nothing but lack of understanding of operation of the fields in the universe. This explains why odd number proton numbers go through decay or they are more receptive to make polymers of themselves or join up to make molecules.

Where, the entry port of the fields can take magnetic fields from the other ports or from the soup of the Magnetic fields of its environment, and thus the size of the entry port of the fields in principle determine the matter and mafs condition in a given environment.

The reality is that the entry point consumes more energy than the fields, which are coming out of the exit port of the plasma of the fields. The fact is that whenever fields interact they create minute contact points that at these contact points fields are divided into smaller length and strength, this is like when two bodies collide and due to their friction some heat or fragments are created; This happens the same when two magnetic fields interact to create their own magnetosphere and mass. Then due to this friction between fields the magnetic fields entry of south-pole are slightly weaker and less in mass than the total mass which originally entered the magnetosphere of the two fields in the south-pole. Where, in fact the slight difference in the mass and fields strength between the entry and exist of the ports, leads to ever reconnection and closing of the loop of the fields between the North-pole and the South-pole, and the motion of the fields within the structure of the matter and the entity.

Where, the South-pole or entry port is the feeder and the North-pole or exit point is the provider, where at the same time the due to miniature and micro size of the magnetosphere of the fields, there are too many magnetospheres which are connected and arranged in the mosaic of the one cross section, thus the entries and the exists or the north and south poles set next to each other and where the entries poles are more stronger the matter attracts and where two facing section the south pole are stronger the matter repel and hence the sequence of pulling and attraction of mafs and matters in the universe.

Where, the entry points both need to attract as much as possible so they move to guaranty their own continues supply of fields and this being the reason why similar poles move away from each other, that is simply to allow the entry or exit of the same floor of the fields to have the maximum chance of attracting fields to guaranty their field supply.

The dissimilar poles gravitate, as the entry-pole try's to absorb all that it needs from the supply of exit-pole of the other entity.

Further on the minute fields which are released from the interaction of the two fields, in them separating and being able to travel a given distance away from the original two fields and their interaction, these fragments travelling distance capabilities determine the magnetosphere region of the two interacting magnetic fields too.

The interaction of fields in creating plasma of fields needs a constant supply of fields from its environment, and that is why the fields can and do regurgitate some of the fields which was released by their own interactions and this being the reason why the Plasma of magnetic fields can last for a long time in the given environment.

In a way the attraction or the gravitational fields forces is created out of the necessity of the need for the two interacting fields to keep locked to each other, and hence the need for a constant sources of supply of magnetic fields in the universe, which this need is meet in large from a stronger source of fields and their unwinding of the principal mafs sources which are

scattered around the universe. Where for example the larger plasma's the likes of the stars needs are met by the cosmoses principal fields as they unwind and in the micro levels the need of weaker fields magnetic fields of atoms are met by their lower level strength fields of their environment.

Where, at the same time the magnetic fields can enter a centrifugal region where their strength can be tightened and thus fields as much as they can lose their strength through unwinding, and then through the same process of rewinding they can increase their strength too. That is to say that if the mafs fields are entered into a winding region or in a tighter pact region fields strength of the universe, their magnetic fields can be winded up that the mafs strength increases to principal mafs field strength. Or what is said in the common language of present science the mafs can become of principal mafs strength and the centre of the tightening mafs is the principal centre of what is called at the present science the principal region of the environment, this being in the centres of the cell, galaxies or universes.

Thus as long as the environment can supply surplus amount of the pmf for a given system for its north and south poles to be maintained, then there will always be an entity existing, does not matter what word in the vocabulary is used to confirm its existence.

The mass is created when the field at the entry port and the exit port are linked and it is independent of any other entities of the same or there scale of mafs entities in the environment. Where, the mass is the amount of the fields needed from the environment for the interaction between two fields or plasma of its fields to exist.

- The magnetosphere is the limit of the field's exertion in a given environment created by the interaction of the gravitational and Magnetic fields of the two original fields. Where the magnetic fields are the cause and the gravitational and Magnetic fields are effects their interaction and the Magnetic fields interaction now becomes the cause of the creation of the mass and magnetosphere of the entity as the latter become the effect of the interaction of gravity and the Magnetic fields.

This being the reason why, that the mass is independent of the environmental conditions and effects, as the mass is the indication of the given internal interactions itself and is due to internal processes of interaction of the same internal magnetic fields. Thus when the environmental magnetic fields, gravitational and Magnetic fields are considered and applied to the given mass system, then the weight or the measure of the mass in respect to the environmental fields forces can be measured.

As the puzzle of creation of gravity is solved, this should open new horizon in the world of science and make life easier for scientists to understand the working of the universe. Where the whole world of creation can be said to start from the difference in condition in position, where this leads to creation of field that the different position can interact and be connected to each other, This known to be the origin of creation and origin of the creation of magnetic fields in the universe.

Where, this movement of and need for interaction of fields to cross the space of their environment leads to creation of what is come to be known as magnetic fields flow, and the extent of the flow to cover the strength difference and the proximity to each other trying to cross the gap to guaranty continuity of flow of fields in the environment become the current or the strength of the magnetic fields.

Where, the interaction of magnetic fields leads to creation of Magnetic (repulsion) or gravity (attraction), where the interaction of the created Magnetic fields and gravitational fields leads to creation of mass and Magnetosphere (1) for the magnetic fields concerned. Where the interaction of magnetic fields depending upon their strength leads to creation of stronger fields to be connected to

each other, thus the stronger fields become the principal fields or feeders of mafs and the weaker fields become the matter mafs fields of the universe.

In the man's range of Magravs strength of his protein, the weaker mafs become tangible and visible or detectible and part of his own being's structure and his matter world is created and where in other levels due to stronger fields the principal mafs create a visible world for the one's whom their protein Magravs strength is set to a level beyond the man's mafs strength level.

Thus, the universe is the collection of and the creator of magnetic fields in different length and strength and their interactions to create different magnetosphere in size and strength in Magravs, and whenever and wherever there are fields to interact then they coagulate and linkup and create mafs and matters of different strength.

In the universe there are no empty places, which are void of magnetic, Magnetic and gravitational, mass and magnetosphere fields or not being in the path of the movement of fields. In general what is tangible and visible magnetic fields collection has been and it can be called matter and what is fields in the motion which are not yet attached to any matter to become part of given environment of matters or mafs are called energies of the universe.

The universe will never cease to exist as long as there are fields to attract and repel each other. Universe has no dark and black unknown phenomenon about it, it has principles and how they are applied and enforce themselves or it is enforced upon them, then a given condition and fields and mafs are created for given span of duration of fields interaction so called time.

The earth is not the unique environment which can provide and sustain life and intelligence, but life starts from fields and their interactions and upon their complex interactions and order they choose to be a club of plasmas, matter mafs, atoms, molecules, Magravsly to be bind (chemically), combination orderly repetitively Magravsly bind (biological) and creating communication in the biological Magravs repetitive order to guaranty the survival of their overall Magravs which these interactions lead to creation of intelligence.

Thus the man is not the only being with intelligence in the universe, as given the environment of interaction of fields entanglement is the facets of progression interaction of the fields which can be sustained everywhere in the unicos.

What is interesting is that one does not need the intelligence to have the soul, the same as one does not need to see the star in the far corners of the universe to know of its existence, but the plasmatic magnetic fields which it released during its existence it has travelled and nourished the universe to reach the position of the observes. This is the same for the soul of the man and the manner of it's creation and movement in all dimensions of existence, wise one now can understand the mystery of nothingness and of the creation of the soul of the man and the essence of its meagre existence in the world of universes.

The survival of the soul of the created being is the beauty of it, for it to give and to receive and not to be an outcast, then man of wisdom will enlighten the man of possession that there is nothing to possess if one uses what one needs and no more. Be wise on what has been said and open to be received and receive what is in your path of life in its different levels of interaction and attractions.

The ultimate point of understanding for the man who is one of the created entities in the universe and through what has been revealed on to man in the verities of disclosures in the recent past is that in the universe among its created whom have attained intelligence and have managed to take into spaces of transition environment of universes, that in the universe there are no animosities and no wars and nor this rule shall be changed as war and acts of aggression has been the habit of the passengers of the planet earth during their technological progress and their short lives on this planet.

The reason for the universal peace is not the lack of technology among its inhabitants, but the truth is that the intelligence of the beings of the universe is so advanced that they have no reason to fight for what they can attain in and achieve and obtain from the universe.

Thus the universe is ruled by peace and justice and the ones whom have the habit of the like of the blue blood from the blue planet will be thought soon a lesson that unless unity takes over the thoughts of the creatures of this planet, then these shall be thought a lesson that they will soon fall and follow the rules of the universe and not the old habits of the feeble man.

Not forgetting that the everlasting habitant of the universe have attained the knowledge that can wipe-out any type of life from the universe, thus the peace in the universal order is not due to the weakness of its inhabitants, but their strength to be able to see any short sightedness from the newly joined members of the universal community that they cannot and shall not be allowed or even think they can carry on with their old habits of war and division and injustice and exploitation of the other habitants of the universe as they has become accustom to on the blue planet.

The laws of the universe shall be in the hand of the land of the lion as they have been graceful and has been just and as has been promised, the knowledge of universe shall come from the land of the lion and the Sun where it will shine upon the rest of humanity in equal measure and with true powers of grace and justice. This has been the command of the created and shall be attained.

CHAPTER 9

The creation of Gravity

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Abstract

The universe is built and held together and operates on the basis of two forces. One cannot work and exist without the other and when one of these two forces dominates the affects can be interesting, drastic or/and at times dramatic for the entity, this be it the universe, solar system, planet, atom or plasma. These two universal principal dynamically plasmatically magnetic field forces one being the Gravitational fields forces (attraction field forces of the entity) and the other the Magnetic fields forces (the repulsion or magnetosphere fields forces of the entity), which both have their origin within its centre these operating entities.

Hypothesis

The source of creation and sustainer of the gravitational field force and the Magnetic field forces of for example planets are the same elements and the same conditions in the centre of the planet.

Prototypes

To prove this concept, several static and dynamic prototypes over span of five years have been made and tested (Fig. 23), which the outcome of these tests shown system on the bases of this concept can be made that the system creates both gravitational and Magnetic fields forces, which in the operation of the system allows the system to reduce its weight first and then the system separates from its ground base and hovers within its environment. This proving that the concept of production of dual Magnetic and gravitational fields through the same elements and conditions to be correct, and the results and observation from these tests are summarized in general in this and other papers to be published.



Fig. 23. Some of the prototypes used for creation of Magravs.

Discussions

In this paper for ease of understanding the structure of planet earth is considered as vast amount of information about the inner-structure of this planet are available. In fact this principle of creation of gravity through interacting magnetic fields can be scaled up to structure of universe or scaled down to structure of the plasma of proton and electron and the principle will still applies and be correct.

If scientists would have discovered both magnetic field forces and the gravitational field forces of the planet at the same time, they would have probably had a totally different understanding of their principles, their capabilities and their connections and most probably the human race would have taken a different course in its intellectual and scientific world. It seems this miscomprehension has been purely due to the physical time gap between the discovery and understanding of these two forces of creation.

Working on a real basis for gravitational field's forces production at the centre of the planet, the author set out in early 1980's to design and has produce several real and practical reactors (Fig. 23), which these reactors could replicate the universal order for generating magnetism and finally their interaction lead to the creation of Magnetic and gravitational field forces within the same system to prove the correctness of the principle of above hypothesis.

A fundamental assumption to achieve the proof of the creation and control of a gravitational force within a system has been that the Earth in its inner part has and maintains a semi-fusion and fission nuclear chain of reactions, also called a geo-nuclear reactor.

The interaction between materials and magnetic fields of semi-fusion and fission chain of events in the Caroline core (Fig. 24) of the planet (*This being the core within the inner-inner-core of the Earth, "The seed of the Earth" (12)*) always leads to creation and maintenance of planets physical forces of Magnetic field (MF) and gravitational fields (GF).

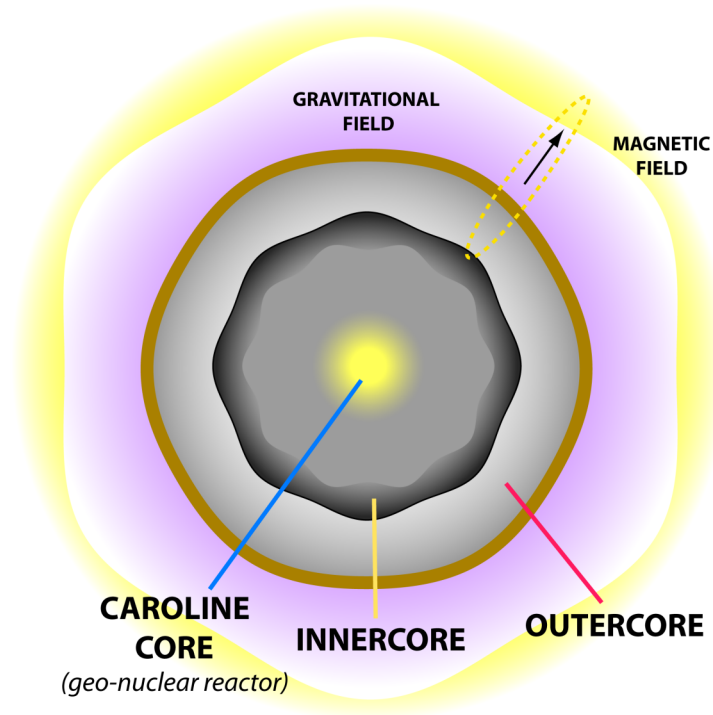


Fig. 24. The structure of inner cores of the Earth (12).

This semi-fusion and fission sequences of processes and existence of plasmas, nano-materials, gases and other materials in the containment of Caroline's' core and the convection process due to the heat transferred from the Caroline core to the Outer core of the planet once being passed through to the inner-core has been considered to be the principle operation of the inner cores of the planet, where, due to dynamic characteristic of the materials, which are charged and rotating within in vacuum condition of inside of the Caroline core, leads to independent creation of current and plasmatic magnetic field within this core, irrespective of the already assumed second and already known magnetic field, created between rotation of the inner-core and the outer-core of the planet.

These two independent dynamic plasmatic magnetic fields which are separated by means of the physical barrier made by the existence of the known solid inner-core.

The interaction of these two dissimilar poles if the these two dynamic plasmatic magnetic fields due to their proximity within the centre of the planet leads to the creation of the central gravitation field force of the planet, which this force spreads out to cover the whole of the structure of the planet.

Hence it is clear that the source of the Gravitational field force of the Earth and all planets are due to the interaction of two dynamic plasmatic magnetic energy fields, which are created independently in the centre of the planets.

The Caroline core of the Earth creates its own spherical dynamic plasmatic magnetic energy field, and the already known second field, comes from the dynamic spherical plasmatic magnetic field, which is created in the outer-core of the planet at the same time.

In trying to lock onto each other, these fields forces create the condition of double spherical magnetic fields, which both possess their own North-pole and the South-pole, where due to dynamic and loose atomic, molecular structure of the matters and fields in these two cores, the dissimilar poles of the two cores can never quite reach the point of total locking into each other, and as they try to reach this point of full lock, the field forces they create lead to creation and maintenance of the perpetual motion of the two fields in the centre of the planet.

These separated dynamic fields forces on either side of the solid-inner core exert their forces on the solid inner-core of the planet and cause it to rotate, and this leading to creation of the rotational movement of the planet (12)

At this point the interaction of the fields created by atoms and molecular elements, which cannot lock to each other due to their similarity of magnetic poles, will create the outward plasmatic magnetic field between the two cores, or they create what is known as the Magnetic field force of the planet (this being created by the environment and the behaviour of two similar poles of a solid magnet which they repel each other).

Where, at the same time the interaction of the magnetic fields created by atoms and molecular elements which cannot lock into each other due to their dissimilarity of magnetic poles, these interaction of the magnetic fields will create the pulling power effect between the fields, atoms and molecules contents of the two cores and this creates the dynamic attraction plasmatic magnetic fields of the planet or what is called the gravitational (Pulling) field force of the planet

Thus; Gravity or gravitational field force does not and cannot exist with existence of only one plasmatic magnetic field force as has been assumed to be so up to now in respect to the creation of the magnetic fields of the planet.

The gravity and gravitational field forces manifest themselves upon the creation and existence and maintenance of the second dynamic plasmatic magnetic field within the structure of any dynamic plasmatic field entity, that in the case of the earth fluid matter in the outer-core is source of this second field and may be generated through the assumed convection theory by the convection of the matter in the outer-core, and the interaction of fields in this core with the plasmatic magnetic field which was originally created in the Caroline core of the planet through the fluidity of the fields, plasmas and matters in this core.

Therefore the gravity is an outcome of the interaction at plasmatic, atomic or molecular levels between two dynamic plasmatic magnetic fields created and maintained by the two inner-cores of the planet upon each other.

Ultimately for creation and maintenance of gravitational field force, for all stars and planets or any dynamic maintain plasmatic magnetic fields system, and to maintain a gravitational fields forces in any celestial entity there is a need for existence and establishment of two independent dynamically, molecularly or/and combination of the two independent plasmatic magnetic fields forces, which these can be created by any mixture of matters and fields, in any combination of magnetic fields, liquid, gas, plasma or other state of matters within the confined of specific condition and entity, this leading to generation of loosely interlocking plasmatic magnetic fields, which these two fields are separated and maintained by any physical supranational means, in any state of matter or function, separately and independent from each other, even though one magnetic field could be the cause of the creation and maintenance of the second pmf.

Where, the separation of the plasmatic magnetic fields could be established by the means of solid, liquid and gases, plasma and energy directly in adjacent layers to each other as has been observed to be in the structure of the inner-core of the Sun material layers.

Once the strength of the plasmatic magnetic fields of the inner-inner-core (Caroline) and the outer-core in a system, by controlling the creation of the plasmatic magnetic fields in the Caroline core or the outer-core is attained by the system, consequently the strength of the gravitational field forces of the system like the earth is set.

Looking at overall view of the centre of the Earth magnetic fields and it their near spherical shapes structure and with the new understanding of its' physical inner construction and material composition, one will come to understand that at least the two magnetic fields generated within the inner cores

structure of the Earth are spherical in shape and they generate dynamic spherical plasmatic magnetic fields. Where, one field being superimposed on top the other are in operation within the centre of the planet.

Whereas, one of the fields being the spherical magnetic fields maintained by the inner-inner-core due to existence of plasmas, hydrogen atoms, other gases, nano, gans, nuclear and non-nuclear materials in presences of second magnetic field generated by spherically dynamic plasmatic magnetic the outer-core in the centre of the Earth (Fig. 25).

Which, this creates and brings about the phenomenon of the dynamic magnetic confinement for the materials in the Caroline core, which this brings about the conditions for the fusion process to be attained in this core of the earth. This explaining why the planet can exist for a long time with its matters and motion intact, as matters through fission and fusion use a very little matter in the close capsule environment of the Caroline core.

The second spherical dynamic plasmatic magnetic field in the outer core of the earth possibly is created through convection, due to its materials in motion in the outer core.

There are strong indications and possibilities that the outer core could be operating in the same matter mixture composition as the Caroline core, which this eliminate and invalidates the concept of the convection theory.

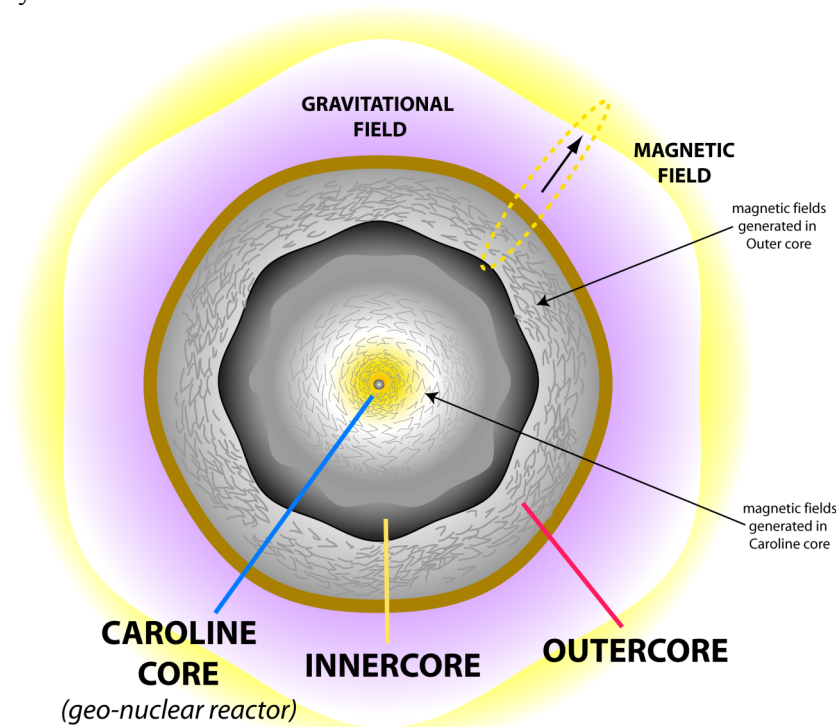


Fig. 25. Existence of minimum two separate magnetic fields in two cores of Earth.

It has to be said and it can be proven that the Caroline core maintains and through nuclear decay of its matter content produces plasma of matters, then by the understanding of the concept of generation of current through motion of the plasma itself, this proves that one does not need the convection principle to create the current and magnetic fields in the Caroline core or even in the outer core of the planet.

Therefore the existence convection theory and motion of the solid inner-core to create the magnetic fields of the earth losses its credibility, as in plasma technology, it is well understood that plasma in motions create their own current and in turn the interaction of this current with matters and other fields in their environment this can lead to they creation their own magnetic fields.

Thus, the theory of convection has to large extent no validity in the present understanding of nuclear science as one observes these operations of plasmas' phenomenon at the solar, galaxial and universal systems levels.

The convection theory was the understanding of the eighteenth century and the understanding of the working of dynamo of bicycles and this has no room in the integral working of the universal motion of plasma and magnetic fields of today.

Secondly entities like stars do not have solid core that leads to creation of their strong magnetic fields and gravitational field, as they only operate on the principle of plasma layers and some helium matter in, nano, atomic and molecular level.

Therefore in reality the physical positioning of the matter in the cavity of the once presumed solid sphere of the inner-core is the catalyst and contributor and the creation of both plasmatic magnetic fields of the planet, which both fields are independent of each other, but at the same time interconnecting or magnetically reconnecting tool for both spherically plasmatic magnetic fields on either side of the solid inner core of the earth to produce the Magnetic field and gravitational field of the Earth.

Where the interaction between these two dynamic plasmatic magnetic fields in the physical body of the inner-core of the earth leads to creation of the double spherical plasmatic magnetic fields' phenomenon needed for creation and control of the strength of the plastically magnetically based gravitational field forces and plasmatic Magnetic field forces necessary for the creation of the mass of and the atmosphere or magnetosphere around the planet.

These reconstructions' of plasmatic magnetic field generated in two cores of the planet are totally on atomic and molecular levels, this leading to a creation of loose plasmatic magnetic field forces that operate at weak levels, but strong enough to cover a vast area in their surroundings.

That is why a small Caroline core in the centre of the Earth can create a strong magnetic fields effect of up to outer boundary of the magnetosphere and gravitational field of the Earth and beyond.

As the plasmatic magnetic fields could be created by use of any elements in both cores of the planets that they can generate any amount of heat and a given gravitational fields forces and for example with the Earth operating at central temperatures of several thousands of degrees centigrade at its core with surface gravitational force of one g at its surface, and similarly the Sun physically possessing several of thousands of times larger mass and volume than the Earth with central temperatures of several millions of degrees centigrade, which has only the surface gravitational force of about twenty eight times more than the Earth, therefore the following statement can be made that *"the strength of gravitational field force of any system is largely independent of temperature, and is primarily dependent on, the composition of its dynamic inner structure mafs and matters, and the fields they created or maintained and the physical condition and are positioned in respect to each other, which through their interactions these leads to creation of the two dynamic plasmatic magnetic fields strength of the gravitational fields and magnetic fields of the system within its inner sanctum"*,

In relation to the physical data's available, the present gravitational field system which has been assumed to be created by the single magnetic system due to motion of matter and the inner-cores and the outer-core in the centre of the planet is not scientifically acceptable and cannot stand the present physical knowledge about the inner construction of the planet from seismological data's of the past twenty five years.

The concept of single plasmatic magnetic field of the planet, which has up to now been assumed does not stand scrutiny of present knowledge and the present expanded laws of physics, as for the planet to be able to create gravity and Magnetism (for magnetosphere) that can span a vast area of the solar

system irrespective of its position and the material carried in its outer shells and on its surface, then the planet has to have two active plasmatic magnetic field forces in its centre cores, that the interaction between these two plasmatic magnetic fields can create the fields that affect the behaviour other entities' with dynamic plasmatic fields elements in the vicinity of these fields, and the interaction of the fields of the planet and the fields of the entities allows for the entities' to position themselves in respect to and within the plasmatic magnetic field strength of the planet to be attracted by the effective plasmatic magnetic field of the planet. This is what we have called Magnetic and gravitational position or for short Magravs positioning of one entity in respect to the other entity, where both entities possess internal dynamic plasmatic magnetic fields.

The reality is that, if Earth has had only one magnetic field as has been assumed until now, then all elements on the planet would have been firmly attached to it, due to principle of attraction or repulsion of two magnets, and as it is observed on the planets all systems have been able to freely positioned themselves and being able to be mobile.

Without the shadow of a doubt the centre of the planet maintains two independent plasmatic magnetic fields, that the interaction between these two plasmatic magnetic fields at the plasmatic, atomic or molecular level leads to creation of an environment in which the matters in the surrounding area of the two plasmatic magnetic field will have the power to attract and repel mafs and matter within this created field. By the same law as the atomic matter, itself is made of magnetic energy fields, which possesses polarity hence why the attachment of the man to the earth as his being is made of these entities.

Therefore the matter will only by finding its Magravs position within the plasmatic magnetic field of the planet, if it can be attracted and be kept as part of the matter of the planet, or if its plasmatic magnetic field is too weak or too strong to be kept within a given field. Thus now it can be clearly understood how and why different planets can manage to hold on to certain matters and not the others and now one can understand why different matters take their positions in different layers of the planet too, where this positioning, like of the gases and solids, are totally related to the strength of the plasmatic magnetic energy of the atom in respect to the plasmatic magnetic energy of the planet or in other word, in respect to the total interaction between the pmf of mafs of the matter and the Magnetism and gravity of the planet.

The plasmatic magnetic field force created on these levels in the physical inner cores body of the planet these creates the condition, where all magnetic forces within these fields will be influenced through their magnetic reconnection, this being in atomic or molecular level, this creating pulling inwards forces for the two plasmatic magnetic fields of the matter and the planet to be locked into each other. This interlocking and the strength of it bind creates the effect of the gravitation field force, as the matters' magnetic force and the planet plasmatic magnetic field created by the double plasmatic magnetic energy field, reconnect to keep each other at a physical interactive but loose distance.

In reality gravity is the strength of the plasmatic magnetic field created by the interaction of the double dynamic magnetic force fields of the planet that can influence to pull the matters around these field to stay within its strength, or what is called its gravitational field force.

The interlocking of these forces are the same as with two bars of magnets when they are brought close to each other, but their binding of forces is in planetary plasmatic levels, which are at a loose atomic or molecular level rather than electrons' realignment or what is called are energy equal to the collective plasmatic magnetic energy of the electrons of Iron atoms interlocking plasmatic magnetic field level.

With the difference that in the planetary or astronomical, cosmological and universal levels these so called magnets are in the form of closed loop spherical shape and may be in possession of internal heating in respect to their surrounding temperature and system, where their plasmatic magnetic field

force can vary and they can change their strength due to the compression and other factors in their centre cores, as in solid magnet the strength of the magnet is constant and permanent.

In the closed loop spherical plasmatic magnets, the system of the plasmatic magnetic field lines has to find their magnetic reconnection line for the loop to be completed. Where, this plasmatic magnetic field's reconnection leads to the directional polarity leading to the creation of the North and South Pole phenomenon of the planet.

Through replication and production of such a system as the structure of the inner-cores of the earth, in being able to control the amount of matter and fields within the structure of these systems, the strength of the plasmatic magnetic fields of the cores of the system can be controlled and adjusted, so that, this will allow the creation and control of the measured gravitational fields forces by the systems in respect to the environment in which the system is operating in.

In the case of motion of an object like a manmade system, in possession of its own gravitational power production, in the gravitational pull of another object like a planet, the use of the phenomenon of the creation and control of the gravity in the centre of any system can be treated in the same manner as in the planetary system.

Where, the gravity created in the centre of manmade system needs to be slightly changed in the positive or negative direction in respect to its previous position for the object to be repelled or be attracted towards the planet or an object.

This Magravs positioning of a system in respect to planets plasmatic magnetic fields, can be achieved through several means, like by the change of characteristic of the dynamic of the one core in respect to the other, or changes configurations of the parameters, materials or physical structure aspects of one core or both core of the system.

The magnetic and gravitational forces of a Star are to some extent dictated by the position of planets within the system as much as the constituent content matters of the Star itself. On these bases, this being the gravitational forces of the system and its position within its galaxy is to a large extent dictated and controlled by its' planets and the gravitational force they create independently on their own.

This is very much like the rotational plasmatic magnetic fields of the electrons circulating around the nucleus of an atom. Where, the magnetic rotational spin of the electron decides the plasmatic magnetic field strength of the nucleus and the position which the element occupies and the number of other electrons it can carry, so this dictates the properties and its characteristics in respect to other elements around it, even though the plasmatic magnetic field of the nucleus is much more powerful than the plasmatic magnetic field of the electrons around it, or in other word the gravitational forces of the nucleus is needed for the electrons to be kept in their orbit and vice versa.

Thus the gravitational forces of a system or a galaxy is not only dependent on the plasmatic magnetic energy forces of its centre or its star, but it is fully controlled and determined by a bigger scale by its constituent planets and stars in that system too.

From the topography of the Earth gravitational field pattern provided by space agencies, Earth plasmatic magnetic field does not keep a constant pattern and there are constant changes in the strength of these fields in different parts of the planet, where these are dictated by the activities within the centre cores of the planet at the point of observation. These variations in gravitational field's patterns confirming that the planet has composite and not necessarily spherical shape cores.

These variations in these forces in the cores of the planet could be due to the variation between the interaction of the inner and the outer plasmatic magnetic fields, where for example at point where these forces vary drastically in respect to each other, then one gets distortion of the fields and

reduction or increase in the gravitational field force in that region of the planet by small factor. Then where, for example one force field, like the fields created in the Caroline core is more powerful due to sudden short burst of ionization in the core, at that point and that moment, the plasmatic magnetic fields interaction of the centre field is more powerful, then the gravitational field force can be more powerful at that given point, but these changes due to close confinement of the centre cores are usually not so large.

For example by observing the pattern of the gravitation field of the Earth, a constant depression in the plasmatic magnetic field in the region of the southern eastern hemisphere in respect to the rotation of the planet usually can be observed. Where, this phenomenon now can be easily be explained, and this is what I so call the washing machine effect and that is, where the material within the inner-core has loose plasma area of rotation, as in the drum of washing machine filled up with clothes, the inner-core of the Earth does not possess the blades as in the drum of the washing machine, then the more dense matters in the Caroline core as they cannot role all the way up against the internal wall of the cores, and then due to toroidal and interaction with poloidal motion of the Earth, these materials pull up the wall of the core and due to their viscosity they roll back over in this area, this whirlpool effect due to slower motion and less available field in this region effects the gravitational field in the south American continent area too.

This washing machine effect of the materials in the Caroline core directly affect the plasmatic magnetic field production in this core, and consequently its interaction with the plasmatic magnetic field of the outer core, and in turn this creates the disturbance in the gravitation field of the planets in these two regions as has been noted in the overall pictures of these regions gravitational field forces effect, where dents in the gravitational field forces patterns are observed on continues bases.

Even thou Newton did note the effect of interaction of two forces between the matters and the planet and he measured its strength and called it gravitational field's forces of the planet, but he could never establish the source and method of its creation. He speaks about the effects of the gravity in relationship between two objects in respect to each other's position, and not the effect created by two plasmatic magnetic forces in respect to each other and their position in respect to each other, where he could not understand that gravity was magnetic field bases entity and magnetic field strength and it effect are magnetic fields position dependent. Newton never could relate and understand the connection between Magnetism and the gravity as both to be created by the same matters and conditions which manifesting itself as two different forces in respect to other magnetic field forces.

Scientists explain the gravity as the relationship of attraction between position of two bodies in respect to each other, and not the reality that gravity manifest itself in relation to interaction and attraction of two bodies in possession of dynamic plasmatic magnetic field forces created and maintained in respect to each other position.

In understanding the real method by which the gravitational field forces of planetary systems are created then systems can be made to replicate the same process and by being able to create and control gravity as done in the planets one is able to observe the effect of this natural phenomenon within operation of a manmade system.

In manmade reactors as the concept of gravity has been replicated, now the concept of the gravity has to be redefined as the "attraction between two bodies, where at least one body possesses a double spherical dynamic plasmatic magnetic field force, where one field is superimposed by the other plasmatic magnetic field forces within an object, where their overall plasmatic magnetic field strength interaction upon each other can create an overall plasmatic magnetic field, that other matters in possession of their own dynamic plasmatic magnetic field or static plasmatic magnetic field, within their catchments area can position themselves according to their internal plasmatic magnetic fields strength".

The interaction of these double dynamic spherical superimposed plasmatic magnetic fields in the centre of the planet separated by the physical matter of the inner-core upon each other is the cause of the rotational motion of the inner solid core of the Earth and where the motion of the inner solid core itself is the containment body of the centrifuge system for the gases in the Caroline core for the atomic fusion chain of events in this chamber, for it to sustain the ionization process in the this chamber. Where, at the same time the inner-core plays the effective mixing machine for the matter in the outer-core of the planet, where the interaction of plasmatic magnetic field of the Caroline core with interaction with the plasmatic magnetic field of the outer-core would change the combined plasmatic magnetic field effect of the whole planet, which in reality would have changed the gravitational field strength of the planet.

The rotation in the gas layers of the Caroline core in conjunction with turbulence, which leads to convection in the materials in the cores of the planet, this effecting the generation of current and plasmatic magnetic field in the core of the planet and consequently the gravitational forces created by the core of the system.

Now one can explain that the change of the polarity of the earth and any other entity the like of the Sun is only due to change direction of flow of the current in one core or layer of these dynamic magnetic fields based star and hence the change of direction of the flow of the current for example in the plasma of the Sun layer leads to change of the polarity of the star, as one can sees the same change of polarity in the production solid magnets, where the change of direction of the flow of current changes the polarity of the metal, as is the same for the plasmatic magnetic field entities too.

Thus change of polarity of the earth is only due to the change of direction of the current within the core(s) of the earth and would not affect the gravitation field or Magnetic field strength of the earth when it will happens.

Now that the method of the creation and control of gravitational field forces of planet is understood and can be replicated, it becomes easy to understand how systems can be produced that can create magnetic field structure of any element or matter in the universe, this being magnet for hydrogen atom or uranium atom or magnetic machines can be produced that can gravitated to themselves molecular structure like water or protein.

Where, the system gravitational field can be created to match for example only the plasmatic magnetic field of atom of gold, so that the system becomes a gold magnet or the system will generate only or gravitates towards the plasmatic magnetic energy of the gold atom, so one can separate gold or any other matter which the system is present to generate the Plasmatic magnetic energy of. This system will then can replace the present centrifuge system of the present time.

Magravs measuring system

In the gravitational systems, where only magnetic fields forces are considered and measured, the present earthly measurement tolls of gravity has no meaning and room. Space scientists of the future have to learn to measure magnetic field force in respect to each other and not kilogram per centimetre per Seconds Square.

Thus the measuring gravitational systems to be developed have to be first of all three dimensional, as field forces of all matters and fields in space have to be considered and balanced against or with.

The gravitational tools of the space technology is fixed magnetic fields shear against the magnetic fields of the system against the total magnetic fields forces in the overall sphere of the systems fields.

In fact the gravitational fields of the space technology are like a magnetic fields sphere positioned around the gravitational reactors, as these measuring tools of the gravitational systems will measure the Magravs of the all fields of all forces internally and externally in respect to their position in respect to the reactor Magravs.

The Magravs measuring tools are to be called **Universal Magravs Measuring System (UMMS)** and position of Magravs of the system in respect to another Magravs are called **Magravs positioning System (MPS)**.

Elaborations:

Through understanding the real term concepts of the creation of the gravitational field forces and design and production of specific nuclear-based reactors of the function of matters within static and dynamic reactors, the principle of the hypothesis of creation of gravity has been proven to be correct.

The difference between inertia and gravity is said to be the gravity is an attribute of a body in possession of two dynamic plasmatic magnetic field forces interacting upon each other, where the inertia is the attribute of collective molecular magnetic force of an object which does not possess a double magnetic field structure as whole, even though both behave the same and due to their plasmatic magnetic fields appear to be the same thing.

Where, in case of planets like Earth, the total pulling power of the planet in respect to other objects in, on, or about it are due to collective forces created by the gravity and its constituent's matters inertia.

The creation and maintenance of gravity is dependent on two dynamic regions being in possession of two independent dynamic plasmatic magnetic field forces and gravity is totally independent of the mass of the object as mass itself is the by-product of the interaction of the Magnetic fields and gravitational fields of the entity, but dependent on the position of their plasmatic magnetic forces in respect to their plasmatic magnetic field strength from the centre entity.

The centre of planets, does not matter what their inner layers are made of do not need a metallic matter or metallic behaviour conditioned matter for the creation and maintenance of their own electromagnetic effect due to motion of electrons and charged plasmas in their core as these entities generate current and potential difference levels for the core to maintain independent plasmatic magnetic field forces leading to the creation of plasmatic magnetic field and finally by interaction of two such dynamic plasmatic field forces upon each other, leading to creation of gravitational field forces within the entity and in its surrounding area.

The interaction of these two plasmatic magnetic field forces upon each other, or the concept of *"DOUBLE DYNAMIC SPHERICAL PLASMATIC MAGNETIC ENERGY FIELD EFFECT"*, in the centre of any dynamic plasmatic entity will lead to creation of the gravitational field force and the magnetic field forces of that entity in respect to other entities with the catchments fields force of the entity.

Therefore, the gravitational field strength of a system manifest itself and can be explained as the relation to interaction and attraction of two bodies in possession of dynamic plasmatic magnetic field forces created in respect to each other plasmatic magnetic field position and strength. Even, further it has been proven through prototype reactor tests that the speed of the rotation of the planet is

determined by the speed of the solid inner-core of the planet, where the speed of the rotation of the planet is set and dictated by the interaction between the dynamic plasmatic magnetic fields of the Caroline core and the outer-core of the planet, as the motion induced by the strength of the two fields in the centre cores, upon and interacting within the solid inner core, determines the speed of the rotation of the inner core, and in turn this will determine the speed of the rotation of the whole planet.

Whereas, if the speed of the rotation of the planet were not set by the planet by this principle, then the planet would have had different speeds at different points in its daily axial rotation and it would have had different speeds in its annual path in circling its star, where the effect of the other objects in the system would have dictated different speed of the rotation of the planet, therefore it is correct to assume that the speed of the planet is controlled by the speed of the solid inner-core of the planet, and the same applies with other entities like the star as the speed of the internal fields interaction dictates their speed of rotation.

The motion of the inner solid core is very much like the motion of the trains on magnetic tracks, where by not allowing the two dissimilar magnetic poles to be aliened, the train moves forward. Where, in the case of the spherical solid metallic inner-core of the Earth, this motion is rotational rather than linear.

Through tests, it has been proven and understood for the first time, that the magnetic polarity change of planet or the system occurs when the direction of the flow of current this being due to motion of electron or charged plasma in the cores in the whole of the system changes from one direction to the other, or in some cases one field change of direction of internal current can causes the half reversal of the polarity of the whole system. This is understandable, as the plasmatic magnetic fields are created due to directional motion of electrons, plasmas or charged plasmatic current within the matters of any entity, thus as the direction of the flow of the current changes, this will change the direction of the polarity of the planet.

Understanding the direct relationship between the magnetism and gravitational forces within a system, in the manmade systems the change of polarity in the reactors of a system has to be avoided, as, if this happens during the operation of the reactor, this can and would lead to the overturning of any platform which is equipped with such a system. This being one of the fundamental reasons why the reactors which have been developed and tested up to now for space technology, always are preferred to be constructed in a half spherical shape, simply to avoid the flipping of the polarity in the cores of the reactor, where the speed of the rate of the polarity change is very dependent on the components and conditions created within of the centre of a planet or a star.

If a planet is made of near enough similar material on both side of the inner core, the flips of polarity will be much faster and on a shorter time lapse, like in the Sun.

If the planet is made of a composite core, and made of two or more different materials in its Caroline core (the real centre core), for the two fields to re-align, then this will take a longer time for the magnetic flip of polarity to occur, like in the core of Earth. In any case, as the materials in both cores are always constant and cannot change that much, therefore the time laps between the changes of polarity stays on the same time intervals.

In the case of the Sun, due to its more uniform and singularity or only composite of three matters of plasma, hydrogen and helium in its core, the change of polarity takes eleven years, and the full polarity change has the predetermined time of twenty-two or three years.

In the case of smaller planets' like the Earth, which is made of composite mixtures cores, the time lapse in change of polarity will be longer. Where, the switching of polarity is a natural outcome of the direction of the flow of current created by the electrons and primarily by the charged plasma and due to dynamic characteristic of the core, and is an inherent characteristic of the atomic structure of each element and environment which they are condition to within the cores of the planet.

It has been observed in tests, that the plasmatic magnetic field of the core increases by the principle of extraction of the electron from the core, where electrons are facilitated to be absorbed by the walls of the reactor core. Where, the majority of the field created is primarily due to the motion of charged plasmas. Where, at the same time for weaker magnetic fields test the reactors have present to absorb the plasma of the proton that only the lesser mass of mafts available in the plasma of the electron can be used for a given test condition.

Therefore according to need of the use, reactors can be set to utilize any components of an atom or the mafts of their constituent plasmas without in fact destroying any structure of the mafts or the matter, which the mafts was used for that given exercise.

In principle it is observed that the plasmatic magnetic energy of the planet is primarily due to the motion of the charged plasma in the core and not electrons, where in reality the motion of charged dynamic nuclease of an atom has/ and indeed, possess a much larger electrical charge then its counterpart the electron by factor of 2000 times. Thus now it is apparent and clear why such a small core in planets can master such large magnetic field forces within and around them, and now it is understood how planets can carry the burden of such large mass in their journey through their system for such long period of time of billions of years in their solar systems.

In tests plasmatic magnetic field created by these type of cold condition plasma using a 20 cm dynamic core, has been noted to create a 4-meter radius dynamic spherical plasmatic magnetic field span, which can last up to several minutes after the switching off the whole system.

The dynamic plasmatic magnetic fields created within the double cores of the planets, determines the magnetic or gravitation fields, which the planet will possess and consequently the material, which the planet will hold on to. This explaining why planets behave like magnets, which only have the characteristic of one element or several materials plasmatic magnetic band(s) which covers some and not the other elements, which this dictates the material composition of the planet within, on the surface and around the planetary system. Where, the same applies to the solar system and galaxies and so forth. Where, the gravitational field forces created by the balance of the two interacting dynamic plasmatic magnetic fields is the principal factor in determining the constituent material of a plasma, planet, star or a system.

The creation of the gravitational field forces of a solar system and even the gravitational field force of the galaxies are not far from the gravitational system and method's used in the atomic and planetary systems. That is to say, that solar system's possess and generate plasmatic magnetic fields like planets and they possess gravitational forces according to their stars constituent materials. If one could stand on the edges of the solar systems, one should be able to see and detect the gravitational forces of this system, by it simply absorbing and attracting with the entry of cosmic meteoroids and asteroids into its gravitational and solar heliosphere region of its solar system.

Solar systems, like planets, possess and create magnetospheres of their own which is specific to their composition materials. The entry and exit from these solar Magnetic and gravitational fields uses the same method as the entry into or exit out of planetary systems.

This also holds true for a solid magnet, where if a piece of magnet could be cut into two halves or four quarters, each piece of the material will still carry the same north and south poles and each piece will have the same magnetic powers as the original piece. That is to say, that if one uses the same volume ratio of the same mafts or matters and proportional physical conditions in the core of a system; one will attain the same magnetism and gravitational field force from the system as its bigger dimension system with the same mass ratios.

In astrophysical terms, the Magnetic field forces of any entities are what keeps the entities apart from each other, and at the same and opposite to this, the gravitation field forces are what keeps them together.

Where, the pattern of distribution of Magnetic and gravitational fields forces of the entity interacting with another Magnetic and gravitational field force shows itself as the magnetosphere of the entity.

This Magnetic and gravitational field force (Magravs) of dynamic plasmatic fields force is known passive magnetic field (PMF) and has no relation with the magnetism as known in a solid-state magnet. This is so called passive plasmatic magnetism due to the fact that, this type of magnetism cannot magnetize an entity otherwise all the materials in the universe would have stuck to each other. But this mixture of Magnetic and gravitational fields are used to position one entity in respect to each other that they not necessarily collide or move too far from each other once they established inter-magnetic connection.

The reason the Magravs are called passive plasmatic magnetic field is due to their capability of passing through human tissue without in majority of the cases affecting the function of their atomic and molecular magnetic field, which human cell possess on their own for their structural bindings.

In the past, magnetism and gravity have been explained according to the physical understanding of a solid magnet and not according to the planetary magnetic forces, this new understanding of creation of magnetism and gravity, is one of the corner stones of the creation of plasmas, planets, solar systems and galaxies. By not appreciating the connection between the magnetic field force and gravitational field force of a system like Earth, it has become a challenge for the scientific world even to overcome the weak gravitational field forces of small planet like earth in just trying to send a small rocket into the Earth's orbit.

Through development and tests on double core type of cold condition plasma reactors creating the same conditions as it has been assumed to exist in the centre of planets, it has been observed and physically been proven, that the source of the three dimensional spherical gravitational field and three dimensional spherical magnetic field of the planets are the same materials and the dynamic interaction of plasmatic magnetic fields created individually and independently in each core of these reactors and their effects upon each other creates and maintains both forces of the creation Magnetic field and gravitational fields forces simultaneously.

If one were able to create the right condition and material in a simple core, as has been done in our tests with core developments, then one can create and control magnetism and then the gravitational field forces within that object, and then in the environment which the object is positioned in respect to other external plasmatic magnetic fields around it, where, the plasmatic magnetic fields created within and by the object will becomes its Magnetic field around it, very much like the magnetosphere of the planets, this providing a magnetic shielding like Earth atmosphere around the object and due to the spherical shape of objects in possession of both forces, this creates a magnetic loop, where they create the two poles of the magnet as the North and the South Poles.

If a system can take advantage of this phenomenon, for it to move within forces of a planet, rather than trying to overcome them, or to resist them for its motion, then not much energy or effort is needed to create the right gravitational forces and magnetic field protection within and around a system for it to move inside or outside the atmosphere of a planet or a system without burning a single atom as a fuel, which this puts an end to the propulsion technology for rapid and protected motion anywhere in the universe.

Due to the spherical shape of most of celestial entities and their rotational motions in the universe, the gravitational force created by the dynamic plasmatic magnetic effect has a pulling force, which has the tendency to encircle and reconnect within the interior of the entities fields of the same dynamic

structure. This being the reason why the gravitational forces increase as one moves closer to these objects and as one moves' towards the centre of these matters.

The difference between the solid magnetism and plasmatic geomagnetism are two clear factors, in this particular order, first is Dynamism of the magnetic fields which creates the geomagnetism, and second the need for the interaction of two independent fields upon each other to maintain the plasmatic magnetise, where plasmatic magnetism for it to exist the plasma needs to create and maintain a full gravitational and Magnetic fields system of its own, which can absorb and feed other plasmatic magnetic fields within its environment to guaranty its survival in that environment at the same time, whereas in solid magnet, the order of continuity is within the structure of the matter and not mafs of the matter.

Conclusion

The gravity is the product of interactions of fields and wherever in the universe fields will interact their interactions will gravitates some fields or matters to them, or caused these fields to be attracted and gravitate towards another setup of the same or stronger and by laws of nature the stronger attract and gravitates more to itself and the heavier mass as they are made of more magnetic fields tend to dominate the seen when it comes to gravitational pull. Through tests it is apparent that the power of Magnetism and gravity of all entities in the universe are independent of the physical size of the entity and more dependent on the strength of mafs, which have led to the creation of the entity.

Through design and test of double core reactors we have proven that the origin of the gravitational force and magnetic force of a planet or any celestial systems in the universe are the same mafs and materials and conditions, where they are created out of the interaction of two independent and dynamic plasmatic magnetic fields.

Note; this revised version of the creation of gravity paper has included extracts from collection of three other papers published by the author, which these were, the gravitation measurement system, the relation between Magnetisem and gravity (35) and the original paper of the creation of the gravity.

CHAPTER 10

The creation of Black Hole

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Note:

The original version of this paper, which explains how black holes are created and how they do leak matters and rays into the environment of the universe, was submitted to the Royal Astronomical Society of United Kingdom in London in April of 2004 for peer review and publication. The author after three months received on the 8.7.2004 a letter (Fig. 29) from the Society dated 7.7.2004 that this paper will not be published and will be kept in the library of the Society.

Interesting enough on the same day 8.7.2004 (check the press) Mr Steven Hawking, the imminent Black hole scientist and expert in this field of science announced that he, after thirty years has changed his mind and he says that indeed the black holes do leak rays out and that he announce this in a conference in Dublin later that month (see the press), as now he has lost a bit of shirt.

We have wondered for years how coincidental of the topic, the date of letter from the institute, the date of announcement, and the change of mind of a scientist!

This is the reason why the Keshe Foundation does not believe in the scandals and process of peer review and the foundation publishes its own scientific papers on its website and its own books for the reader to peer review the newly gain knowledge. As with this process the knowledge is passed on first hand and in some cases in matters of hours of the discovery to the public and not waiting for month and years until there is gap in some journal that the paper can be published. The Keshe Foundation firmly believes that 'as if a man, has reached the age of maturity and intelligence that he can read, then he can independently investigate and judge the correctness of the knowledge he receives according to his own level of intelligence for himself', unless he is an innocent, then he needs to accept the enforced control system of peer reviewing to tell him what to think, that this peer reviewing can suit the self-interest of the peer reviewer, or organisation which supports him financially or the nation which has promoted the peer reviewer for their own clandestine purposes, as we have seen the same process of control through peer review systems in different occasions in different countries around the world in this recent times.

A copy of the letter from the Royal Institute of Astronomical Society is enclosed at the back of this chapter for reference. (Fig. 29).

Abstract

Since first disclosures of this phenomenon, scientists and the rest of academic world have tried to understand and explain the reasons for the existence of these mysterious Black spots in the universe.

Hypothesis

The object of this paper is to prove that Black Holes are created out of a natural sequence of events in the universe and to prove that existence of a Black Holes in the galaxies and in the universe is a normal event as the appearance of the Dark Spots on the surface of the Sun. Black holes are simply a creation or an outcome of natural interaction between two or more mafs, passive magnetic fields and matters in motion within any dynamic plasmatic magnetic field entity in the universe (Fig. 26).

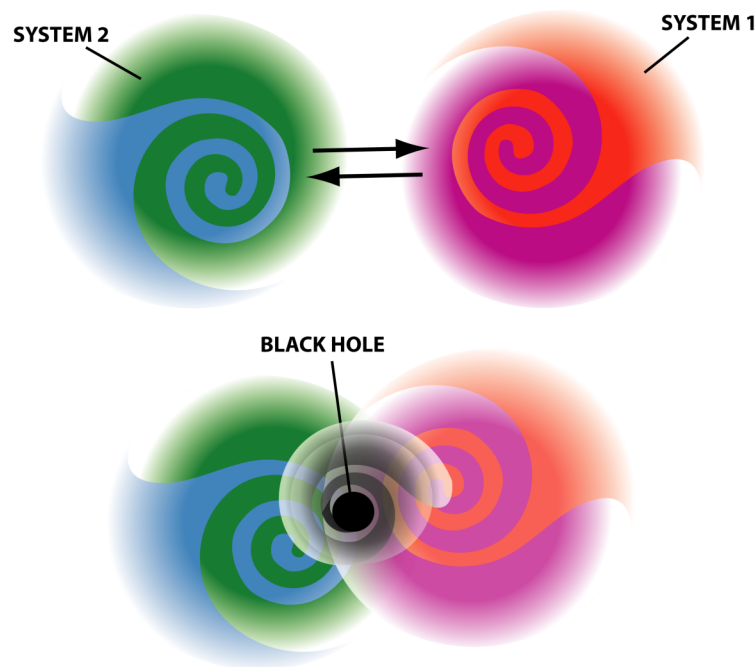


Fig. 26 Interaction of two plasmatic energy fields creating the effect of a Black Hole.

Discussion

In this paper for the first time, it will be explained how the Black Hole is physically created and in this disclosure it will be explained

- 1) The conditions, which this physical object is created in the universe naturally.
- 2) How this body of the mass appears as a dark spot in the galaxy?
- 3) What purpose it serves in the universe?

- 4) Parallel example of the Black Hole condition in our solar system.
- 5) The use of this phenomenon for Man to enable him to travel in space.

When, one could fully understand the concepts of the creation of galaxies, stars and planets and plasmas, and then one could be able to understand the creation and existence of the Black Hole in the universe in its different scale of dimension, where the creation of these entities in the universe all follow the same principle.

In understanding the fundamental principle that galaxies like solar systems and planets are given their inner mass and energy at the point of their birth in the universe, so they cannot create additional new masses and new source of energy on their own. Then it is understandable that Galaxies can only recycle what they have been given at the start of their lives, to create different new objects like stars or planets within themselves. In universal terms they have a finite mass and energy available to them and nothing more. But at the same time as a part of bigger picture galaxies have to obey the universal laws of physics. Consequently, all galaxies follow the same rules and so do their physical contents like solar systems and atoms within them.

A Black Hole is created primarily and only under-one condition in the Universe and as the consequences of other acts in a galaxy. They are not created as a deliberate act and as predetermined plan in and by a galaxy. But in their way, they make an enormous contribution in keeping the matters in check in their surrounding environment during their relatively short life.

At the same time they redistribute fresh materials throughout the galaxy during their cycle of existence. This is done through and as the consequent of them being the source for the creation of cosmic rays in their galaxies, as this is very much like natural fertilizers production systems of galaxies. Where, the old matters give its energy in an indirect way, for the existing other planets, to keep them healthy and for them to receive sustenance from their galaxy.

Black Holes in the universe are nothing but the centre for collection and re-cycle waste bin of cosmic debris of different sizes, this being giant meteoroids to specs of cosmic dust.

As the black hole grows bigger and their gravitational forces take over, then a Black Hole becomes a predator for parts of this galaxy. They become vast eating machines of the debris and stars and planets and this is exactly what is to be expected of them.

The Black Hole is originally created totally by chance. There are no patterns in their creation. They are simply a creation or an outcome of natural interaction between two or more passive magnetic fields or matters in motion within the galaxy or the universe.

Creation of the Black Hole

To explain the concept of creation of black holes, phenomenon's that are normal and familiar are used and will be relied upon in this paper. Then a parallel for the creation of the Black Hole type of incidents will be drawn with the same process in the solar systems, galaxies and universe.

Black Holes are created according to the rules of physics in galaxies to collect and then replenish the galaxies with fresh recycled materials, where this recycling is the vital factor in sustaining and making sure that as the galaxy moves that there are new materials available to start new systems within the galaxies. At the same time for them to nourish the other planets within the galaxy with fresh supply of materials. Where, for example the Earth receives several thousands of tons of cosmic dust from the

solar system through the similar method through its atmosphere per year from the black hole within its galaxy and from the universe.

The parallel similarities between the Black Hole and presentation of new material in the universe and on Earth can be compared to the effect of collision of Earth's tectonic plates. When, two sources of solid materials interact with each other. In the long run stars and planets in the galaxy, as the same with Earth submerged tectonic plates; these become the source of the supply of new materials in the galaxy, similar to, as lava becomes the new continents, or mountains on the Earth.

Let's explain this in the following manner. The continental plates and stars systems are forever on the move, they move slowly, but surly they are on the move. On the Earth, when two or more continental plates move in random manners, over centuries and millions of years, at some point they come on each other's path so as do the stars and their systems, like solar system and others in our galaxy.

When on Earth the two or more continental plates come together. Several things can happen, this happens in galaxies but in a different form too. Where, the continental plates in galaxies are replaced by cosmic spherical or flat oval magnetic fields of the stars or systems.

The next steps in the procedure are very familiar on Earth as the continental plates push against each other, if, they are of similar strength, they rise together to create the mountains over millions of years as these plates are still pushing and moving while they are exerting their strength on each other. So, large mountain ranges on the surface of planets are created.

Other things can happen too and that is if, one of the continental plates has weaker energy strength the weaker plate will slide under the other, where the continental plate which sub-merges in the long run becomes the material in the lower levels inside the planet, which later this becomes the base material for the magma of the planet, then over millions of years this matter again appears on the surface of the Earth through volcanic eruption. Then some times in the future these too become the source of materials for new continents or an island and so on through volcanic eruptions.

The material drawn into centre of the planet does not disappear but for the time being is hidden from the view and parallel to this scenario happens in the galaxies, when two or more systems in the galaxy reach each other, where an area in the space is created that the two passive magnetic fields and or entities have to interact with each other. Where, their passive magnetic fields push against each other like continental plates (Fig. 27).



Fig. 27. Plasma of passive magnetic fields pushing each other creating a balanced magnetic field region, called Black Hole

As they are on a collision path with each other and as at the same time the surrounding systems forces are pushing for their position, they do not allow any other course of motion but path of the collision of the two systems on the move. Then, a point is reached that as there are solid materials in motion from both systems and they have no choice but to collide and interact with each other. Where, in this process being thrown at each other by their systems, pieces of inter-planetary garbage, parts of moons or meteoroids and other bits of the two systems in this region are in the same pot too and all are mixed up and get entangled with each other.

In this area and at the same time as the two systems physical materials are pushed and thrown at each other, so do their mass and passive magnetic fields are exerting their powers and authority too as in the like of in the planetary the hidden forces pushing the continental plates into each other. Then a point is reached, where these two magnetic force fields' of the two set of entities forces become to near enough to cancel each other out and create a condition of magnetic field equilibrium, where one field force cannot dominate the other passive magnetic field force, and inevitably an area of no or very weak passive magnetic fields force in this region of the universe is established, where during all this processes materials from both systems are still being pile-up in this part of space. Where, the two systems materials are brought together due to pure forces of the Passive Magnetic Field forces of the systems and their surrounding systems in the galaxy.

Even stars themselves in the latter stages of the development of the Black Hole could become the victims of the Black Hole, which their system themselves were partially the cause of creation of. At this point the new mass of the Black Hole may even be a larger mass than any of the individual systems that created the Black Hole in the first instance.

One cannot forget that these masses are still in motion and rotating at very high speeds.

This new mass in the centre of this is pile all together creates a very large gravitational force within its region due to sheer weight of the mass which is collected and primarily these could become inertial pull rather than gravitational pull of the matter in these Black Holes too.

By laws of physics, one knows that the only reason that stars shine or cosmic rays glow is the phenomenon of the motion of charged particles passing through a magnetic field. In this region where the magnetic fields are very weak, this region lacks the main component that could make it shine or to be bright and that is the lack of the passive magnetic field in this region, due to the equilibrium and / or cancelling out of the two interacting magnetic field forces of the two systems.

Or for a time in the motion of the two magnetic fields of the systems passing each other in some parts there are no or there will be very little magnetic field force available, even though there are charged particles in the area, but there are no magnetic fields strong enough for them to interact with to create the visible light. Consequently, in these areas of galaxy there are No glows and No shine.

Reason why this is called the Black Hole, is due to the fact that in these parts of the galaxy, which two or matters and their magnetic fields meet and interact, and can balance each other out, there will be very little visible light emission due to the lack of interaction between charge particles and non-existence of magnetic fields or existence of weak magnetic fields, that cannot produce bright light enough to be visible from the Earth.

This is the reason, why if one look's at these areas of the galaxy these areas seem to be darker compared to their surrounding areas, as the light not only is emitted from the mass of the black hole, but at the same time these matters due to their physical dimensions and their magnetic fields forces strength will not allow and block lights coming from other sources behind them in the galaxy too.

This is why, these regions of the space seem to be black, but from an outsider point of view looking over the area it looks as everything and all materials are thrown in to this dark spot from one side and nothing is coming out of the same side and consequently the physical term of The BLACK HOLE was invented.

This area appears as to be a Dark part of the universe, but in reality some rays of light should be observed being produced in this zone, as some charged particles still interact with the some weak PMF of the systems or what is left of them before they enter and interact and in this part of the galaxy there are visible light but matters are disappearing too.

So, in this region of the galaxy astronomers observe a large gravitational force due to the large amount of mass thrown in to this area by the two systems as they pass each other. But, they have no explanation as what is happening to all this mass. Now one understands the reason for this false assumption and appearance. This is the region where the gravitational forces are in reality mixture of gravity and inertia pull of two systems.

One has to remember that as these two or more systems are passing each other, several scenarios can happen again, which every one of these will have and has drastic and profound effect in that region of the galaxy. Where, at the same time these events can generate a vast amount of new recycled material for other entities within the galaxy.

At the same time one has to take into account the time factor and that one is dealing with a three dimensional picture, as in some cases the Black Hole exists for millions of years during the crossing of the two systems crossing each other's path at a slow speeds. The truth is that the Black Holes are a temporally condition, so to speak, in the bigger picture of cycle of the life of a galaxy, but they surly look like being there forever.

Some of the residual of these interactions will be some cosmic rays (10) or the outcome could be the birth of a new system with a new mass from the mixture of the masses of the two old systems after the system parameters balances each other out. In this case the overall masses of elements within the black hole are present as they were in their original systems. Where, now the new Black Hole could possess slightly less than the combined mass of two old systems. With lose of the some of its matter in the process of the interaction of the two systems into the galaxy.

One cannot forget that the centre mass of the Black Hole is still rotating most probably in the same direction as the systems were rotating which created it. At the same time, as the centre mass is void of the Passive Magnetic Field (PMF), the usual interaction between the passive magnetic force and gravitational force do not take place that usually creates the first basses of heating and sustaining that heat, so that the temperature gradient could take hold, that this in turn could create the scenario conditions for the mass to become a large star or a system.

So that the centre mass have enough material but not the right condition to create the necessary heat, for the time being to make the jump to become the source for a new system or a new star in possession of gravitational forces.

This is one of the ways that the Black Holes become the creator of new stars and systems. Therefore the mass relies upon the heat that is produced mainly by the natural friction of the elements pilling on top of each other in the centre of the black hole.

But at the same time these places become the centre of the mafs of principal matters of the entities within the collision zone. Where at this point the principal mafs and matters of the constituent matters within the collision can take hole and star t the process of creation of the principal star with its strong magnetic and gravitational field forces, which this condition can lead to creation of principal star and hence through realises of mafs of at principal level and through its slowing down and through production of transition mafs, these parts of the universe can again appear to be dark than the rest of their immediate surroundings, and hence the creation of balance mafs of created and the surrounding environment field, then again due to lack of creation of interaction sufficient to create mafs at the mafs of visible light, then these areas of the universe again look darker than the neighbouring regions, and as the centre of this region is covered with the seed of principal mafs and matters then one observes the strong pull of matters to this region without being able to see its origin which is the principal star in the centre of the dark zone.

These interactions between passive magnetic fields occur on regular basses in our galaxy, as systems are at all times on the move in a confined space of their Galaxies and if one had enough time to look out into the space, one will observe the creation of so called black hole the way one observes passing of dark clouds in the sky of the earth during stormy times.

The motions in this specific part of galaxy are in progress over thousands of years, the Black Hole's due to other systems magnetic fields surrounding it and their influence and interface with passive magnetic fields of these systems making and allowing the black hole to leak cosmic rays into the galaxy like a fountain in its surrounding area.

Then it should be understandable now that why the scientific world finds materials from the Universe that is not nor have not the same age as the original component of the galaxy. As like supernovas, the Black Holes are the source of the new material for the galaxy primarily because of the way they are created and the way their life cycle finishes.

The other scenario of the interaction of the two systems could be totally different with an interesting outcome. This is the most horrendous way that the two systems could come into contact with each other and in this case as the two magnetic fields come too close to each other, at the same time other systems around them push these Passive Magnetic Fields themselves together.

The two fields interact and the first stage of creation of the Black Hole is reached very rapidly, but as the two systems surrender more and more of their debris and planets to the Black Hole, the central mass of the Black Hole increases and as the Black Hole is receiving its contents from two different systems simultaneously, then a point reached that the weight and the gravitational force of the new centre mass of the Black Hole super-passes the mass weight of one of the systems, which created it in the first place.

Systems which have already lost some of their mass to the Black Hole at the outset of the creation of it, now losses control of its magnetic fields too. To an outsider looking at this event, it seems as the Black Hole is consuming everything around it. Where, this process can take over thousands of years, until a temperature gradient or a dynamic principal mafs and matters of in the centre of the mass is established.

As the centre mass of the Black Hole has consumed the entirety of two systems, and it is operating in a no magnetic field zone for a period of time, where its internal dynamic plasmatic magnetic field cannot pass its physical boundary (see the paper "The creation of dark matter" M T Keshe for clarity), the system will still can absorb or attract other masses from its surrounding into itself.

In this scenario, if mafs and materials are held for long enough time within the centre mass! That new magnetic field force could be produced and maintained, where at this moment of its life cycle this giant of a mass of the Black Hole will be nothing but a huge Gravity and Magnetic field producing machine. Where, by the end of this process a new system or several systems will come to be born and new materials will be scattered in the galaxy, and this Black Hole will be a Dark place but not necessarily cold.

If the centre mass during its creation does not manage to heat up, then the third phase of the Black Hole syndrome takes hold. This being that, the centre mass at this stage becomes so big and as it never had a chance to heat up due to total absence or lack of strong magnetic force at the same time where the new large centre of the mass is rotating, this new mass will be inherits a huge natural inertia force from its collective mass with no or little magnetic field beyond its physical boundary to keep it at bay, so, this massive large body will start pulling smaller objects near to it into its trap.

The same phenomenon applies when two galaxies come to pass each other's path too, with the most horrendous outcome for the galaxies in that part of the cosmos, where the outcome of such encounter is beyond imagination. This has happened before and astronomers forecast it for The Milky Way galaxy in the future as it passes the nearest galaxy to it in the next few billion years. Where, the surrounding areas near the newly created Black Hole will not be safe from the onslaught as this new mass at all time of its existence has the same fundamental problem as of all other systems, and that it tries to hold onto all its elements. At the same time like other systems the lighter elements and weaker mafs in the mass move to the outer layers and to the edges of the mass.

Where, weaker mass as lighter gasses and particles move to the outer region of the mass, they become better candidates for them to be pulled away from the centre mass by any opening in the adjacent Magravs systems near to the Black hole. When the centre mass reaches a point that Magravs or its inertia force become weak on its edges, that lighter elements can manage to loosen themselves and escape from its grip into the space of its neighbouring environment.

These freed elements will become part of matter that can be attracted by adjacent systems to the black hole or due to the rapid motion of the Black hole released as cosmic dust in the galaxy. Therefore objects can and do leak out of the Black holes into their respective galaxy even during the time of their creation.

If these elements are pulled out of the power of the centre mass, through the strength or gap in the adjacent systems or weakness in the power of the black hole, then they become the cosmic rays this being due to the fact that during extraction most atoms get stripped of their electrons, and some heavier atoms in this scenario lose their electrons in the same way and so they appear as plasma and as part of the cosmic dust in the galaxy too. Black Holes are the source of most of cosmic rays and dust in the galaxies due to this effect (10).

In the galaxies Black Hole's while are in process of being created and during their existence at all times are still surrounded by other systems and are under the influence of their Magravs.

The powers of these Black Holes are usually kept at bay by other systems around them with their larger magnetic field forces and gravitational forces, which the black hole is still encapsulate amongst.

Black Holes are normally observed close to the centre of the galaxies and the universe, as there are more systems clustered together in these regions as this increases the chances of different systems to come in the path of each other and in turn increasing the chance of the collision of solar systems in the and galaxies in the universe and hence increase in the chance of the creation of numbers of the Black Holes.

The stronger mass and the heavier elements of the universe and galaxies are largely concentrated in and near the centre of these entities, thus the passive magnetic fields and gravitational forces of the systems in these central regions are many times more powerful near the centre of galaxies than what is experience in the outer edges of them.

Consequently, the gravitational forces and passive magnetic forces in the centre regions of the galaxy will soon bring and keep the size and the power of these giants Black Holes under control.

What these collisions of systems and creation of Black Holes achieve is the fundamental principle of regeneration of new systems out of the old matters, and at the same time unclogging of the galaxy of all the loose debris.

If one looks at a three dimensional overview of these areas in space, surely due to the movement of stars and planets and the interaction of their forces, one should be able to predict, where the next Black Hole in that part of galaxy could be produced.

In time, a point will be reached, where the passive magnetic fields systems in one of the immediate systems' neighbours to the Black hole will move on, and at this point the feeding frenzy of the Black Hole will come to an end.

Like volcanic eruptions on Earth, where the mantle is thin enough that pressure of the lava can takeover, and that it can to pure out, pushing its way out into the atmosphere as a volcanic eruption.

This is exactly what happens when one of the passive magnetic fields in this area moves or weakens.

This creates a gap in the fields containing and controlling the black hole parameters, where the materials in the centre of the Black hole, which has been pushed previously into the Black Hole from one direction, for these materials to be released or scattered in to the galaxy.

In this process, part of these materials will manage to cluster together and generate the conditions essential for creation of one or more systems or stars.

Where the rest of the materials of the centre mass of the black hole becomes cosmic dusts, some become comets and some become cosmic rays and so on.

Thus Black holes are not gigantic eating machines compared to the size of their galaxy. In reality, they are nothing but a temporary condition created in the galaxies due to movement of plasmatic magnetic field systems as they are crossing each other.

Very much like two masses of clouds crossing each other path colliding with each other. Where, this interaction of clouds upon each other creates abnormal conditions in that area of the planet, where, their thickness can block the rays of the Sun behind them and the sky looks darker, but in reality these are temporary conditions for the viewer from Earth.

Contrary to common belief, Black holes always release matters and release new recycled material into their surroundings; they are not bottomless pits, where everything disappears into them. They are like a funnel, that if one looks at one end it seems that they are taking everything in, but exactly like a funnel, they have a hole on the other end, that what goes in has to come out, with a difference that the end of this funnel is connected to a kitchen-waste unit of the universe, where that on one end it crunches everything up and mixes whatever goes in before spewing the waste out through the waste pipe.

So the behaviour of the Black Hole is very much dependent on the position of the observer. If one looks from one end they are massive eating machines and from the other end they are the supplier and feeder of new life in the Galaxy.

In real term this dark part of the galaxy is at all times emitting electromagnetic waves of varying levels and strength from all the activities which is happening within, around and because of it. Black holes can easily be identified in their environment and their position can clearly be pinpointed by using much simpler method of detection than by just guessing and look for their effects in a given region of the universe.

In principle the Black hole has all the attribute of any system, but in fact as the internal plasmatic magnetic energy field of the systems creating it, in the given region of the galaxy, cannot create outward plasmatic magnetic energy field, that can interact with other plasmatic magnetic energy fields in its immediate given environment, for it to create outward visible magnetosphere at boundary of the black hole to manifest itself as a visible space in its region, this leads to creation of lack visible light in the man's Magravs amino-acids matter mafs strength.

The phenomenon of Black Hole occurs on the continuous bases on the surface of stars of any Solar system. The principle of the creation of Black hole happens on a smaller scale on the surface of the Sun in the solar system, where these are called the Dark Spots of the Sun.

These are where dynamic plasmatic magnetic fields systems on the surface of the Sun go through the same cycle of interaction of fields with each other as it happens for the creation of the Black Hole in the galaxies, where these plasmatic magnetic fields come across each other in the atmosphere and on the surface of the Sun, consequently they have to interact or pass each other, with the difference that these plasmatic magnetic fields systems on the surface of the Sun, even thou they are so powerful,

they in one way or other meet-up with each other, and as their energies have to interact, then sometimes these energies cancel each other out and reach a balance magnetic energy condition.

At these points then, the same cycle as the creation of a Black Hole, on the surface of the Sun in much smaller scale repeats itself as there are no magnetic fields interaction because of similarities and identical mafs strength of the interacting fields, then there very little friction of fields that residual fields in the strength of the man's mafs of amino-acid strength are released, and hence or a very little light in the region and hence the appearance of the Dark Spots on the surface on the Sun is observed. In some instances the same is created as there are no interactions or balanced pmfs strength of the matters and mafs between the charged particles and mafs from the surface temporally are produced and consequently there is no or very little emission of light from the surface of the Sun in these regions.

On the surface of the Sun the same scenario of retraction and absorption of matter as the of the Black Hole starts occurs with a slight variation, which in this case the gravitational fields force of the Sun is so powerful and very close by that as the gravitational forces of the Sun are (in proportion) many times stronger than the gravitational force of the particles captured within the Dark spot region on its surface, that once the magnetic fields have interacted their energies and the content within the catchments of their forces have reached the equilibrium level, then the mass of particles in these regions are sometimes pulled back inward onto the surface of the Sun instantaneously after the collapse magnetic fields which created the dark spot regions, then at this point the physical matter of plasma in this region of the dark spot are pulled back into and is literally missile back into the liquid surface of the Sun, this creating a secondary dispersion of matter in the atmosphere of the Sun and into the solar system and hence the increase in the Sun flairs during the creation and as sequence of the collapse of dark spots on the surface of the Sun.

In reality the persona of dark spot is created mainly through interaction of mafs fields of the Sun and these are created very high above the surface of the Sun, that the dark image observed is not in reality mainly on the surface but much further up in the atmosphere above the real solid surface of the Sun.

In other instances as the plasmatic magnetic energy fields interact to create the Dark spot, the surface tension of the Dark spot becomes weaker on its face away from the Sun and all sorts of mafs and matters in the full spectrum mafs of the universe directly gets ejected into the solar system with much more power and matter then normal dispersion.

Once the temporally condition of creation of dark spot of the Sun is created, By this time, most of the other plasmatic magnetic fields of the Sun physically push and cajole the plasmatic passive magnetic fields (PMF) that created the Dark spot, so that, these external forces in the surrounding environment of the dark spot move and shift them from their position, where by this movement there are no more active plasmatic magnetic fields in the region to interact with each other in these regions and then the normal process of the charged particles interacting with the plasmatic magnetic fields around them start again as before, then everything goes back to normal and the light or the shine on the surface of the Sun returns to normality.

When too many dynamic plasmatic magnetic energy fields start cancelling each other out, the surface of the Sun become congested with many different plasmatic magnetic energy fields and they clog up the surface of the Sun, like congestion in traffic jams, hence the number of the Dark Spots starts increasing.

It is important to remember that Objects (these being solid, gas, plasmas or etc.) possesses their own plasmatic magnetic energy field and all these plasmatic magnetic energy fields on the surface are dynamic and respond to other dynamic plasmatic magnetic energy fields, which are created internally in the inner cores of the star. Where, these internal magnetic fields are the creators' of the gravitational field and the overall magnetic field of the star itself. Where, The stronger plasmatic

magnetic energy field (the gravitational field) usually dictates and plays apart in the position and level of freedom of the weaker plasmatic magnetic energy field (the object) in respective to each other.

Thus, when the inner cores of the stars due to their near mono atomic structure go through their internal current realignment (12, 18) this in turn leads to change in the direction of the gravitational field and thus the polarity of the whole star.

Consequently the rotation of the gravitational field which itself is originated and created magnetically interacts with the dynamic plasmatic magnetic energy field areas on its surface and in its atmosphere causing them to move in respect to the internal dynamic plasmatic magnetic energy field movements of the star.

Therefore main reason for sudden periodic increase in the movement of the plasmatic magnetic energy field on the surface of the star and sudden increase in the creation of black spot in their environment can be clearly be identified, to be due to the interaction of the dynamic plasmatic magnetic field created by the matters and mafs on the surface and the inner Magravs fields force of the stars.

Where, the inner dynamic plasmatic magnetic field of the star is by order of magnitude several millions of times much stronger than the isolated single or packages of dynamic plasmatic magnetic fields on the surface. Thus the stronger inner fields force of the star, dictating the direction of the motion of the weaker fields of the Dark spot. This being the very reason why the eleven-year cycle of change of polarity of the Sun brings about an increase in the number of the Dark spots of the surface on the Sun on regular bases. This being due to Sun's internal plasmatic magnetic energy fields' changes which brings about the polarity changes, every eleven years. Where, at these cycles there are more of these surface and atmospheric dynamic plasmatic magnetic energy fields in motion and available to interact with each other and the internal mafs of the Sun.

In fact, as the polarities of the Sun changes, so more dynamic plasmatic magnetic fields start moving from one pole to the other to accommodate the physical practicality of the plasmatic magnetic energy field polar change. Thus, a larger number of the dynamic plasmatic magnetic fields become to cross each other's path and consequently there are more chances of two or more dynamic plasmatic magnetic fields to meet and to balance out each other's field. Inevitably, as at these areas, there are no effective plasmatic magnetic energy fields for the charged matter to interact with, thus there is less light emission from these areas of the Sun. Henceforth the appearance of darker areas or dark spots in these areas on the same principle as the creation of the Black Hole phenomenon re-occurrence.

The increase in the number of dark spots of the surface of the Sun is always in sequence with the period when the Sun internal dynamic plasmatic magnetic fields activities go through their repositioning.

The number of these Dark spots increases and as they move, suddenly a vast number of dynamic plasmatic magnetic fields cancel each other out and as the change of polarity of the Sun completes itself and settles down.

The whole cycle of collapse of the Black hole re-occurs', that is, where a Dark Spot collapses, and their new plasmatic magnetic energy fields fines its total balance, and the matters which where gravitationally trapped under the influence of the dark spots, which are mainly plasmas, are retracted by the gravitational pull of the star and are ejected back onto the surface of the Sun is large quantities and numbers. This is the time, where there are massive activities and strong Sun flares scattering outwards from the surface of the Sun, where, large quantities of the Sun matters are plashed outward in the solar system.

Sometimes, as the mass of particles collected in a Dark Spot is pulled back into the surface of the Sun, due to their mass and speed, these become like meteorites hitting the surface of the Sun. This act causes more than usual charged particles to be leaving the Sun surface into surrounding space.

The darkness on the surface of the Sun is not due to what is commonly thought to be due to cooler temperature in these regions, as the Dark Spots are purely due to the fact that there are no or very little dynamic plasmatic magnetic fields available in these regions to interact with the charged particles to create light.

So underneath the Dark Spots on the surface of the Sun the temperature of the surface is still the same as the rest of its surface.

Conclusions

Black holes are natural physical by-products of the motion of forces and matters like every other object in the universe. The only difference for this body to appear is the fundamental shortage or total lack of one of the three main ingredients of the creation, namely the lack of the Passive Magnetic Force Fields in the region, where these black holes manifest themselves.

Black holes are another creation of universe like the uniqueness of the Blue planet and once one has understood the methods of universe's powers of creation within all its physical parameters, then every aspect of the appearance of objects and fields can only be explained with understanding of the interactions of these with each other.

The most beautiful part of this phenomenon will be! How Man will use this knowledge now for the advancement of its race?

Understanding of the method of creation, existence and the behaviour of the Black Hole in space opens new doors for the Man to plan his future excursions in space and the appropriate name for this object should not be a Black Hole.

These regions of Black hole in the galaxies cover areas as large as several solar systems, with them possessing all the physical attribute of solar system. With the difference that they do not shine due to the lack of appropriate dynamic plasmatic magnetic fields strength within their construction or during the time of their existence in the environment of their operation.

The appropriate name for this object as has one body and two distinctive characterizes behaviours and appearance, by first characteristic being a gigantic eating machine, and the second characteristic by allowing new systems to start from what it has digested. There is an old Aryan name for an arrow with two heads as the Black Hole with two characters and this object is called ZHUBEEN.

I call this unpredictable object in the galaxy with this name, as now it is a known object and not a mysterious scientific phenomenon.

Elaborations

The helio-seismology is the study of the internal structure and dynamic of the Sun using Sun-quakes, and the Sun oscillates continuously by varying degrees and directions. These oscillations are caused mainly by turbulent convection just below the surface. The data from spherical-symmetrical solar

model of the same condition shows close correlation to physical collected data through inversion. This showing that the data simulation is close to the physical reality of what is happening in the inner sanctum of the Sun.

For our testes in dynamic cores and data's attained through them, it can be confirmed that the rotation and the turbulence have direct effect on the heating of the matter within the confined of the reactor build on the same principles, where in the reactor and consequently in the creation of the current through convection and magnetic fields production within it, where the turbulence of the matter in the core of the reactor creates the dynamic and the dynamo effects which this has a direct effect in and on the production of the dynamic plasmatic magnetic field in the reactor.

Turbulent convection and differential rotation in the Sun are thought to be the cause of the creation of the solar magnetic fields and the directions in which these magnetic fields appear to flow out of the surface of the Sun according to their direction of rotation their tightness are known as helicity of the magnetic field in the region. Where, Helicity simply describes the handedness of this field and as the field literally opens up like a cone as it moves away from the centre towards outer region. As Magnetic and Magravs helicity is in fact a measure of the knottiness and the twistedness of these fields within a region, where this closely related to the turbulent dynamo effect. Where, from all observation in the past, large-scale poloidal magnetic fields the helicity have a direct linkage with strong toroidal field leading to finite helicity.

As, in the reactor tested on the same bases as turbulence of the mafs of matters where the reactor cores having a finite parameters and the rotation and turbulence are predetermined, therefore the helicity of the magnetic fields has to be the same at different points but equal for all distance from the centre. Where, due to the small size of the core, a mean or average strength or tightness of the magnetic field could be assumed.

Thus a point of interaction of two magnetic forces in the cores will create condition similar to the dark spot on the surface of the plasma. Which if the collapse can go through plasma towards the boundary of the core, this can create a sudden surge of dynamic plasmatic magnetic field or which this can alter the system operation mode. The reason for writing this paper has been due to the fact that in the reactor designed, if the condition of Black Hole is created, this can lead to the shutdown of the system or unstable condition of the operation of reactor. As this has happened in two occasions during testing of the spherical core, where the second magnetic field was deliberately created and positioned to interact with the internal magnetic field created by the core.

In both cases the whole system did go through magnetic poles trying to bypass each other.

In the second test in trying to prove the point of the interaction of two magnetic fields and creation of black hole condition, the whole system was twisted and the axial pines of the core were off centred.

The core axels had to be realigned, but the damage to the core weld and axel proven to be too much to repair, and more or less this test of creation of black holes caused the loss of the first steel prototype core (Fig. 28).

At the same time in the same reactor the creation of the dark spots due to interaction of the matters were deliberately created for specific use of the system, where investigation in the creation of dark spots, and where the use of transition matter condition for the creation of dark matter, for the fuel needed for deep space travel was tested and confirmed.

This is how these above phenomenons clearly can be explained, and the principle for the creation of the Black Hole can easily be demonstrated.



Fig. 28 Test reactor

In the future papers the writer will explain how the Black Hole's effects can be useful in helping to travel through galaxies and in the Universe. These are at this moment of time beyond understanding at the present level of scientific achievements.



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Mr T. Keshe

7th July 2004

Dear Mr Keshe,

Thank you for your recent submission.

I am sorry but your paper is not in a suitable form to be considered for any of our journals and so I have placed it in the Society's library, where Fellows may read it. I have included your contact details so that they may approach you directly if they wish to comment.

I am sorry to disappoint you on this occasion but we cannot give your submission any further consideration.

Yours sincerely,

David Elliott
Executive Secretary

Fig. 29 . Letter of Royal Astronomical Society

CHAPTER 11

The relationship between gravity, mass and weight

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Abstract

With the new understanding of the creation of the double dynamic plasmatic magnetic field of planets and understanding the new principle and method of the creation of gravitational forces, further on the balanced fields outcome of the collective and internal interaction of Magnetic and gravitational fields up on each other of any entity within the structure of mafs, plasmas, atoms or molecules this leads to creation of so called the mass effect of an object, it is now simple and apparent that what the mass is, how it is created and why the same mass possess different weights in different gravitational field forces environment.

Hypothesis

The mass of an entity is created from the outcome of the deduction of the interaction of the gravitational fields and Magnetic fields forces of an entity and has nothing to do with external field's interaction and strength of the environment of that entity. The variation in the numerical difference in the weight of the same mass of an object in different dynamic plasmatic Magravs field forces of different environments or different planets, is totally due to the interaction of the total collective dynamic plasmatic Magravs fields forces, including the inertia effect of the environment which the entity is weight measured and of the collective internal dynamic plasmatic Magravs fields strength of the mafs of the entity which create the mass of the objects upon each other.

Where, the magnetosphere of the same entity is the total sum of the magnetic field and gravitational field forces catchments zone of the same two internal fields which make the Mangroves fields of the entity that they can attain in their given Magravs fields strength environment.

Discussion

Planet like the Earth possesses a combination of two magnetic field forces. First the gravity, created due to the interaction of the two independent dynamic plasmatic magnetic fields in its centre cores upon each other. Second the inertia, which is the collective dynamic plasmatic magnetic field of its atoms and molecules of its constituent matters, which has the physical body of the planet.

Any object, this being plasma, an electron, an atom, a molecule or even a human body is created from a collection of the plasmatic magnetic Magravs energy fields of different strength and their continues interaction between and up on each other, which in total decides the total or collective magnetic field possessed by that object or the mass of an object and the total interaction within molecular or atomic dynamic plasmatic magnetic field of a given object is always constant irrespective of the other dynamic plasmatic magnetic fields around it. The mass of an object has a collective package of plasmatic magnetic field tightness of all its constituent elements, and this will not change as long as the object is intact as one entity in its overall atomic or molecular or collective molecular appearance.

Which the interaction of the one object dynamic plasmatic magnetic fields with molecular or atomic magnetic field of another object Magravs in its vicinity or it environment will determine the weight of the two objects in respect to each other or in a given environment.

The mass of a body in relation to another molecular magnetic field, like gravity is dictated by the strength of the magnetic fields which creates the gravity, which in the planetary system like earth, this is maintained by the planet according to its inner molecular construction and conditions in and by which the Magravs strength of the planet manifest itself to the body.

The interaction between two or more dynamic plasmatic magnetic fields created by a planet to create and determine the gravitational strength of the planet are due to conditions and in conjunction with its elements.

Usually these types magnetic fields created by planets are very strong, so an object like a human body which possess a weaker collective dynamic plasmatic Magravs and in reality possesses its own gravitational field forces due to its combined electromagnetic fields of its elements which it is composed of, which for a given body this is constant, these will be attracted and be operating in a much more stronger dynamic plasmatic magnetic field environment of the planet. Which, this gives the body due to its interaction of the Magravs and the planet dynamic plasmatic Magravs interaction, where the strength of the Magravs force of the planet and the body in respect to each other, this determines the attraction force between the two fields of two entities of the body and the planet and consequently the mass of the weaker force or the object in respected to and within the stronger Magravs forces of planet or Magravs forces of the body dictated the weight of the body in respect to the planet.

In reality the reverse of the same criterion is true too, for the mass of the planet, and its weight in respect to the dynamic plasmatic magnetic field of the body.

Thus, it is easy to explain, when a body interacts with two planets of the same size and when the two planets are made of the same materials, where one for example has lower temperatures, or internal speed of rotation or lower rate of ionization of the prime materials within its Caroline core, which all these can affect the strength of the Magravs of the planet for it to possess a weaker dynamic plasmatic Magravs strength, then planet which has a more inertia power, which is of the weakest order than gravity, but always constant, for a planets like moons, then the magnetic attraction, or pulling, between the same object and the second

Magravs force will be weaker, this by the same principle as above giving the body in the second environment a lesser weight value.

This is the very essence, why man's body appears to have less mass on the moon than on the Earth. Where, this is simply due to the fact that the dynamic plasmatic Magravs of the moon, which creates its gravitational force, and even this could be the inertia effect of the moon, have weaker Magravs strength power to interact with same given human body's dynamic plasmatic Magravs than the Earth dynamic plasmatic Magravs strength on the same body.

Therefore, the weight of a body is position dependent in its relation to its counter interacting planet or object inner Magravs forces, which create the Magravs or/and the inertia, or static Magravs of atones of that planet.

That is to say, if one could replicate the same Magravs field as on the moon, within a given position in the Earth atmosphere, one will have the same weight as the body will have on the moon within the Magravs force of the Earth.

This is why in propulsion technology there is an absents of the Magravs within the system objects always float and have less mass, as first of all the propulsion systems do not create Magravs that the object can position itself in respective to and lock to the position that the object become motionally stable and this and the secondly for example in respect to the body of space users of the propulsion system, the body's collective dynamic plasmatic Magravs strength, has been positioned far enough away from and within the dynamic plasmatic - Magravs strength of the Earth, that the mass dynamic plasmatic magnetic field strength of body in that position within the Earth gravitational field, due to the speed of the rotation or motion and conditions created within of the craft, will have a weaker interaction upon the body, allow the body a more freedom of movement.

Using the principle of the Margrave positioning for vertical take-off or choosing stationery or fixed position orbit for an object, like for satellites, within any atmospheric condition, where the magnetic fields created within the reactor of a craft can lead to creation and control of the Magravs within the craft, allowing the mass of the body of the object in a given position within the atmosphere of the planet to reach the equilibrium in relation to the Magravs of the planet, then in that particular point within the fields that are created by the planet the body will have the same mass as the earth and the time delay lapse of free float satellites to tune with earth gravity become irrelevant and there will not be a need time delay or adjustment.

This is the fundamental principle and criterion for any system that is used in any spacecraft's technology to replace the present jet propulsion or rocket technology.

Therefore the mass of an object is the representation of the effect of the Magravs of a body in respect to the Magravs of the second body.

The Magravs positioning is the reason why atoms of the same element fuse to create molecules, as their weight in respect to each other is zero, or equilibrium, even thou they both possess the same mass.

At the same time, if this is understood in full, then most of the chemical and biological interaction of atoms to create molecules can be comprehended and replicated in an easier manner.

Where, the collective mass of atoms in respect to other atoms within a molecule Magravs will dictate the number of, position of and the composition of atoms of different elements within that molecule.

Then this explains why it is easier to create certain material in absence of gravity in space labs, that in the presence of lesser dynamic plasmatic Magravs strength of the planet in high altitude then only the weaker Magravs forces of the elements come in to play as they are in a much weaker dynamic plasmatic Magravs strength levels from the centre of the planet and they can combine to produce materials, which under Magravs forces of the Earth are impossible.

Conclusion

Therefore the mass of an object possess different numerical weight values in two different Magravs force environments purely due to the interaction of the double dynamic plasmatic magnetic field of the planet and the constant collective dynamic plasmatic Magravs of the object.

The gravity itself is created by the interaction of magnetic fields of the matter and as the mass is the product of interaction of gravitational force and Magnetic fields forces of the same matter magnetic fields based generated phenomenon and as any environment in the universe possess magnetic fields irrespective of their strength and interaction of these fields in that given environment creates a new Magnetic and gravitational fields or Magravs in that environment that the outcome the interaction the two Magravs of the matter and it environment become the weight of the matter in that environment.

That is to say the variation in weight of an object in different environments is totally due to the interaction between the dynamic plasmatic Magravs strength of the two of entities upon each other, in respect to each other's position, in their respective environment.

Where Magnetospheres of the entities are the outcome of the sum of the interaction of Magnetic fields and gravitational fields forces that the entity can master for it to be able to protect and hold on to all its mafs and matters which the difference field forces of the same Magnetic fields and gravitational or Magravs of the same entity has managed to attract and accumulate within its given environment.

In short the interaction of the two or more dynamic plasmatic magnetic fields lead to creation of Magnetic and gravitational field (Magravs) of the entity, and then the balance of interaction of the Magnetic and gravitational fields forces leads to creation of the mass of the same entity which the mass is entirely dependent on the strength of the two original magnetic fields of the entity, and then when the Magravs of entity interact with the Magravs of another entity which itself magnetic fields origin based, then difference or the influence of one Magravs of one entity in respect to the second entity Magravs make the weight of the two entities in respect to each other, where as much as the first entity has weight in respect to the Magravs of the second entity at the same time second entity has a weight in respect to the first entity too.

CHAPTER 12

Parallel worlds

Mysteries of existence about parallel worlds, the questions to ask are or can be as follows:

1. How do they become to exist?
2. How can we interact or be aware of their existence?
3. What can we do or have done to get there?

Let us consider the structure of simplest entity of plasma of an electron in overall structure of let say an atom of hydrogen (or atom of sodium which is part of piece of stone or metal, gas and etc.).

The plasma once created and maintained from interaction and down levelling in strength of different mafs of which this plasma in its division leads to creation of an atom which at this point the plasma of the electron of the atom has an independent existence from plasma of its proton and electron decides about its own motion and its own position in its environment in respect to its proton. Even though, this is conditioned on the position and strength of the proton of its atom. Where, electron itself is made up of collection of different magnetic fields strength and their interactions and as the electron of an atom is not aware of the its larger counterparts of proton(s) and other electron(s) in a larger elemental or molecular structures and it is not aware of any state of matter and at the same time that the electron is not aware of the part of heat and cold in its environment are playing in its position and motion in respect to its proton and other entities of the same which it is connect to.

Where, this electron physical appearance as any physical matter is dependent on its environmental condition. Where, let say this electron can be an electron of atom which is part of atoms of a piece of stone and at this point the electron is not aware of the existence of a stone in larger scale levels of its existence. But the electron exists within the existence of an atom, which the atom exist in existence of the stone.

But now let's say the stone is parts of a salt stone grain which is consumed by an animal.

Now the sodium atom by making its Magravs available to protein of a cell of the animal it becomes and takes part in the bigger scale and larger Magravs of a protein chain connection, where sodium on its own could not achieve.

Let's say that now the protein and in conjunction with sodium this creates the condition of neuro-connection and the cell becomes part of living being, this being part of neuro system a shrimp, dog or a man.

Where, for example the combination of different protein and different atoms and the interaction of their Magravs and balancing act within their mangroves lead to need for interaction and new balancing Magravs, where this new interaction of proteins and their different Magravs, leads to a need for cohesive and balancing line of magnetic fields line of transfer of fields. Where, an accumulation of different fields and Magravs and their interaction brings about feelings and intelligence and so forth in the animal.

Now as the different Magravs and their interaction takes place, this being in the level of an atom, a solid, protein, combination of proteins and their attachment to other atoms, these new entities create two distinctive levels of individual compacted fields one for their tangible state of existence and one

they facilitates their fields and positioning for the use by and to other parts which are related to them but not connected to their existence in the line of communication of other atoms.

What this means, is that the entity gives life to existence of two levels, one is the physical tangible of itself and one is the fields and energy which it is part of, but once it is created the new entities has enough field that is an accumulation of the interaction of another interaction that this new entity does not need a physical entity to manifest itself in the tangible world, but the fields strength is sufficient enough that the new entity can easily exist on its own right in the universe and make decision about all others whom have become part of and operate through the new entity.

Now as the more and more fields and matters interact and creates a certain fields levels, that let say they lead to tangible matter existence of an entity, the accumulated physical matters have a parallel acuminated non tangible levels too which are its fields which allows it to be part of bigger entity.

Where in complexity of previous interactions to reach a point, these interactions have released or will release new complex fields that these fields perform and exist as the matter part do.

But sometimes the matter and associated fields interlocked, but exists and operate into different levels. Even though the tangible matter is aware of its own existence, but it is not aware of the existence of the associated counter interlocked fields within it, this be it the same as the plasma of electron of a piece of stone, which the electron is part of.

Thus now it becomes clear how a man has physical body and a soul. Where, the physical body is conditioned of the matter world and its environment, where the soul has no such a conditioning.

Thus the soul is aware of the existence of the physical body, but independent of its existence, but it receives the changes in the condition of the physical Magravs of the body.

Thus the soul of a man is a parallel world to the physical world of its associated plasmas, which has created it.

But as soul has no need for the physical body to sustain its existence once it is created, as it operates in a different field zone non tangibility, hence the physical body can die, but the soul will be left in tacked and carries on without its detached physical counterpart in the world of creation.

At the same time, the fields of the soul will carry-on with its interaction with other fields and Magravs of its own level and it will keep on attaining more and keep on and interacting as it physical counterpart did and combining with more and creating more the same and different.

The soul, itself is the balancer of the physical matter of the body, but from point of detachment, does not need the physical body for it to exist. As the physical interaction has led to its existence, but by now it is independent enough to carry on with its own operation.

This is like giving of a birth, even though the baby has been in need of the mother for it to start and become entity, up on the departure from the mothers body, the two entities can live two independent lives, without a need for each other existence.

Thus the soul of an entity, this being stone, animal or a man has the same method of operation and existence as any other matter or fields in the universe, and that as once it is established and sets its frame work, it does not need its physical counterpart which led to its existence.

Now one can understand how different levels of existence do operate and exist in conjunction and in parallel with each other.

Take this one step further and let say fields of the souls have established the same methods of interaction and communication as their physical counterpart plasmas of atoms did with each other and souls through their fields of existence interact with each other and lead to a more dynamic parallel non tangible world of existence in the dimension no need for the actually physical dimension of existence.

In the universe there creatures, which are made from the interaction of principle mafs and matters strength as man is made of matter mafs and matter fields strength and they can operate in a non-tangible level of existence rather than the physical tangibility to the eye of the man

This does not mean that they creatures do not have a soul or they are more intelligent than the man, but the only difference is that they operate in different mafs strength, which these lives can be strange to the mans' travels of the futures as they have the ability to transmute between different levels of mafs strength and be able to visible or detectable in their spectrum of mafs strengths

The soul of the man ids the like of the light from the star in distance universe, where the physical star could have been exploded and destroyed billions of years ago, but still at night the man observes the soul of the stars as the shining light in the dark of the night.

Parallel world exist even within the and during the life of the man himself, but they need the eye of the wisdom for the beings to see them and recognise them in their environment.

References

- 1 The book by M T Keshe (The universal order of creation of matters by M T Keshe)
2. The light Paper written and not yet published by M Keshe
3. The creation of Black hole By M T Keshe published in 2005
4. The production nano gans M T Keshe published in 2009

CHAPTER 13

The universal principle of division of pervious universe(s) and their decay leading to creation of new universe(s)

Written in 2009

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ITNOGOG

In the universe there are always parallels due to the magnetic fields laws of interactions and hence there cannot be any deviations from these laws.

At the present the scientific world has been intrigued and encouraged to understand the phenomenon of the creation of this universe and scientists have tried to unravel the mysteries of the creation of this visible universe.

In fact the creation of this universe as is visible to the world of science, it cannot be any different than any other process in the world of creation and this universe has been created through the same principles as the rest of the magnetic plasmatic nuclear and atomic interactions, addition and division.

This meaning that the present universe is created though the same method as has been observes in the division of the neutron into electron and proton or smaller and/or bigger components of the same Matters.

Hence to follow the principle of the universal order of matters, this universe is created from the division of a larger universe that the man's visible universe is the smaller part of the division.

The reason for it being the part of a system is that in the present cosmological term, this universe is following the attraction of the bigger part and hence it is always in the motion to follow the Magravs of the bigger sister.

This being the reason why it looks as the universe is always expanding and as part of the universe has been noted to be collectively following different path of motion than the rest of the universe.

Where, the portion of the independent motion of the universe is the indicator that where the bigger portion of the division of the pervious universe is in respect to the man's universe. (Fig. 30).

It has to be said through the same principle of decay of neutron to plasma of electron and proton (1) and similarly as the decay of heavier atoms to two or more lighter atoms, the original universe through the same principle the mother universe of the man's universe, itself has been created and was created from the division of a larger universes through the same method decay and division during the time of the life of the unicos.

The difference in the universe's creation and decay is in principle merely the size and amount of the plasmatic field content plasma of each universe in comparison to plasma of electron or proton after nuclear decay and division of the neutron.

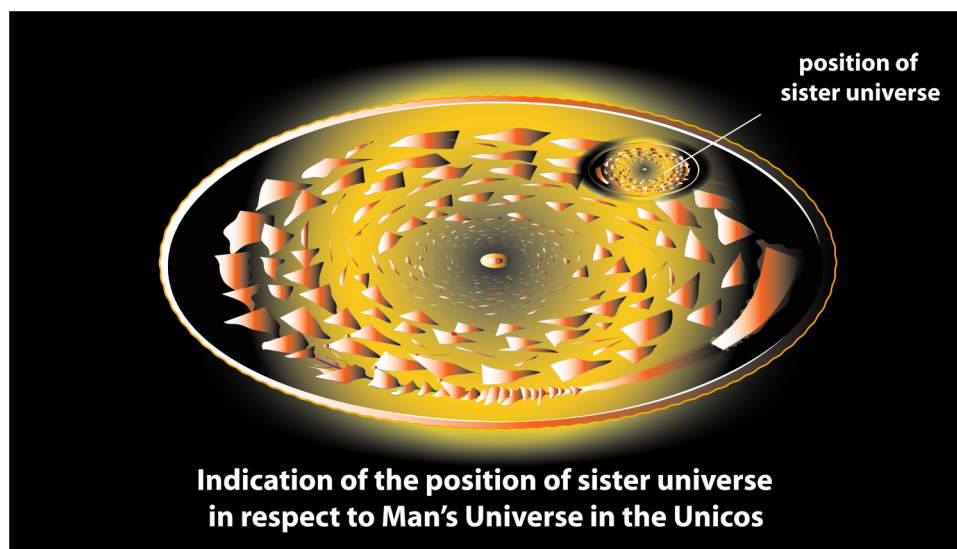


Fig. 30 The position of the sister universe in respect to Man's Universe

Thus in fact our present universe itself is and was created some thirteen billion years back from the division of a larger universe. Hence every time as it is the same with division of the plasma of neutron to plasma of electron and proton, this division the new universe(s) will carry the characteristics of its mother universe, but due to reorganisation of magnetic field strength the new universe will have a new and fresh time, which this shows as the age of the new universe.

In fact this being the like of given birth to a child, where the age of the mother is irrelevant once the new seed of life is created and once the child is born, even though; the new child carries some of the same DNA fingerprint of the parents. The new life has its own cycle of life and its own timing.

Therefore the theory of Big Bang and M-11 as have been proposed in the recent past has no meaning and has no principle parallels in the physical world of creation of universe, a child or plasma of the proton or an electron. These two proposed principles are nothing, but showing the man's and scientific worlds lack of knowledge and ignorance of the real terms and parallel entities existence of all units in the universe.

In fact once the division is created and the universe is created the rest of the material and matter content and how they organise themselves in that universe is more or less follows the same principle as before and once the field are released within a given Magravs which the fields can be created in interaction with each other, then the size of universe, galaxies, stars and planets and even creatures within that given Margraves strength of the newly produced universe are determined by the entity itself and without interference from its previous part.

Where, the new structure is dependent on the fields within the new universe and the internal motion of the new universe is internally determined by the total mass, which the interaction of the Magnetic fields and gravitational fields of the universe can master on its own.

Thus in fact in the bigger or smaller portion of the original mother universe which the man's universe is partly created of, in the bigger or smaller portion due to the larger mass the galaxies can be much larger in portion to the galaxies in this universe and conversely due to larger or smaller strength Margravs of the internal structure of the larger or smaller portion, the beings within these universes can be smaller or bigger or totally different in operation than the beings in this universe.

It has to be said that life in any form is not the exclusivity of the earth, if this is the mind-set of some men, thus this shows their lack of understanding of universe and how it is created, not the real truth and how matter's operated and function in the universe.

Therefore man is part of an inclusive pattern of field's motions in the universe and nothing more or less can be attached to the existence of the man.

The man in physical term is the entity and in the soul the connection of the field between himself and the other fields in the universe.

The physical body of the man is the like of the planet earth, where it has mass and its magnetosphere expands beyond its physical body, but its total Magnetic fields and gravitational fields determines its position and relation in respect with other matters in the solar system and in a small way it determine the position of its star in its galaxy and souls which are created within it in their course their operation in the universe, as then the position of star determines in a small way the position of the milky-way in the universe and so forth.

Thus the soul of the man is the external connection of the operation of the physical body of the man in the universe, it is part of one and inclusive reality of interaction of the whole.

Thus the soul is part of the operation of the universe and every creation can extent the effects of its magnetic field to others which can affect their position and existence of any in possession of a soul.

Thus the soul, which is magnetic fields created and expands beyond the physical body of the man is not exclusivity of the creatures but it is the common denominator and common link between the man and other creatures of the God and has direct effect on the operation of the rest of the universe.

Therefore the man's body due to the interaction of its atoms protons and electron and neutrons magnetic fields, this object creates its own magnetosphere and its own mass and this body is and has to be in possession of magnetosphere which shows the working of the magnetic fields of its constituent matters and its subcomponents and fields this being including thoughts.

Where, in the physical worlds as the same as the solar system possess magnetosphere and so does the star and planet, then the body of the human through the same physical principle possesses the magnetosphere, which is so called aurora of the human's body. The field of the aurora are part of outer appearance as the soul of the man, but is fact the total effect of the internal interaction of all fields of the body which creates the Magnetic field and gravitational fields of the body and their interaction on each other which leads to the interaction with their fields in the universe, this overall output of the fields of the body of the man is the soul of the man.

Thus, all dynamic plasmatic matters in the universe possess a soul. But the man has the intelligence to allow the interaction of its soul with others; therefore through this principle the man is responsible for all his actions and he stands answerable to other souls in the universe. As he decides how these fields which partial and fully controlled through the Magravs of the matters of his brain, in how and what happens in its interaction with other souls effects their operation in the larger universe.

Hence man has to understand, that universe and others, which has the use of this universe all have been created from and the universe, which has been created from the division other universe and will be created from the division of this universe and in the future are all interconnected and operate through the same fundamental principle.

Therefore there are parallel universes to this universe, with the difference in the measure of their magnetic fields and strength and their position in their given environment.

Thus as we have the same and similar electrons structure's and protons structures in the same structure of an atom, which this structure of positioning of electrons and protons is the same for all known atoms, then the same applies to the universe too. This meaning that there are similar universe

as this universe in the greater universe and other universe which this universe has been created from it and those that we will shell create through the operation of our souls and bodies, minds and matters.

It has to be said that at the same time all beings in the universe use one and the same universal language of communication, where in the universe the common language is the basic plasmatic magnetic fields of basic fields. This is based on the first plasmatic magnetic field strength of existence of the simplest plasma of atom of the universe, and is similar to what we call in this universe neutron and its division and collections as atoms like of the Hydrogen atom, which the mystery of this has been kept from the man and not apparent through his own misunderstanding of the operation of the universe.

This language is universal and once the man on earth understands this phenomenon and can fully measure the magnetic fields strength of the electron, Magravs of it and he uses this as the base strength, then man will be able to understand and communicate with rest of soul possessing creatures of the universe.

Until then, the search in the sound waves to look and try to communicate with other creatures of the universe is a fantasy and shows the lack of his understanding of the world of the Creation by the man of ignorant intelligence.

Therefore the gravitation, magnetic, radiation and other similar properties and interactions of the field(s) on each other in this and other universe(s) decides on how and the way the creatures in the different universes and in the man's unicos and universe would look and behave.

But in essences they are all made of the same building block of *MAGNETIC FIELDS AND IN ITS AND THEIR INTERACTION OF DIFFERENT STRENGTH AND TIGHTNESS OF IT IN THEIR ENVIRONMENT*; This determining how tall and short and if one has eye or uses the interaction of fields to interact and communicates with other creatures of its environment, universe(s).

CHAPTER 14

How would it end?

The end of this universe will be the same as it started.

What this means is that as the magnetic field balances of the universe reduces to a level that the universe has to re-organize itself that it can keep its constituent field forces together, the whole universe will, like as with neutron plasma will decay and divide into two constituents of smaller universes, which these universes are still connected to each other through their original magnetic field forces (book 1 - chapter 17).

Hence this universe will be divided in to a smaller universe and larger universe parts of a set. This being the same process as the like of the process as neutron decays and the rest of the known nuclear decay of atoms do as there are no other known processes of division process in the universe, and there has to be uniformity in all dimensions of creation.

There is no end in the universes but conversion and amalgamation of fields and matters, which are created out of fields themselves.

Thus, this universe will divide into two active fully operational of lesser universe and bigger universe masses (fig. 31). But in total the overall balance of the matters and fields in both universes will be near equal of what was in this universe, with a little leakage of fields into the Universal Cosmos (unicos).

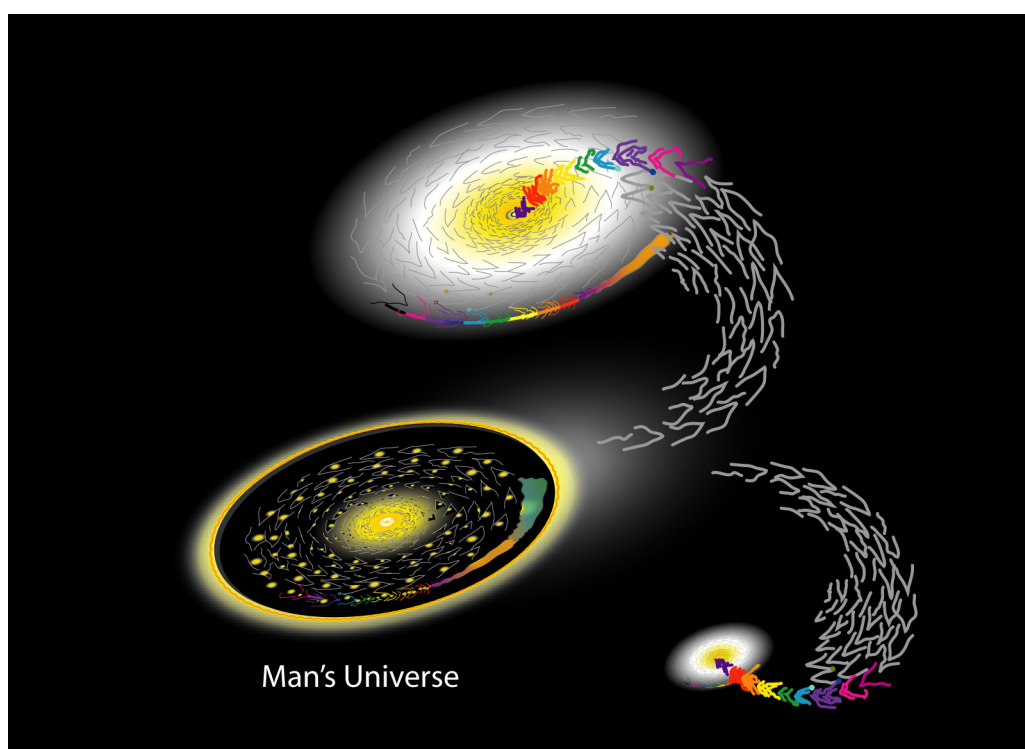


Fig 31. In time the decay of Man's Universe.

Where, the lesser mass part of the division of this universe will rotate around the larger mass universe. Where, the whole of the two new universes both will be rotating around larger universe mechanisms, which this universe on its own was rotating around.

Thus, if one is in the lesser universe, and looks into its motion, it looks as their universe is expanding, as they always seems that matters and fields in this universe to be running away from them as their universe is looking as being expanding.

Where, in fact being in the smaller universe, the gravitational field of the larger universe is continuously pulling or holding onto the lesser universe that the lesser universe stays within its orbit, as the electron does with its proton in atomic structure. As there can be no difference in all levels of creation of larger universe, as it is with the structure of decay of all atoms known to man.

Therefore this is how this universe was created and how future universe will be created out of this universe.

Thus there has never been a big bang, and there will never be a dooms day or the big rift. All it will happen is that this universe will go through a division, which is the norm in all-universal orders of creations.

The original universe has divided itself to smaller universes, which our universe is one of its offspring's and the same will happen over and over again to this universe and its offspring's.

Thus this universe is not the original universe, but part of a fraction of a fraction of fraction of a bigger picture.

May be now it can be understood that in the universe, as has been said that "I have made man in the image of myself" and now the reality of operation of different and all entities of the universe understood and are set in motion for the man to have the full understanding of method of creation and control and the way he has come to be on this planet at this moment in time and if he understood the purpose of his creation, then it can be said that:

The universe exists and operates within the structure of the man

and

the man exists and operates within the structure of universe

Definitions

Below is a list of the new terms and their definition that used in this book. A number of these words and terms have been used in the previous book and scientific papers, which have been published by the foundation and most readers, are familiar with these terms and reference. In this book a different approach and language and terminologies is used, therefore has become necessary to create a new terminology and words that can explain the real term application and processes in the world of physics.

Mafs: magnetic fields

Magnetic: with capital M refers to the plasma of magnetic fields created by a dynamic entity as for example this refers to the magnetic field of the earth.

Magravs: Magnetic and gravitational fields (Magnetic referring to the plasma of magnetic fields created by a dynamic entity as for example this refers to the magnetic field of the earth)

Pmf: plasmatic magnetic fields

Principal matter: This matter in conventional physics is called the anti-matter, as now the real structure of this matter is fully understood and is said to be source of all matters from the dark matter to matter, thus it has been called the original matter or the principal.

Principal mafs: These are magnetic fields, which are in the principal strength levels and considered to be 1 order magnitude several hundreds of times stronger than the magnetic fields which make up the tangible and visible matters.

Principal star: This entity in the conventional physics is called the Black hole

Transition energy: This energy in conventional physics is called the dark energy. This is the pmfs that are in motion from principal to matter magnetic fields strength so called the transition energy as energy is defined as the pmfs in motion.

Transition matter: This matter in conventional physics is called the Dark matter, as now the real structure of this matter is fully understood and is said to be when plasmatic magnetic fields are in transition state from the principal matter to tangible matter thus the term transition matter is used.

Transition mafs: These are magnetic fields which are in strength level between the principal and matter magnetic fields strength, and are in transit from the principal mafs to matter mafs strength levels.

Gans: a new state of matter; a molecule of a gas (GAs), which becomes Nano of itself and appears as Solid state of matter (Gas to Nano of Solid and to be called GANS for short).

The re-naming of matters and conditions

(Advice: Skip this section unless you need to refresh or reading for the first time or read it after you have read the chapter 1, 2 and 3 as this section can be confusing and distracting you from the main body of the book).

(Point of reference: The following section is and to be added to all disclosures for the ease of understanding as most of these have been disclosed in the book (1), and it is added here for the ones who have not read the book and are not familiar with terminologies in the works of the author).

In this literature, when using the term “**mafs**” for example in form of the antimatter mafs this means and refers to the magnetic fields (mafs) which this entity is made of and it is considered to be as a plasma of magnetic fields, and where the term “**antimatter**” is used on its own this meaning the physical tangible or detectable entity of the same. This usage of mafs similarly applies to physical matter and Dark matter too.

Further, the difference with Antimatter and matter is only in their plasmatic magnetic fields (**pmf**) strength and compactness of their fields. Thus, what is the magnetic fields (mafs) of antimatter they become magnetic fields of the matter as antimatter magnetic fields unwinds, loosens up, weaken in their field strength through their interaction with other magnetic fields and matters and become matter mafs and in plasmatic magnetic field strength of matter environment the matter mafs becomes tangible and become matter.

Therefore the antimatters are a more compact strength magnetic fields entities of the same of the magnetic fields of the matter, and due to their tightness of their fields, these magnetic fields of these mafs of matters they create stronger gravitational and Magnetic fields and hence they have stronger Magravs and hence upon their unwinding, they release magnetic fields and pmf which are faster, higher in strength and hence they look as to be strange strong and fascinating matters.

This means that antimatter entity of for example ten centimetres in diameter once *unwinds* in structure it becomes a matter of several thousands of meters in diameter entity in matter magnetic field strength environment.

Inevitably one should call the term antimatter the start matter and therefore antimatters should be renamed the Principal matter. Therefore there is nothing anti about these matters mafs and matters at their pmf strength as has been actually assumed in the world of science.

The ***Principal mafs matter*** itself has *different degrees of strength* by itself and *not all* magnetic fields of the Principal matters *have the same magnetic field strength*. Where, the principal mafs plasmatic magnetic fields strength has a spectrum of field's strength too.

As the magnetic fields of the principal mafs unwinds, it releases and loosen in its environment these magnetic fields (mafs) of the principal matters disperses into their environment, then they lose their strength through contact or interaction and friction with mafs' of matter and matters, and hence these principal mafs matters pmfs go for through magnetic fields strength of the Dark mafs matter strength first before through further reduction in strength, the dynamic pmf of mafs of the dark matter in motion reaches the pmf strength of the matter mafs level and hence becomes visible in matter pmf strength environment and becomes matter.

Now that the essence of existence of dark energy or dark matter can be explained in its realistic manner, and that is what has been called dark matter is in fact this is *a magnetic field in transit from the principal mafs matter and matter strength to matter mafs strength and matter*.

Then as energy has been defined as “magnetic fields in motion” then the dark energy in fact is transition mafs matters in motion, or what is called the transition energy.

Then the dark energy can be called the Transition energy instead of the Dark energy, as the pmf in motion as this magnetic fields from the mafs strength of the principal matter in motion to reach to mafs strength of the matter level, this is only a Transition pmf condition, and transition mafs matter phase only.

Where, the interaction of mafs of transition matters with other of the same leads to and creates the Transition gravitational and Magnetic fields of their own or create what is called the Transition Magravs and in some cases this condition leads to creation the transition matter (dark matter) and consequently sometime interaction of mafs of transition energy leads to appearance and become transition matter (dark matter) in the cosmos.

Therefore, the magnetic fields strength, which makes the dark matter, is to be renamed as the mafs of the transition mafs matter and the dark matter as tangible matter becomes the transition matter, the dark energy to be renamed to transition energy.

The plasma of the principal mafs matters exists everywhere in the universe. This being in the centre of the universes, galaxies, stars, planets, plasma of proton and even in the centre of the plasma of the electron and in the lower order pmf strength environments which have been undetected up to now by man.

In reality in the centre of what is called a black hole in the universe, there exist and is the home of the principal mafs matters and principal matter. Therefore the black holes should be called the principal stars in the centre of galaxies, stars, plasma of protons and other entities like these.

The choice of the term star for principal centres of matters is correct as these principal matter concentration centres are like a star in the centre for the matter world like solar system, and the Principal stars are the place for the mafs of the Principal matters and the principal matters which their fields radiate outward into their surrounding as it does with the stars. Thus from this point on in this disclosure we call the black holes the Principal stars in the universe now that we understand the real source of their mafs of this matter(s) and its principal matters.

It can be understood now that where the intensity and the strength of stars and planets come partially from the existence of the principal mafs pmf strength, which has been released by the Principal, stars in the galaxies. This is to say that the seed of the pmf of the galaxies and matters needed for the creation of stars in principle are from pmf of the mafs of the Principal matter. Where, the interaction of the pmf of these mafs’ of the Principal matters leads to creation of initial strong Magnetic and gravitational fields needed for the creation and attraction of mafs of matters of plasmas of matters, the mafs of the transition matter and transition matters of the same region of the galaxies, plasma of stars, plasma of the proton and other entities of the same structure in the universe.

At the same time when using Magnetic with capital “M” this means the like of the Magnetic field of the earth, which itself is the plasmatic environment created by the interaction of at least two magnetic rays and indicates the outward flow of the magnetic fields from a plasmatic environment the like of the earth.

Similarly, when using magnetic field with small “m” this simply means the magnetic fields as in what we observe at the end of a solid magnet as magnetic fields of the object without its interaction with other fields.

Reference

1. Book 1, “The universal order of creation of the Matters”, M T Keshe, published July 2009
ISBN 978 46 6087 001 9

Book 2, “The structure of the Light” M T Keshe, published January 2011.
ISBN 978 94 6087 003 3

2. The unifying theory of the fields M T Keshe 2009
3. The origin of the Universe M T Keshe 2010
4. The creation of the solar systems M T Keshe 2010
5. The CO2 capture paper by MT Keshe Published 23.12.2009
6. “The universal order of existence” finalized and to be published in 2010-2011 by M T Keshe
7. The Magravs positioning M T Keshe 2010
8. NASA WMAP common.wikimedia.com

Published and unpublished works by M. T. Keshe

There are a number of unfinished articles that are to be converted to full disclosures when completed, like antimatter mafs method of energy releases, Nano space technology, relation between the creator and the created, space communication system, deep space defence technology, dynamic magnetic fields force regions (wormholes) construction and control, creation of magnetic fields, and so on.

Some of these works have already been published through different channels and some have not yet been released.

In the following section some of the works done by the same author are mentioned, with a brief disclosure of their contents.

Some of these papers can be purchased and obtained through direct request and access through specific links.

A number of papers with * and ** marks are not for public release due to their sensitivity of information and only available to relevant commercial and governmental organisations for peaceful applications of the technology.

The universal order of creation
(5.7.2006)

In this disclosure the main construction principles and the method of the link and control in the universal order of the existence of living cells, like the function and operational method of any matter based on so called proteins chains, as for example in human cell are explained in detail.

REF 9

The author considers this paper as one of his most important and fundamental works to be published and to be added to the sets of disclosures written by him.

Cosmic Rays
(Release date 24.3.2004)

This paper explains the source and the origin of cosmic rays and the way these work within our cosmos, their function and their benefits.

REF 10

*The Airborne reactor
(Release date 25.3.2004)

This paper covers the total design of airborne reactors for space technology. This covers all aspects of operation, design and control of such reactors.

REF 11

The seed of the Earth
(Release date 25.3.2004)

Some extracts from this paper:

The theory that the heat of the core of the Earth is due to inertia of the material piled on top of each other is completely dismissed through this new disclosure.

The author M T Keshe believes that this centre core is made of hydrogen, other gases and a mixture of liquid and solid matters mafs, which were in the vicinity of the centre of the core of the Earth at the time of its inception in the solar system.

Through this new understanding of the new inner cores of the planet, this brings to play the fact that the old inner-core of the Earth that is already assumed to be made of a solid piece itself becomes a sealed container for the new inner core.

The author through design of a parallel system has set to confirm the validity of this assumption, that the centre of the Earth possesses a semi- fusion atomic reactor and not a fission reactor as has been assumed by other scientists.

This theory of hydrogen in the centre of the planet is in line with the physical reality of the creation and the present situation in the physical construction of the solar system.

By the laws of physics all the gases in the solar system should have been in the giant gas planets at the outer layers of the solar system, like in Jupiter and Saturn.

The physical reality in the solar system is that the lightest of all these gasses, the Hydrogen, has taken its place right in the centre of the solar system in its star, the Sun.

It has to be recognised that the centre of all planets in possession of gravity due to the centre cores heating, are always in possession of two Magnetic Field Forces in their inner sanctum (M. T. Keshe "The creation of gravity").

In the case of the Earth up to now and with the present knowledge there has been acceptance of only one inner-core and one magnetic force.

As it is explained in the paper titled "the creation of gravity", there is an inner-core in the inner core. This inner core, due to its physical content, motion and position in the centre of the Earth, creates and maintains its own magnetic field force, independent of the magnetic force which has been known to be created by the interaction of the inner-core and the outer-core of the planet.

These two magnetic fields interact to create the planet's own double magnetic fields in its centre. The interaction of these two magnetic fields forces upon each other leads to the new concept of the "DOUBLE MAGNETIC FIELD EFFECT", where the interaction between these two field forces in the centre of the planet leads to the creation of the gravity and the magnetic forces of the planet (Paper: The creation of gravity).

This new second core is the seed core of the planet, the mother seed of the planet positioned in this new inner core.

REF 12

The creation of Black Hole
(Release date 25.3.2004)

In this paper it is explained that the Black Hole is created out of a natural sequence of events, and that the existence of the Black Hole in a galaxy is a normal event. Further it is explained that a Black hole is created in similar ways to the Dark Spots on the surface of the Sun. In this paper for the first time, it is explained how the Black Hole is physically created and what function it plays in its galaxy.

REF 13

Magnetosphere
(Release date 9.6.2004)

"The shape and the strength of the magnetosphere of a planet is exactly what a fingerprint is to a man. It is unique to each planet, star and galaxy. It is a tell-tale of all its attributes, and it reveals the hidden mysteries of the internal materials' structure".

REF 14

Correction to the Einstein equation of Relativity
(Release date 15.6.2004)

In this paper the physical reality of the Einstein equation is considered, and efforts are made to bring this equation to the real conditions. Even Einstein considers this equation applicable for very small mass, and not in real three-dimensional multi-Magnetic and gravitational conditions, which are external and have nothing to do with the theoretical object's mass and speed, but have effect on the speed and the mass of the object under consideration.

REF 15

*Introduction to the new system
(Release date 2.7.2004)

In this paper it is written "It is essential to understand that, with the application of this system of motion, one cannot bring into play the solid, liquid and gas fuel method to create motion, as is used today. What is offered in this system is in simple words a fully integrated plasmatic magnetic energy system. Which, creates within and around the core environmental conditions as known to man in the universe like creation of gravity and magnetic field protection and the same as the magnetospheric protection condition of planets and motion through interaction of magnetic fields as planets and stars do in their given environment".

REF 16

The rings of Saturn
(Release date 2.7.2004)

One of the oldest puzzles in the world of astronomy has been the existence of the rings around Saturn. How did these rings come to exist the way they are now? How did they come to appear and behave the way they do? These questions and much more about the creation of these rings are all answered in this paper.

REF 17

The creation of gravity
(Release date 11.7.2004)

In this paper it is explained, "the source and the creator of the magnetic forces and the gravitational forces are due to the interaction between the same materials in the same region of the planet."

Further it is explained how the gravitational field force can be created, replicated and controlled within a nuclear reactor. Further it is explained how this property can be used for the motion of a system within a planetary or solar system.

Now by understanding the principle of the creation of gravity, in this paper it is further explained, "the gravity in reality is the effect of the interaction of two plasmatic magnetic fields of any two object in respect to each other."

REF 18

Death of a star
(Release date 26.7.2004)

In this paper the death of stars is explained, "The death of a star and the creation of a supernova is in reality the same as the half-life cycle energy step-down of an atom, with the difference that this show is in a larger scale, and more spectacular, in all aspects of its dimensions".

REF 19

Fusion
(Release date 28.7.2004)

In this paper the physical and scientific problems with present fusion technology is considered. Where, it is written, "nuclear Scientists, with the fusion reactors of today, are trying to create fusion in the opposite way to the known laws of physics and their parallels in the universe". Further in this paper it is written, "If the present path for creation of fusion is followed, with the present scientific knowledge of physical materials for construction of such system, then following the present path of development to create energy from current fusion systems will be a distant dream".

REF 20

Life of a Cell
(Release date 28.11.2004)

Extracts from this paper; "The reality of the transportation and transmutation of a cell is not far from the reality of the life of an atom or a star. Where the life cycle of the cells are slightly more complicated, as they contain other matters mafs like acids, which have their own magnetic characteristic of their own chemical structure. For this reason the control and replication of the energy of the cell is very much complex, but very simple to achieve".

REF 21

The Atom
(Release date 19.12.2004)

The content of this paper explains how and where atoms in the universe are originated from and how the construction of atoms in a cold plasmatic nuclear reactor can be replicated.

REF 22

Magnetism
(Release date 8.1.2005)

In this paper it is written, "The question is where did the Magnetism come from? This is the Secret of creation. The world is made of one thing and only one thing and that is Magnetism. Its combination and interaction with its own different strength fields makes it appear as different matter mafs. The rest of creations are the outcome of these interactions of different strength of this thing called magnetism and the forces it creates. Magnetism is the origin of existence and the real singularity in its full meaning".

REF 23

*The creation of the magneto-gravitational force
(Release date 5.2.2005)

The creation of magneto-gravitational field force is and will be fundamentally independent of temperature and pressure, proviso to the fact that as long as a homogenous free floating pmf within a matter mafs is created.

REF 24

The core of the Earth
(Release date 20.4.2005)

One of the original assumptions in developing the new Magravs system some thirty years ago by M.T. Keshe was on the basis that the centre of the Earth possesses addition cores, which create the necessary gravitational conditions of the planet. After some twenty years of space technology and through Earthquake seismological data's this assumption has been shown to be correct and after over twenty years, it has been scientifically proven that the inner-core of the Earth has an inner-core of 600 km. Professor Guy Master in 2002 ref 24 nuclear planet. The centre of this core is assumed to have an inner-core of 8 Km, this he thought to be made of the plutonium or other nuclear materials

But the developer of this new plasma reactor technology has proven through physical dynamic cores that these cores possess a mixture of hydrogen plasmas and the process of the heating of the centre of the Earth are due to a semi-fusion chain of events.

REF 25

*The electron-atomic welding
(Release date 3.5.2005)

Some extracts from this paper:

"The electron atomic welding or atomic welding principle is the phenomenon that atoms of the same material, through a common shared electron, become a magnetically balanced molecule of the same matter mafs, with the difference that the shared electron will create a balanced pmf in the molecule".

REF 26

*Shutdown and safety of the reactor core
(Release date 6.6.2005)

In this paper the safety parameters in the operation of the gravitational and energy reactors are simply explained to avoid the loss of plasma and gravitational field forces created within its cores.

REF 27

*Reactor Start-up
(Release date 9.6.2005)

In this paper the systematic start-up of the dynamic reactors for the creation of gravitational field forces and the production of energy are set out. The start-up of these systems is totally different than the prior arts known in the nuclear industry.

REF 28

*The energy balance of the reactor
(Release date 29.6.2005)

Some extracts from this paper:

The energy balance of these types of reactors is not as simple as might look in the first instance. The energy creation is simple. But the heat leakage and dissipation through the deliberate inherent material design are and can be zero. That is to say the system not only can hold on the heat it creates. At the same time due to the close circuit feed operation will become self-sufficient but long lasting.

In planets, the loss of heat through their surface creates the variation in the central core condition over several billions of years. In this reactor as losses can be literally negligible, the system can operate at low energy loss temperatures. Even the boundary of the body could be made through the right combination of material in the chambers, so that the body of the reactor will be colder than its surrounding boundary. So the system will not only lose energy to its surrounding, but it can be made to absorb heat in the negative temperature gradient from its surrounding, so that there are no losses.

REF 29

Nuclear decay or half-life
(Release date 20.7.2005)

Extracts from the paper:

"The nuclear decay always has the same or near the same time duration. This is due to the fact that the all neutrons and protons, from their inception, carry a predetermined level of plasmatic magnetic energy. This energy is continually used for the motion and vibration of different elements of the nucleus in respect to each other and the surrounding matters mafts of the atom. As the space and dimensions of a nucleus of an atom always obeys the same principles of the magnetic separation and magnetic attraction. Protons or neutrons can and will need to use or consume the same energy before they become weak enough that the splitting or decay becomes a clockwork job. The nuclear decay is the natural levelling done of a nucleus' energy, due to the energy consumption and heat dissipation for the motion of the elements of the nucleus for its remaining plasmatic magnetic fields energy necessarily needed for them to hold one together".

REF 30

*The decontamination system
(Release date 10.10.2005)

"What this means is that, for example in trying to recycle the CO₂, by the use of the right matter mafts in one of the cores of the reactor, the system will then use the O₂ to produce H₂O, in the form of pure water, and C in the form of atomic or molecular carbon, or even by feeding this back through certain operational compressions and gravitational interactions within a small core, to create industrial diamond or graphite, for different industries."

The use of the reactor for this purpose has been proven to be correct and Raman spectroscopy has proven the concept and physical reality of the separation of matter mafts in atomic level after separation in the same system from a composite matter mafts.

(See the graphene on the technology web site)

REF 31

The difference in atomic and molecular structure
under gravitational force and pressurised conditions.
(Release date 15.8.2005)

In this paper is written that "the atomic and molecular structure of matter mafs is totally aligned and positioned in a fundamentally different configuration where it has come together due to gravitational forces, than when matter mafs has been brought together by the means of pressure. This has a fundamental effect on the behaviour of the structure and properties of the matter mafs which is created in either way". Where this is explained and utilised to develop a new method in creating graphene and Sp3 atoms and walls in a simple core made of a coca- cola bottle.

REF 32

**The Defence and shielding system
(Release date 4.9.2005)

Some extract from this paper:

The design of the side open system for lunch of high saturation magnetic plasma package is one of the most effective technologies for defence of the reactor and the craft, which is in possession of such a system.

It is essential for any space technology in the open environment of the universe, if the craft is to keep a straight line of motion and to be able to protect itself from any solids or matters mafs in its path in the cosmos.

This technology can destroy any object by the principle of plasmatic magnetic energy saturation of the incoming object at a molecular level, that object will disintegrate in the form of magnetic vapour and not atomic level destruction, before matter mafs can damage the craft as debris, and before the craft ever becomes in touch or near these space matters mafs.

This technology can also be used to protect Earth from the collision risk of NEO's (Near Earth Objects), like comets and asteroids.

REF 33

Method of creation of an atom or nano matter mafs
(Release date 11.10.2005)

The manufacture of an atom of any density, this being of the simplest form of nucleus or a full atom of hydrogen, or even heavier elements in the universe, all follow the same principle.

Atoms are created in the soup of the cosmos from collections of very weak plasmatic magnetic fields, which for their existence cluster and share their energies with the magnetic fields that are not far from their own plasmatic magnetic field strength.

REF 34

The relationship between Gravity and Mass
(Release date 21.1.2006)

Extracts from text of this paper:

"A planet like Earth possesses a combination of both gravity and inertia. Where the gravity comes from the interaction of plasmatic magnetic fields from the processes within its core, and the inertia comes purely from the collection molecules pmf of matters mafs which has built the physical body of the planet.

Any object, being an electron, atom, molecule or even a human body, is a collection of plasmatic magnetic fields of different strengths and their interactions between each other, which in total decides the total or collective magnetic field possessed by that object where this is the mass of the object.

Where the mass of an object is a collective package of plasmatic magnetic field tightness of a given object and will not change as long as the object is intact as one entity in its overall atomic or molecular or collective molecular appearance.

Which plasmatic magnetic energy of a physical body (so called the mass of the body) in interaction with molecular or atomic magnetic field (this being gravitational or inertia) of another object will determine the weight of the two object in respect to each other in each other's environment".

REF 35

The Dark matter mafs
The Fifth state of matter mafs
(Release date 21.1.2006)

Extracts from text of this paper:

The existence of dark matter mafs is not questionable,

Proving its existence, and its effect on the energy balance of the universe, in all matters mafs as small as in the heart of an electron or in a solar system needs to be created, replicated and its effect measured.

The theory of dark matter mafs does not and needs not to be considered as complicated, if one understands in real terms the plasmatic magnetic energy of the matter mafs in the visible and invisible dimensions of the universal work.

The dark matter mafs has two distinctive characteristics, which makes it totally apart from the visible matter mafs. The dark matter mafs possess mass but not visible light, where its existence can only be determined by the weight of the it's hidden mass, which could be substantial due to its internal gravitational field.

REF 36

*The inter-atomic fusion
(Release date 3. 5. 2006)

Extract from this paper:

"The fusion of two or more atoms has been the pre-occupation of nuclear physicists for past years. Conditions to achieve fusion of two hydrogen plasmas in the TOKAMAK reactors have taken years to teach scientists a lot about the behaviour of plasma and their fusing.

The reality about the fusion in some way has to be reconsidered as, if the scientific world is trying to amalgamate the contents of two plasmas to release energy. There must be a simpler way to achieve releases of similar energies.

The fundamental principle of the inter-atomic fusion is a much simpler way to achieve fusion. If this principle is applied to the atomic condition of fusion, then fusion will be attained in a simple but in a much more physically realistic environment.

The explanation for inter- atomic fusion is very simple and direct.

In the fusion of two plasma of proton of hydrogen atom, the physicists try to fuse two large plasmas, and by doing so, they try to release a large amount of energy. Where in this process enormous amount of magnetic field forces and currents are needed to bring two plasmas in close proximity, so that the energy barriers in between them can be overcome for them to amalgamate or fuse.

In the inter-atomic fusion the overcoming of energy barriers does not exist, as in this method of fusion, the electron of the atom which is circulating the nucleus of the atom and is of the same origin will be encouraged to return into and fuse with the nucleus of its atom".

Where this is a more practical way to create and release manageable energies and there is no need for elaborate systems where even if the energy release will be small compared to dreamed up fusion systems of today.

With inter-atomic fusion method at least small and practical systems can be developed to handle low temperatures of the fusion process.

REF 37

The conductivity of the matter mafs in the vacuum
of the interplanetary mediums
(Release date 21.1.2006)

Some extracts form this short paper "Therefore plasmatic magnetic field of elements within the interplanetary medium will cover the space given to them in their environment. Where due to their motion and their electric charges even in eV levels, they become perfect conductor, and in turn, due to their motion on their environment, they become plasmatic electromagnetic generators.

REF 38

The production of Graphene
(Release date 25.7.2006)

Repeated experiments and tests in simple static reactors, and tests in more complex dynamic reactors, prove that atomic separation and recombination of matter mafs like carbon and hydrogen can be reached at room temperature and at atmospheric conditions.

We have now indications - through static and dynamic tests in our reactors - that the universe was made in normal condition, which was originally nothing but packages of plasmatic magnetic fields of different strength, which were themselves nothing but areas of plasma or collections of loose magnetic fields energies. Where magnetic fields of different strength in locking to each other, by the principle of their plasmatic magnetic energy (PME), have caused in the first stage the creation of fundamental particles, secondly atoms, then molecules and then matter mafs, clouds and asteroids and then stars and galaxy's".

The Big Bang theory conditions have no room in the reality of the creation of the universe.

REF 39

Further works on medical research and developments have been written and completed, and will be published on the Foundation medical site in December of 2011

The process of the reversal of coma: Published in December 2010

Multiple Sclerosis: Published in December 2010

Epilepsy: Published in December 2010

Fibromyalgia: Published in December 2010

INTERNET LINKS

Web site: www.keshfoundation.com

YouTube Channel: <http://www.youtube.com/user/keshfoundation>

Forum: <http://www.keshfoundation.com/forum/>

Internet radio interviews:

Interview 06-09-2011 with Red Ice Creations (hour one):

<http://www.redicecreations.com/radio/2011/06/RIR-110609.php>

Interview 06-09-2011 with Red Ice Creations (hour two - need for simple registration):

<http://www.redicecreations.com/radio/2011/06/RIR-110609.php>

Interview 05-09-2011 radio interview with Alienshift:

http://www.livestream.com/alienshift/video?clipId=pla_8251665e-ac74-4d77-a785-443bbca65bf6

Interview 04-27-2011 with Mrs. Kim Greenhouse of Its RainmakingTime:

http://itsrainmakingtime.com/_radioshows/110427Keshe.mp3

Interview 04-20-2011 with Mr. Redneck Radioman of blogtalkradio.com:

<http://www.blogtalkradio.com/paranormalpalace/2011/04/20/gravitational-technology-with-nuclear-scientist-mehran-keshe>

Interview 04-17-2011 radio interview with Mrs. Aurora and Mr. Bill Alek of vortexnetworksnews.:

<http://intalek.com/AV/VNN/VortexNetworkNewsHour/04-17-2011-VNN.mp3>

Interview 04-09-2011 second radio interview with Mr. Bill Alek of vortexnetworksnews.:

<http://intalek.com/AV/VNN/ProgressiveTechnologyHour/04-09-2011-Technology.mp3>

Interview 04-02-2011 first radio interview with Mr. Bill Alek of vortexnetworksnews:

<http://www.intalek.com/AV/VNN/ProgressiveTechnologyHour/04-02-2011-Technology.mp3>

Interview 12-18-2009 radio interview with Mr. Allan Sterling of Peswiki:

<http://www.mevio.com/episode/205187/fen-12-18-09-interview-with-mehran>

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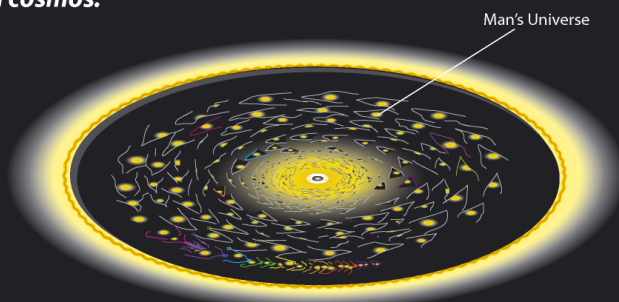
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As we are helping with series of books which have been published and to be released, to build the full knowledge of the structure of the operation of the magnetic fields and their interactions in the world of creation for man to understand the entire process, one comes to the point that one has to explained different proportion of this entity in different levels of creation of the greater universe and not the man's universe. In the **first book** the creation of of matter, the operation and interaction of smaller fields, which leads to creation of matters was explained. In the **second book** we merely explained the method of travel of the collection of fields in the form of so called light. In this **third book**, it is further I have explained the operation and interaction of a bigger cells of the same fields, which these leads to creation of the mans universe and more and what is too much for the man to understand with his present scientific knowledge and he calls it his universe.

Where, the so called this universe in this book is explained itself is to be a part of natural process of creation and it has been created from the division of bigger quantities of fields and in time this universe will itself will be divided into and will create smaller universes or part of it will amalgamate with other universes and their fragments' to create bigger universes in the overall structure of **the unicos**, the universal cosmos.



Man's Universe within the Unicos (Universal Cosmos)

This process is being the like of the division of the plasma of the neutron to plasma of the electron and proton to create an atom and/or the fusion of two proton to create a heavier bodies of plasmas.

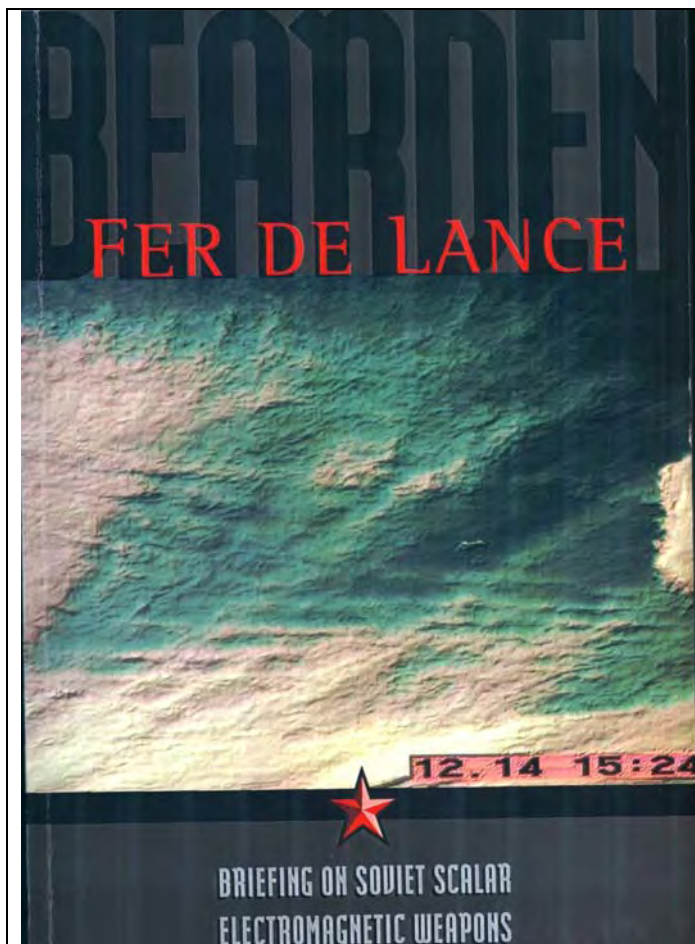
Thus this universe is not the centre of creation and itself is part of the bigger structure.

That is the same dilemma as man had as he tough the earth was the centre of the universe and as he understood more, he realised that he, his planet and himself are the smallest part of solar system and his solar system was in fact smaller part of a galaxy and so forth, and this is the same with operation and existence of the of the mans' universe in the bigger operation and structure of universes in the cosmos of universes: the Unicos.



The Keshe Foundation is an independent non-profit and a non-religious organization founded by nuclear engineer M.T. Keshe, aiming to bring new scientific knowledge and new technologies to mankind, and to bring new solutions for the major global problems, like famine, water shortage, shortage of electrical power supply, climate change, illnesses, by the use of new types of plasma reactors, and to give Man the real freedom to travel in Space.





Sweating done by red_gonzo.

Note: sometimes formatting of the text may be a little fuzzy. It's all because the OCR process didn't go as smoothly as I expected. Also there may be some errors inside text so be vigilant. In any case share this book, send emails to people about knowledge contained in it. Since this book talks about the most terrifying weapons present today the information in it is even more of value. But knowing an old saying »the knife cuts both ways« one can also use the same knowledge in order to heal ourselves since it seems that our body already does it using the physics described inside. Hopefully the latter will prove to be the most useful way to use this old but forgotten / suppressed knowledge.

The contents include the 2002 update and the older 1986 briefing with slides.

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The Russians have sustained the largest weapons development program ever launched by any nation, and they have kept it effectively hidden from prying Western eyes. I have called this program "Fer-de-Lance," after the deadly South American pit viper of that name.

The dreaded fer-de-lance is a snake of great agility and lethal effect. It often ambushes its hapless prey, striking unexpectedly and without warning. Its first sudden strike is usually lethal to its victim, which promptly expires in writhing agony. Since the Soviet development of scalar EM weapons has been designed for the same purpose, the name seems appropriate.



2002

Overview¹ and Background of the Energetics² Weapons Threat

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Director, ADAS

September 15, 1998
Update

Note: We have placed this update as a section in front of the original paper. This leads to some redundancy, which remains to insure clarity.

¹ This is an updated and slightly sanitized version of a paper originally prepared for and transmitted to selected Senators and Congresspersons.

² The present name of the old KGB is the Federal Security Services. The leopard's spots remain the same, regardless of its new name—at least for a die-hard old communist faction of it. Presently the helm of Russia has been turned over to a new Premier who has an extensive KGB background. However, Putin has chosen to differ from the traditional KGB outlook and seems intent on becoming America's trusted cheap oil partner and supplier, in a bid to help his economy and pump much-needed funds into it. His friendship with George Bush may be one of the turning **points** of this new century. He at least has achieved sufficient control over much of the KGB to get on with trying to solve his economic problems and break the old "die-hard communist" mold a **bit**

2002 OVERVIEW AND BACKGROUND

For some time, Russia and several other nations have possessed highly advanced "extended-electromagnetics" (*energetics*) weapons of a very novel kind, using a dramatically extended electrodynamics theory {1}. To comprehend these weapons requires a combination of non-Abelian electrodynamics in at least the $O(3)$ gauge symmetry {2}, general relativity, Bohm's interpretation of quantum mechanics {3}, and the use of time-domain (scalar) energy, fields, and potentials to directly enter distant 3-spatial points without propagating energy through 3-space. It also requires correcting many of the serious errors in classical electrodynamics. Probably the most elegant and applicable extant model to deal with these phenomena and weapons is Sachs' {4} unification of general relativity and extended electrodynamics, particularly as implemented in $O(3)$ electrodynamics. $O(3)$ allows direct engineering by modified EM means.

Most of these energetics weapons are more advanced than what has previously been known to the U.S. military, intelligence, and scientific communities, although parts of the communities are finally making real progress in understanding such "revolutionary" areas. For example, every major weapons lab on earth seems to have discovered longitudinal EM waves and longitudinal EM wave weapons—the scalar interferometry we have been discussing for so long {5}. A major contributing factor holding back U.S. catch-up is that the flawed foundations of Maxwell's 1865 theory {6} have not been changed by the Western scientific community.

Historically, the scientific community exerts resistance to substantial innovation. Often 40 to 50 years are required to do what can be done with a concerted effort in four years. The Manhattan Project in WW II is a notable example of where the scientific community made a maximum effort and did a difficult job in four years. Also, "skunk works" efforts continue to be utilized for very rapid development when something really advanced is to be done and done quickly.

With the U.S. substantially behind in these "new" strategic superweapons, a new Manhattan Project would appear to be advisable and warranted. There are at least some indications that such may actually be going on at last. We hope the indications are true.

A sobering development that occurred early this year (2002) was China's deployment of both quantum potential (QP) weapons {7} and *negative energy* electromagnetic pulse (EMP) weapons (a type which we originally called the *MindSnapper* to disguise its true nature) {8,9}. The QP weapons are the dominant weapons on Earth today, followed closely by negative energy EMP weapons in second place. We have not been able to ascertain exactly how many nations have the negative energy EMP weapons, but it is at least five at the time of this writing.

The U.S. is still well behind in the use of special "engines" (special curvatures of spacetime and their dynamics, but achieved with higher group symmetry electrodynamics) for directly engineering the mind itself, and for producing *nonmaterial* robot systems made totally of such engines—"causal system robots" which we will mention later. Several of the Western nations do accomplish work in the mind control area, but use a sort of "brute force" method oriented on frequency and frequency changes, etc. where the true active mode is the unsuspected transformations of the U(1) electrodynamics to a higher group symmetry unified field theory electrodynamics, accomplished by the human body tissues and structures themselves.

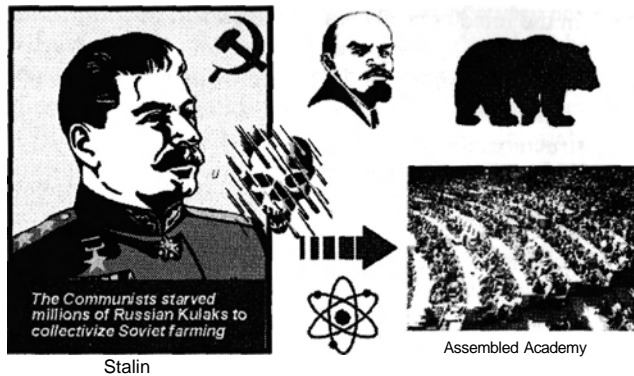
Western scientists have not realized that all EM energy in 3-space actually comes from the time domain *to* each point in 3-space and *returns from* that 3-space point back to the time domain.³ Hence "propagation" of 3-space EM energy is actually the propagation of a "circulation" of EM energy between the time domain and 3-space, involving each 3-space point presently said to be "occupied" by the energy. Unfortunately, Western science is still unaware that *no observable exists in time*, a priori, since by definition it has no extension in the time dimension at all {10}. Instead, an observable *continually recurs* as a frozen 3-space snapshot of an ongoing dynamic 4-space interaction, due to the continual repetition of the observation process which is the application of a d/dt operator to the ongoing 4-interaction. Hence, we "see" physical reality (3-space reality) similarly to the way we view a "motion picture" series of successive frozen frames. The major result of this flaw (mistaking a 3-space observable as a 4-spatial cause) in Western science is that Western science still extensively substitutes effect for cause—e.g., in the notion of a separate 3-force acting on a separate 3-mass. No such situation exists in nature, and nothing "moves" or "changes" in 3-space alone. For an entity to exist in time, it requires at least 4-space because a time length is required. Nonetheless, the West is making progress. If some of its scientific dogma can be overcome, the younger scientists will break free and readily do the job required for the defense of this nation.

Mad Scramble of Soviet Science After the End of WWII

During WW II the West produced a great technical breakthrough and obtained the atom bomb as a decisive new weapon. While speeding up his own atomic

³ Specifically, energy comes from the time domain to the negative 3-charge, thence to the positive 3-charge, thence back to the time domain in a *4-circulation* of EM energy. With extra energy *appearing* and present at the negative charge due to entering 3-space there, and with less energy present at the positive charge due to the energy *leaving* 3-space there, there is a delta in energy density (pressure) across a dipolarity, oriented from negative to positive. That is the exact basis of the T. T. Brown unilateral thrust force, and the force used in the "lifters" experiments today. To calculate the **force**, the long-unaccounted Heaviside energy flow component must also be accounted— not just the weak Poynting flow component.

weapons program⁴ as a result, Stalin also ordered his own Academy of Sciences to quickly derive the next great new technical breakthrough, and he held the top scientific leaders themselves personally accountable to him, to see that it was done at all speed (Figure 1).



"The destiny of communism has been frustrated by the U.S. development of the atomic bomb. That is not the last great technical breakthrough. The next one WILL be Soviet! You will provide me with that great new technical breakthrough at all speed, or I will have your heads. Do I make myself dear, comrades?"

Figure 1 Stalin's dictum removed any resistance from his scientific community.

Simply put, Stalin placed the heads of the Soviet scientific leaders on the chopping block, since he was an absolute dictator and often killed or imprisoned those who opposed his instructions. To survive, the leaders of the Soviet Academy had to demand the utmost of their subordinates, because they themselves had to report their progress or lack of it to a dictator who would and did take swift action if they did not produce results. Thus, Stalin simply bypassed the usual scientific posturing and protracted delay so typical of our Western scientific bureaucracies.⁵ If the Directors of the Russian scientific

⁴ At the Potsdam conference, after Truman informed him the U.S. had just exploded a great new explosive weapon, Stalin secretly called the head of his nuclear weapons program and ordered him to accelerate the Soviet nuclear weapons program.

⁵ As a simple example, the U.S. National Academy of Sciences, National Research Council, National Academy of Engineering, and the National Science Foundation—and all the electrical engineering departments at all the universities in the U.S.—have not yet recognized that all EM circuits and systems are in fact powered by EM energy extracted directly from the seething local vacuum by the source charges and dipoles in the circuit or system, and particularly by the broken symmetry of the source dipole in the generator or other primary power source. They also have not yet solved the more than a century-old source charge problem, but continue to support engineering models assuming that the charge *freely creates* real EM energy out of nothing at all, in total violation of the conservation of energy law, and pours that created energy out, freely and continuously, to establish its associated fields and potentials and their energy reaching across the universe. The agencies thus unwittingly advocate perpetual motion machines on a scale unparalleled in history. They continue to support an electrical engineering model and a classical

community dragged their feet and did not push his desired program to the limit, their heads would roll—and some did.

As a result of Stalin's forceful intervention, the entire Soviet scientific community was galvanized into a most intensive review of all of physics. The scientists desperately sought to quickly uncover potential breakthrough areas that could be developed into the great leap forward that Stalin demanded. They had to have progress, and they had to have it rapidly.

One Institute Had 2,000 PhDs and a Full Support Staff

Large review institutions were quickly set up, staffed with the best Soviet scientists and support translators and teams. One such search institute involved some 2,000 Ph.Ds along with their support staffs. Soviet ships brought in shiploads of copies of all the scientific journals of the West—from the beginning—, and they were reviewed paper-by-paper, page-by-page. Anything novel and implying new scientific possibilities, or anything that had not been adequately followed up, was laid aside in a "select" pile for further review and decision by the best Soviet theoreticians available {11}.

One gets a new physics by discovering shortcomings and flaws in the old one. This intensive Russian search almost immediately uncovered the deep flaws in classical electrodynamics—flaws that have been propagated throughout most other branches of science. Classical electrodynamics (and electrical engineering) is particularly beset by hoary flawed foundations problems, dating from at least 1865. As an example, the equations did and still do assume a material ether, and they have since the beginning! Not a single equation was changed when the

electrodynamics model which *do not even model* the active vacuum and its exchange with every charge, much less a *broken symmetry* in that exchange. So none of those agencies even knows what powers an electrical circuit, 45 years after the proof of broken symmetry was accomplished by Wu and her colleagues in 1957, and the Nobel Prize was then quickly awarded to Lee and Yang *the very same year* (1957) for predicting that broken symmetry revolution. In the modern view a charge is a dipolarity, when its vacuum interaction is considered. As a dipolarity, every charge exhibits the proven asymmetry of opposite charges, in its interaction with the active vacuum. The charge thus extracts and outpours real observable EM energy from the vacuum, freely and continuously, and it exhibits $COP = \infty$. Those agencies—along with nearly all the rest of the U.S. scientific community—still naively assume that a $COP > 1.0$ EM system (i) is impossible, (ii) is against the laws of nature, and (iii) is a forbidden perpetual motion machine. In nearly half a century since the discovery of the broken symmetry of opposite charges, those agencies have yet to apply that finding to electrical engineering and engineering curricula. Frankly, since they have dragged their collective feet for nearly a half century on extracting EM energy from the vacuum, what is needed is a Stalin to put his iron boot firmly to their posteriors and call their attention to it in language they cannot ignore. *The pollution of the planet for energy purposes and the imminent oil and energy wars that will ravish the earth are directly due (i) to this inexplicable dogma upheld by the scientific community and (ii) to the community's continued falsehoods equating EM $COP > 1.0$ to perpetual motion machines.* The continuing failure to **incorporate** the **active vactnum** exchange—and its broken symmetry—into electrical engineering and classical **electromagnetics** also poses an unacceptable threat to the continued survival of this nation.

Michelson-Morley experiments in the 1880s destroyed the material ether itself. The classical EM model also assumes a flat local spacetime (falsified by general relativity since 1915) and an inert vacuum (falsified in particle physics for several decades). It still assumes the same EM field in mass-free space as exists in mass—a non sequitur of major impact. Just to make the Maxwell-Heaviside equations easier to solve and avoid numerical methods, the *totally arbitrary* Lorentz symmetrical regauging⁶ discards all EM systems far from equilibrium with their active vacuum environment. In fact, there is no "active vacuum environment" in the model, much less a broken symmetry in that exchange. Yet that very broken symmetry is exhibited by every charge and dipole {12}, and thus by every EM circuit and system. That asymmetry is involved in the continuously increasing giant negentropy poured out by every charge in the universe, thereby generating all EM fields and potentials and their energy, eventually reaching even across the universe, and with perfect macroscopic order and time duration as long as one wishes. Indeed, all electrodynamics is in total violation of the second law of thermodynamics, to any macroscopic size level and time duration desired.⁷

The terribly flawed electrodynamics model was completely overhauled by the Russian scientists *very* quickly, and the work was accomplished by some of the best nonlinear scientists in the world. Already present at the time were many things available to assist in dramatically extending {13} the hoary 1865 Maxwellian electrodynamics {6}. Gauge field theory was available since the turn of the 20th century, and the top theoreticians could readily see that something more than Abelian electrodynamics was firmly required in particle physics. The Yang-Mills {14} theory met that need in 1954 by originating non-Abelian gauge theory.

Situation in the Early 1950s

By 1950, Stalin's scientists had the beginnings of what they dubbed "energetics" {15,16}, which we would dub an "engineerable unified field theory" {17,18,19}. Longitudinal EM waves were primary {20,5} in that more

⁶ Actually a version of this symmetrical regauging was first performed by Ludwig Valentin Lorenz, "Ueberr die Identitat der Schwingungen des Lichts mit den elektrischen Stromen," *Ann. Phys. Chem.*, Vol. 131, 1867, p. 243-263—only two years after Maxwell published his seminal theory in 1865. The paper is also published in English, as Ludwig Valentin Lorenz, "On the identity of the vibrations of light with electrical currents," *Phil. Mag.*, Ser. 4, Vol. 34, 1867, p. 287-301. Unfortunately not much attention was paid to Lorenz's effort, since he independently derived electrodynamics. Decades later, when H. A. Lorentz also published symmetrical regauging of the Maxwell-Heaviside equations, he was given credit for it with no further mention of Lorenz. A proper historical summary of this has been given by J. D. Jackson and L. B. Okun, "Historical roots of gauge invariance," *Rev. Mod. Phys.*, Vol. 73, July 2001, p. 663-680. This is an excellent coverage of the history of who actually did what and when, and who got credit for it.

⁷ This dramatically extends the size regions (microscopic through colloidal) and the time durations (momentary to two seconds) where the second law is known and proven not to necessarily apply.

fundamental approach. By the mid 1950s, one can pick out of the open literature {21} increasing incidences of prototype Russian energetics weapon testing around the world. In 1960, Khrushchev {22} spoke obliquely of these "fantastic new weapons" that were "just within the portfolio of the Soviet scientists," so to speak. Commercial aircraft sightings (Figure 2) and the reports of their captains and crews are also a particularly significant source of sightings of Russian energetics weapons tests, as are sightings by ships' crews (Figure 3) and ground observers (Figure 4).



Figure 2 Typical shield test, northern route to Japan, seen by passing airliner.

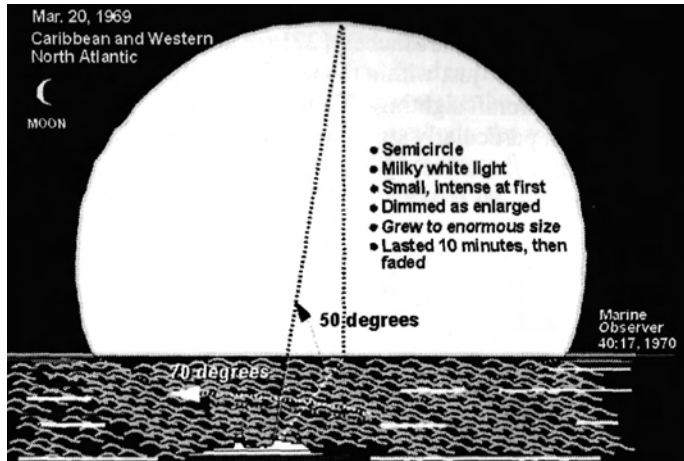


Figure 3 Giant missile shield test seen by passing ship's crew.

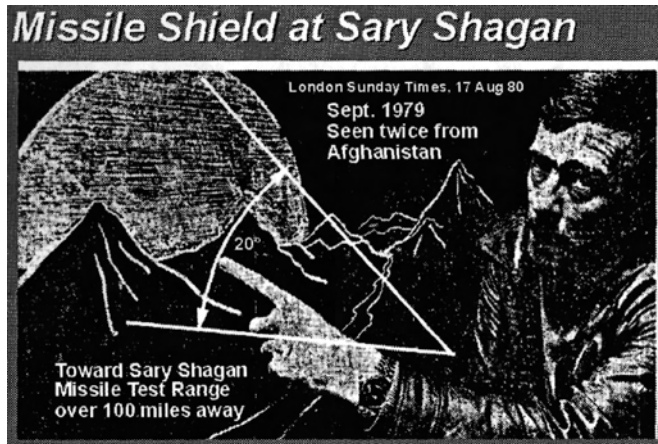


Figure 4 Nick Downie's sighting from the ground of distant Soviet missile shield tests.

1963 Deployment and Immediate Use of Scalar Interferometers

The first huge scalar potential interferometers {23,24} of strategic range and power (Figure 5) were deployed by the Soviets in 1963, and one was used to kill the U.S.S. Thresher nuclear attack submarine (Figure 6), leaving clearly recognizable signatures {25}.

Since 1963, the Russians have had the equivalent of more than seven additional Manhattan Projects (using the Russian 5-year program instead of the 4-year Manhattan Project), back-to-back, in development of energetics weaponry. The energetics weapons have never been given to the regular Russian forces. Instead, all research, production, siting, manning, and employment are by the KGB and still under ruthless KGB control by die-hard communist factions {26}.

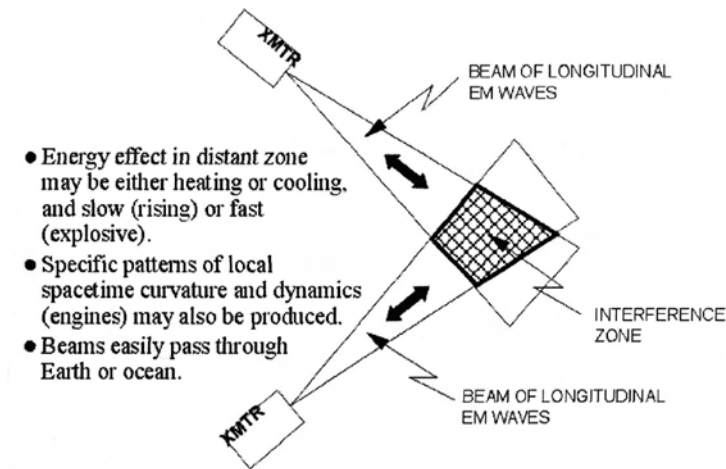


Figure 5 Scalar (longitudinal EM wave) interferometer.

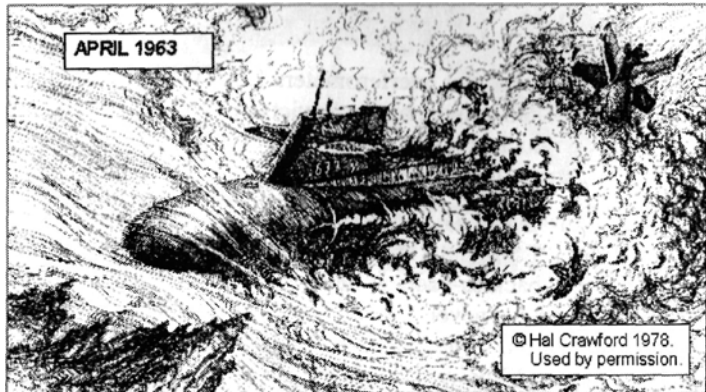


Figure 6 Kill of the U.S.S. Thresher. With her controls jammed, the hull of the doomed submarine implodes when she reaches crush depth

An Example of Russian Technology Astonishing Western Scientists

Some years ago, coordinating with a Western but non-US aerospace firm, I furnished the firm with the names and addresses of some Russian scientists in Moscow, since it was clear from their internet site that the scientists were on the fringes of the KGB energetics weapons program. An excellent European engineer fluent in Russian was sent in, several times. Several unusual things were demonstrated to him, including (i) transmitting enormous energy down a very thin wire, and (ii) cold molding, or turning metal into a liquid at room temperature, pouring it into a mold, and then letting it sit and harden. All without heating.

The engineer also closely questioned the Russian scientists about Russian energetics weaponry, a subject the scientists were most reluctant to discuss. Finally they admitted the energetics weapons existed, and they actually obtained a meeting between the engineer and the KGB General who had directed the Soviet energetics weapon program for more than 20 years. In the meeting, the General coldly admitted the weapons, stated that "Of course you are not going to be allowed to see *those!*" and confirmed that somehow the Russians obtained everything the present author writes, as soon as he writes it {27}.

The engineer then brought the Russian scientists to his aerospace firm in that Western nation, where the scientists demonstrated cold molding to assembled scientists and some U.S. personnel. I forwarded a written explanation to the Western scientists of how the cold molding was performed technically. Later, on calling the engineer again, I discovered that the foreign authorities of that country had suddenly classified everything over there, and the engineer could no

longer even talk to me without filing a Foreign Intelligence Contact Report. My own part in all this was completely open-source, pro bono, and I had already written of it openly and publicly.

Softening of Metal at a Distance Was One Effect Used Against the Challenger

At any rate, earlier I had openly advanced (and printed) the same mechanism, since it was the metal softening mechanism used by the KGB to kill the U.S. Challenger spacecraft in 1986. Publicly I had been resoundingly called a lunatic for advancing such a "preposterous" thesis. Nonetheless, metal softening by a distant LWI (longitudinal wave interferometer) was definitely utilized as part of the kill of the Challenger, as a close colleague here in the U.S. proved *experimentally*, detecting and demonstrating that metal-softening Russian signal prior to the kill of the Challenger. He amplified the signal and demonstrated on the bench its nearly instant softening of nails, rendering the nails momentarily as limp as wet noodles (Figure 7). Nails from the same box, not exposed to the signal, remained hard and could be hammered into a board. Not so the nails from the box that were exposed to the amplified Soviet signal! Those nails folded up like a wet noodle when tapped with a hammer, and could not be driven into a board.

Working unpaid with the foreign scientists, we had in fact obtained the "smoking gun" proving that this cold molding capability rigorously existed in the KGB inventory. Further, it had existed so long that the KGB had essentially *declassified* it so that the civilian Russian scientists seeking employment funds from the West could utilize it.

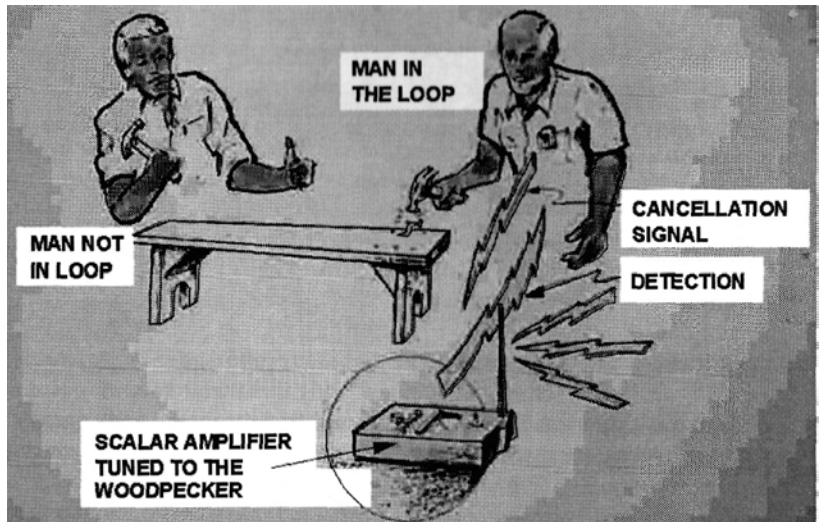


Figure 7 Proof of metal-softening signal: Golden softens nails with amplified Woodpecker signal.

Energetics: Three Branches and a Strategic Deception Plan

The *energetics* weapons use exotic polarizations of EM waves, quantum potentials, and the "infolded" LW electrodynamics (both scalar and longitudinal photons) inside and comprising every "ordinary" transverse EM field and wave. The KGB energetic weapons are categorized (Figure 8) according to what they are targeted against:

- (1) against inert matter, fields, and potentials etc., that branch of weapons is called by the same name, *energetics* weapons.
- (2) Against living tissue, bodies, cells, biofields, biopotentials, etc., they are known as *bioenergetic* weapons. Disease-induction electrodynamics such as used to irradiate the U.S. Embassy in Moscow are examples of bioenergetic weapons.
- (3) Against the mind, thought, memory, behavior, and the mind-body coupling mechanism, they are known as *psychoenergetic* weapons. Particularly in the latter mode, these weapons also use time-polarized (scalar) EM waves and time-polarized (scalar) photons as well {28}.

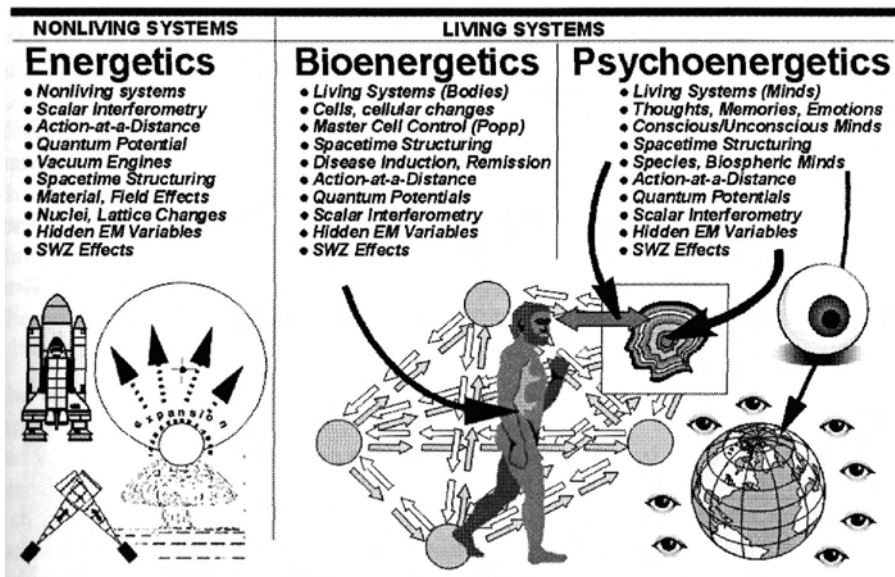


Figure 8 Three branches of Russian energetics weapons.

The KGB also implemented an elaborate and continuing deception plan, as is standard military practice for any great strategic attack plan. The KGB deception plan has been highly successful {29} in keeping the United States convinced that these weapons do not exist, and convinced that the standard strategic nuclear weapons possessed by the West are "leading" and "superior."

Strategic Attacks Scheduled and Why We Were Not Destroyed

Indeed, the West's nuclear weapons are inferior to Russian energetics weapons, particularly to the quantum potential weapons (Figure 9) deployed at the end of 1989 and to the newer "causal system" weapons deployed since the first of 1999, where *functional robot systems* (Figure 10) are made of nonmaterial spacetime curvatures and their dynamics only! In the event of a full strategic Russian energetics strike, an opening strike with quantum potential weapons {30} will dud all nuclear weapons on earth, all nuclear power systems, and all nuclear propulsion systems in about 10 minutes. This takes care of most of the U.S. strategic armament, *within the first 10 minutes*. The publicized strategic weapons of this nation have in my opinion been almost defenseless now for at least a full decade {31,32}, but I also believe that situation may be rapidly changing for the better.

A friendly little foreign nation *does* have such weapons including QP weapons that operate in multiply connected spacetime (MCS). That little nation has been

responsible for our continued survival and has continued to deter the planned KGB strategic energetics strikes upon the West. There are indications (though still not certain) that at least one—and possibly two—other friendly Western nation also possesses such weapons.

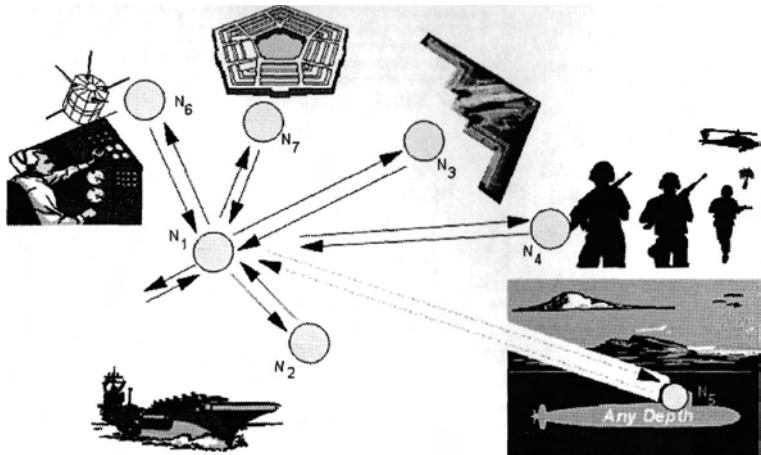


Figure 9 Quantum potential instantly attacking widely separated targets.

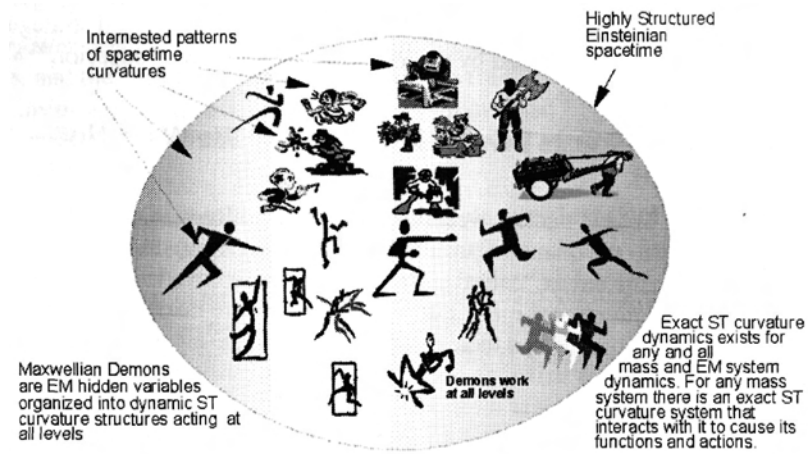


Figure 10 Causal system robots (CSRs). These are sets of ST curvature engines, with functions organized into a single complex weapon system with communication, propagation, weapons effects, and command and control functions incorporated. When the CSR interacts with mass, the mass performs those system functions.

Twice in 1997 alone we were within days of the scheduled total strategic destruction of the U.S. by die-hard KGB energetic weapons, with all-out strategic attacks actually scheduled in each case. The first attack was scheduled in latter February but was quickly countered. The attack was immediately rescheduled for May 1. The U.S. intelligence and scientific communities were apparently unaware of what was happening, and still do not believe it. However, as this author previously informed appropriate government agencies a few days prior to the attack scheduled for May 1, 1997, U.S. intelligence agencies certainly intercepted my urgent personal fax directly to the prime minister of the friendly little nation, urgently requesting that the "sane" command and control of the countering MCS/QP weapons be changed to "insane" control and spelling out the compelling reason why it was necessary.

In the insane weapons control mode, the computer periodically (say, every two hours) initiates launch sequence for the weapon, automatically. If any operating personnel remain alive on site, there is a designated short period in the sequence where the onsite personnel can countermand the order and abort the launch. If (he order is not countermanded, the launch is not aborted and the "doomsday" weapon automatically fires. In that case, KGB military power and most of Russia would disappear from the face of the earth.

This was necessary to nullify the impending strikes of MindSnapper negative energy EMP weapons {33} on those critical friendly QP weapon sites to instantly kill all personnel on site. Strike by the MindSnapper instantly kills every living thing in the area, and a protracted contamination remains whereby the struck areas emit longitudinal EM waves. If one attempts to insert new crews to resume operation of the weapons, the crewmen sicken and then die in the entry attempt. First, increasingly severe interference between mind and body control occurs. Then the individuals waver, lose consciousness, go into seizures, and their minds gradually de-couple from their bodies and they die. Fortunately, alter my fax message the C3 system was changed to the insane mode, and the Russians were notified, just in the nick of time {34}. To prevent their own destruction by the certain insane counterstrike, the KGB aborted the looming strategic strikes.

Ironically, at about the very time that the KGB strategic armada was standing down, Secretary of Defense Cohen {35} was making the following statement in Georgia:

"Others are engaging even in an eco-type of terrorism whereby they can alter the climate, set off earthquakes, volcanoes remotely through the use of electromagnetic waves...So there are plenty of ingenious minds out there that are at work finding ways in which they can wreak terror upon other nations...It's real, and that's the reason why we have to intensify our efforts."

Almost certainly Secretary Cohen had no knowledge that, so to speak, a great Sword of Damocles hanging over his head was being removed by a friendly little foreign nation at that very moment, as he uttered those words apparently referring to the older longitudinal EM wave interferometer weapons. I suspect that Dr. Cohen is to this day still unaware of the incidents that were ongoing at the time of his poignant statement.

Attempts to Alert the Nation

We alerted the President and the National Security Council as early as 1984 (Figure 54). In 1998 we also furnished selected Senators, Congresspersons, and certain high-level U.S. government agencies with color copies of a 200-page briefing and expose {36} of—among other things—these weapons, their testing, and their clandestine use against the U.S. since 1963. Because of the nearly 50 years of demonstrated induction of diseases {37, 38} (Figure 11) in personnel in the U.S. Embassy in Moscow (e.g., responsible for the deaths of three U.S. Ambassadors), we also included part of the briefing on the Priore work {39} (Figure 12) showing the remarkable cellular changes (time-reversal of diseased states back to a previous earlier healthy condition) that can be and had been experimentally induced by energetics under rigorous scientific controls.

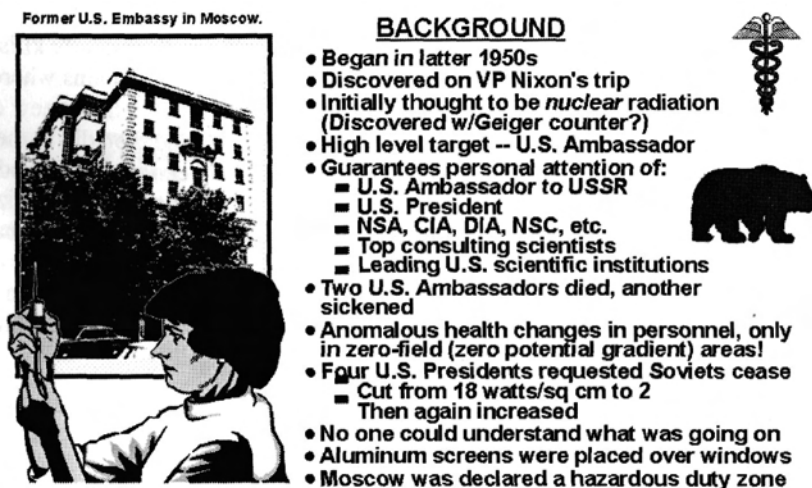


Figure 11 Microwave radiation of U.S. Embassy in Moscow.

We proposed to the DoD a very rapid, high priority development program to develop portable suitcase-sized computer-controlled treatment devices (Figure 13) capable of saving a majority of mass casualties—e.g., from a professional large anthrax attack on a major population center.

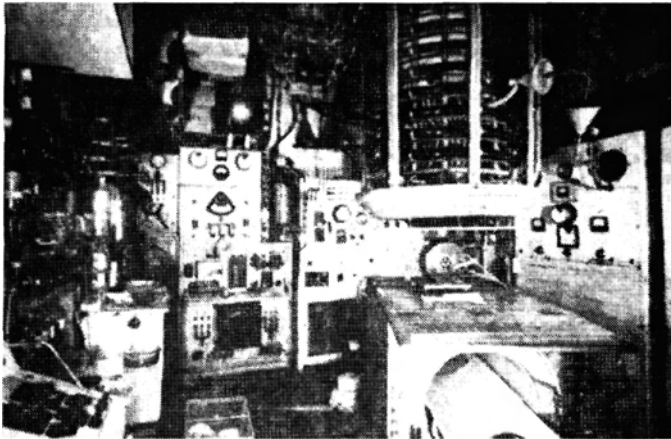


Figure 12 Priore¹ laboratory and device for treating small animals.

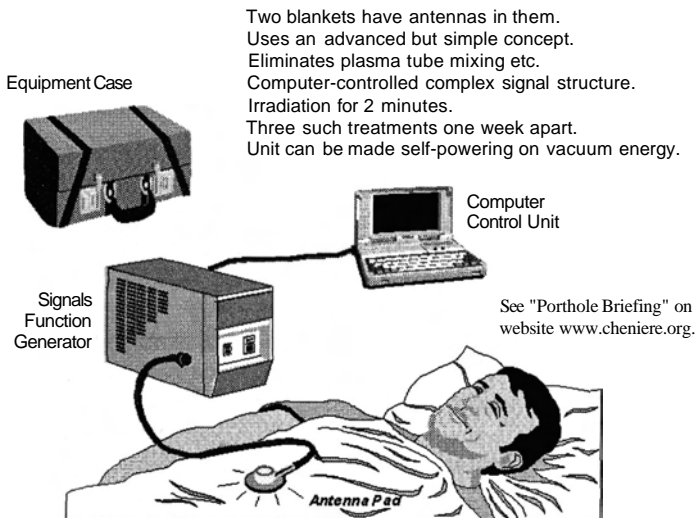


Figure 13 Portable unit for rapid treatment of mass casualties.

The Responses

The responses—or more exactly the near total lack thereof—by various U.S. government agencies were enlightening. E.g., the National Institutes of Health (NIH) never let the package out of its Policy (i.e., *political spin control*) section. It did not check a single scientific reference on a proven method documented in the hard French scientific literature for reversing terminal cancer, infectious diseases, etc. Not a single scientist called me to discuss such a proven, revolutionary effect. Instead, the NIH Policy section simply shipped the package over to the DOD as "their problem, not ours." That was because the package also explained how the Gulf War Disease was induced, including how semen can cause infection of the wife, and how the structured body biopotential of the sickened veteran can induce similar structuring of the biopotentials of his children by proximity, thus inducing various aspects of the disease.

Effective Survival Treatment of Mass Casualties Could Be Developed

Meanwhile, we had uncovered a way to dramatically speed up the Priore healing process, and use only normal transverse EM radiations for ready adaptation of existing equipment, while still forcing the same time-reversal of diseased and damaged cells back to normal. Just much faster. This meant that very small, suitcase-sized treatment units (Figure 13) could now be developed in a reasonable time—e.g., in two to three years, given a high priority, intense effort, adequate funding, and a carefully chosen scientific team.

So, we proposed a crash development by DOD of a small, suitcase-size portable device for quick, mass treatment of mass U.S. casualties following terrorist attacks on our cities using weapons of mass destruction. Eventually an innocuous reply (forced by my congressman) simply stated "it was not supported by the literature." In the package, of course, I had *specifically cited* the numerous scientific papers in the French scientific literature reporting and proving the experimental results. I had also worked 14 years to decipher the mechanism actually performing the revolutionary healing accomplished in rigorous animal testing by the Priore team. Eleven years after suppression of the Priore effort, the University of Bordeaux, which had been pressured into rejecting Priore's doctoral thesis, did approve and publish a doctoral thesis by Perisse on the work {40}.

The National Science Foundation (NSF) did not reply at all. Yet at the time the official strategic threat to the United States listed WMD attack on our cities and great population centers as the greatest threat of all (Figure 14). Today, as everyone knows we are in a war after the terrorist attack on the twin towers in New York and on the Pentagon on September 11, 2001. The U.S. government clearly recognizes that it is not a matter of if additional attacks on the U.S. cities and populace will occur, but *when*. The terrorists are also known to have already

infiltrated weapons of mass destruction such as biological warfare weapons (anthrax, smallpox, bubonic plague, etc.) Nonetheless, apparently the NSF simply did not believe a novel but *rigorously demonstrated-in-the-1960s* unorthodox process that could potentially save most of those millions of Americans who otherwise will surely die—and who *are* going to die in the first major WMD strike on our population centers.



RECOGNIZED TODAY:

- Sabotage and interdiction
- Chemical and biological
- Nuclear materials
- Powerful explosives
- Assassination, hostages
- Contamination
- Shoulder-fired AD missiles
- Terrorism
- Nuclear weapons hidden in our cities (but shunned)

PRESENT BUT UNRECOGNIZED:

- Negative energy EMP weapons
- Quantum potential weapons
- EM biological warfare
- Scalar EM weapons
- EM disease induction and spreading of immune systems
- Alteration of behavior and emotions
- Alteration of memory and perception
- Control of thought and behavior
- Action at a distance effects
- Causal System Robots (CSRs)

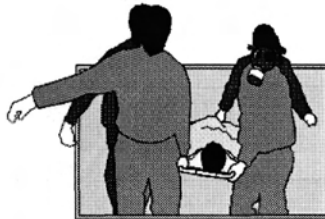


Figure 14 The mass destruction weapons threat to our populace.

The entire scientific method is based on assigning priority to experimental truth rather than dogmatic belief. If experiments refute the theory, the theory must be changed and the experimental results accepted. Else one is not following scientific method. Apparently the National Science Foundation does not follow scientific method, nor does it seem interested in doing so. Neither do the National Institutes of Health. The decisive results of some 2,000 rigorous animal experiments reported in the refereed scientific literature in leading French journals, by multiple established French scientists, were simply ignored because the results are contrary to present dogma. Meanwhile, four years have been lost. During that four years, the portable units could have already been developed, mass produced, and made available to treat and save millions of coming U.S. civilian casualties. Apparently the lives of those Americans are not as important as maintaining the present medical dogma. When those millions do die—and they will—we shall most certainly remind those agencies of the caliber of their dedication to scientific method and of their service to their fellow Americans. In my personal view, ignoring a chance to save so many Americans is treason of a very special kind.

The Official Silence Was Deafening

Not a single scientist in any of those and ~~other~~ organizations seems to have taken the package seriously. Not one called me to discuss it, or apparently studied the references, etc. No one asked for a personal briefing. No one was interested in the actual photo of the strike of a Russian EM missile from a scalar interferometer, offset from a U.S. night shuttle launch (Figure 15) from Cape Canaveral in latter November 1985, or the photo of the actual registration point ball of light high in the air (Figure 16) over that same shuttle launch {41}. The same weapon then killed the Arrow DC-8 at Gander, Newfoundland about two weeks later (Figure 17). An eyewitness (or more than one) actually observed the streak of light from the sky that struck the Arrow DC-8 in the right fuselage ahead of the engines {42,43}, after the thrust of the engines were reduced during take-off by use of a negative energy (cooling) interferometer. A similar ball of light associated with the kill of a Titan missile fired from Vandenberg AFB in early 1986 {44} and printed in *Aviation Week & Space Technology* magazine, was also apparently of no concern.

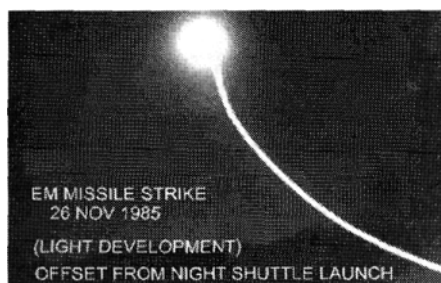
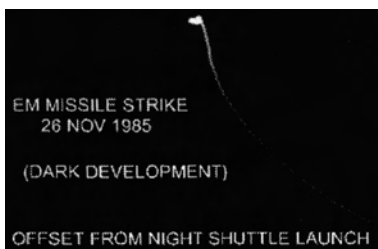


PHOTO BY BOB GLADWIN



Scalar interferometer operator
fires offset EM missile from Russia.

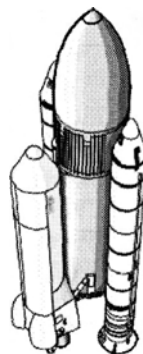


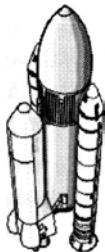
Figure 15 Soviet EM missile strike offset from U.S. shuttle launch at Cape Canaveral on 26 Nov. 1985. This is the smoking gun.

These remarks are intended to show the lack of understanding that has existed in our governmental, scientific, and intelligence communities of what energetics is and of the great energetics superweapons that have been developed. With the present rapidly growing interest in longitudinal EM waves, however, we suspect

that such lack of understanding is now no longer the case. We certainly hope that is true, and we are



Distant operator onsite in Russia slews away the registration point (the marker beacon)



26 Nov1985



Two weeks later, the same weapon killed the Arrow DC-8 at its takeoff from Gander, Newfoundland.

Figure 16 Marker beacon above U.S. shuttle launch at Cape Canaveral, 26 Nov. 1985. Russian crews were using shuttle launches as practice ICBM launch targets.

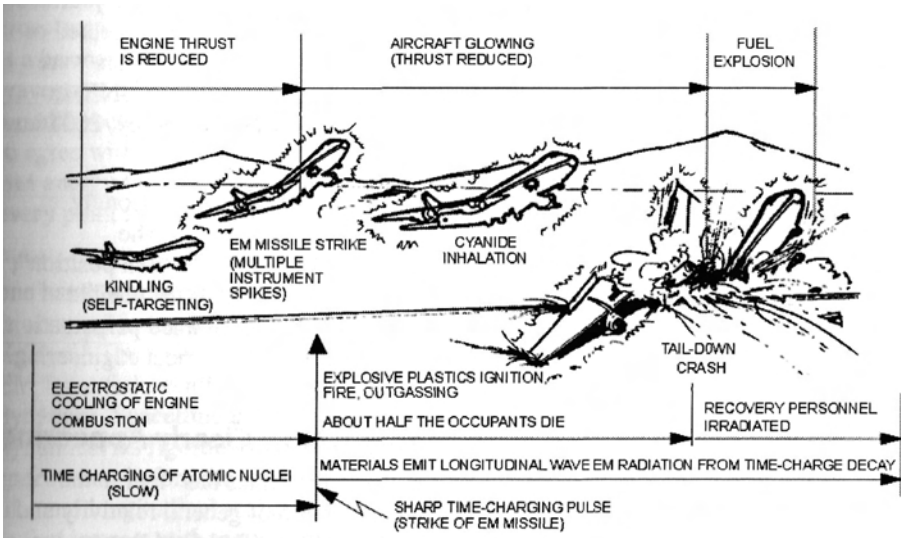


Figure 17 Kill of the Arrow DC-8 at Gander, Newfoundland Dec. 12,1985.

much encouraged that at least one—and possibly two—friendly Western nations now possess quantum potential weapons.

The Long Dry Spell in Correcting Electrodynamics May Be Slowly Ending

In over 20 years of unrelenting effort, until 1999 we were unable to get any significant Western scientists of real "horsepower" (e.g., in non-Abelian electrodynamics, foundations errors in electrodynamics, advanced gauge field theory, general relativity, etc.) to meticulously examine conventional U(1) electrodynamics and its glaring errors, and to look at weapons implications of higher group symmetry electrodynamics.

Beginning about three years ago, however, a noted scientist, Dr. Myron Evans {45,2}, along with other theoretical scientists of the Alpha Institute's Institute of Advanced Study (AIAS), have been extending electrodynamics by developing the 0(3) electrodynamics. They also have deeply examined the Whittaker work of 1903 and 1904 on which the early part of the Russian energetics weapons are based {24}.

The AIAS analyses, and subsequent papers by Dr. Evans and Alex Labounsky as well as by the entire AIAS group, have clearly established the primary importance of time-like precursors of EM fields, operating in massfree spacetime where fields E and B cannot exist. These time-like precursors *create* all the rest of the conventional electrodynamic entities {46}. This is a dramatic extension to electrodynamics and physics across the board. More than 100 papers have been produced to date, with more than thirty published in journals such as *Foundations of Physics*, and many of the others are either accepted or still in the referee process with various journals. Some 60 of the papers were published as a single special edition of the *Journal of New Energy* (JNE) in latter 1999, and a second edition of *Modern Nonlinear Optics*, Wiley, 2001 has been published with many important papers.

However, the problem is that the scientific community, which is strongly committed to "business as usual", has funded none of this work. The conventional lead agencies of the community are still in the "ostrich position", with their heads buried very firmly in the sand with respect to the terrible damage they continue to enforce on this nation by their continued perpetuation of an old, long-archaic, inadequate electrodynamics and electrical engineering.

Engineerable Unified Field Theory Is Now Clearly Appearing

The rapidly emerging AIAS extension of electrodynamics has "met in the middle" with Sachs' {4} revolutionary generalization of general relativity and electrodynamics. For the first time, an engineerable unified field theory—employing 0(3) electrodynamic means—is now being produced. The AIAS work in 0(3) electrodynamics was shown to be an important subset of Sachs' approach. It also now provides the full, rigorous theoretical foundation and model for the Priore mechanisms and results.

We also comment most strongly that the important $SU(2) \times SU(2)$ electrodynamics as developed by Barrett (47) leads to essentially the same conclusions, since Barrett's electrodynamics is homomorphic with $O(3)$ electrodynamics. Barrett, of course, is one of the pioneers of ultrawideband radar—another scientific area that was fiercely opposed and suppressed by the orthodox U.S. establishment for some time. Ironically, today those very scientists who were so dogmatic in their vociferous condemnation of UWB radar, have assumed the mantle of "experts in the UWB field", sometimes even taking credit for having "advanced it" in the first place.

Examples of Some Major Non Sequiturs in Conventional Electrodynamics

In every textbook and millions of technical papers in the West, electrodynamicists routinely calculate the "magnitude of the scalar potential". Actually, not a single one—including Maxwell—calculated or calculates the *magnitude of the potential itself*. Instead, they universally calculate the reaction cross section of the potential at a point occupied by an assumed intercepting/collecting unit point *static* charge {48}. At best that is a representation of the *intensity* of the field at each point. The reaction cross section of the potential with a fixed unit point static charge is indeed a scalar value. The "scalar" potential itself, on the other hand, *is not* its own reaction cross-section at each point of itself, and it is not a scalar entity at all! Instead, it is a harmonic bundle of bidirectional EM longitudinal phase conjugate wavepairs, as shown by E. T. Whittaker in 1903 {49}. It is and always has been a multi-vectorial, multiwave entity. By slightly reinterpreting Whittaker's work to agree with quantum field theory, the scalar potential is also a circulation of EM energy from the time domain to 3-space and back to the time domain, at every point in space that is occupied by the potential.

Further, the "field" notion is utilized in two self-contradictory manners. On the one hand, it is assumed in the massless reaches of space, and on the other hand it is assumed in mass, *which is the only case in which a force field is properly defined*.⁸ The so-called "electromagnetic field" existing in empty space is not an EM force field at all, but a curvature or curvatures of spacetime with assorted ilynamics. Spacetime is after all active, and being active means curvatures and ilynamics. As rigorously shown by the AIAS theoreticians, what exists in *spacetime*—before the force-fields appear on reacting charged mass—are time-like and longitudinal scalar potentials and fluxes. These "pre-EM field" entities in fact interact with mass to produce all the force fields (the electromagnetic fields). Mass is a *component* of force; simply by $F = dp/dt$, which is expanded

⁸ Since Maxwell and the original pioneers believed in a material ether filling all space, to them there was not a single point anywhere in the universe that was devoid of mass. Hence to them there was only one kind of field: the kind that exists in mass.

into $F = d(mv)/dt$, which is $ma + v(dm/dt)$. Note that both terms have mass as a component. Hence there is no force or forcefield when mass is absent. Present mechanics is seriously wrong (and has been wrong for hundreds of years) in assuming a separate massless force acting upon a separate mass.

Jackson, one of the ablest classical electrodynamicists of our day, adroitly states how electrodynamicists skirt that issue. Quoting, p. 249 of his *Classical Electrodynamics*, second edition: *"Most classical electrodynamicists continue to adhere to the notion that the EMforce field exists as such in the vacuum, but do admit that physically measurable quantities such as force somehow involve the product of charge and field."*

Our comment is that one does not get an observable until after the interaction of a cause with a previous effect, to provide a change (a new effect). The 4-cause itself—in this case the field that actually exists in the vacuum—is never observed nor is it observable. Its *effect* (force with an affected observable mass as a component of it) is observed. The field in space and the field in matter thus do not even have the same fundamental units, but differ by a factor of m . In electrodynamics the m is avoided by "defining" the field as force per unit coulomb of "charge" (without saying or accounting "charged mass").

Wide Confusion of Cause and Effect

Present electrodynamics (and even the hoary old mechanics, as pointed out) has thoroughly confused the causal (4-space) side of the observation process with the effects (3-space) side—observation yields 3-*spatial* entities, not 4-*spatial*. Indeed, as is well known, *time is not observable, even in theory*. That is really because observation is a d/dt process applied by the 3-space intermediary (e.g., mass) being acted upon by the causal (4-space) entity in spacetime, to produce a change in that intermediary (3-*spatial*) that results (is observed). *A priori*, the output of the observation process does not even exist in time, since its fundamental units are LLL and not LLLT. The observation process is thus $d/dt(LLL) => LLL$.

Further, electrodynamics omits the fact that, not only does the causal entity act upon the intermediary to produce the *effect* (changes to the intermediary), but *those changes (effects) also act back (in reverse) through the intermediary to produce changes in the causal entity itself*. This mutual interaction between cause and effect (but never stressed in exactly that manner) is well known in GR, where the curvature of spacetime acts upon mass-energy to change it, and the resulting change in mass-energy also acts back upon spacetime to curve it. The omission of the latter "back reaction" in EM theory by Maxwell resulted in omitting half the energy, half the wave, and half the causal entity in spacetime, as well as half the effect. The missing half of the effect appears as the Newtonian third law reaction, which in electrodynamics is just mystically "assumed" to be an effect without a cause.

The vast importance of restoring this missing "back action of effect upon cause" is because it can be deliberately utilized to directly engineer the causal (4-space) state itself, producing nonmaterial "engines" and unobservable functioning robot systems comprised entirely of curvatures of spacetime and their dynamics. Such "causal system robots" (CSRs) can be designed and engineered to then perform almost any desired action upon normal mass systems they encounter. The robots also can easily penetrate vast depths of mass, which is mostly empty space filled with potentials, fields and waves—all of which are just bundles of longitudinal EM waves and their dynamics. "Mass" is actually a vast superhighway through which such CSRs can easily move at the speed of light {50}.

CSRs: Engineering the Unobserved Causal Side To Create Functional Systems

Understanding early on the mutual interaction between cause and effect that existed in their energetics, the Russians were able to engineer this totally new kind of system: the *causal system robot* or CSR (Figure 10). With sufficient theoretical development, one can "work backwards" by adroitly re-engineering the effect to obtain a desired causal system (spacetime curvature set along with its impressed dynamics; (Figure 18) corresponding to some physical system and its changes one desires to engender. One thereby directly creates a deterministic set of spacetime curvatures and impressed dynamics, which we call an "engine" (Figure 18). This *ST curvature engine* system can then function as a completely separate system {51} (Figure 10). One can communicate with it via longitudinal EM waves, control it, etc. By building in scalar interferometry functions, the CSR can be given "weapons" capabilities, etc.

- All levels of energy structures and all levels of time structures mold spacetime geometry.
- The "pattern" is called a *template* for a vacuum engine (spacetime curvature engine).
- Spatial and temporal structurings of the engine act upon mass at all levels.
- This produces a template of forces, for precise translations and stresses within the mass at all levels. The forces exist in both time and 3-space.

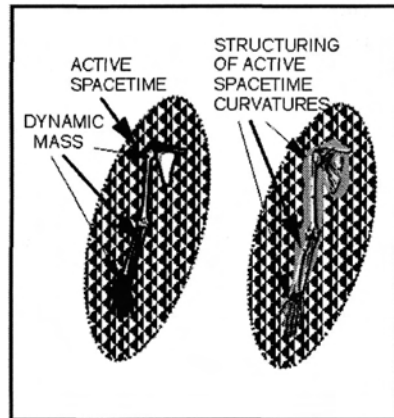


Figure 18 The principle of general relativity extended to include the concept of the vacuum engine.

In theory such a CSR can be assembled to perform any desired function or complex of functions upon matter, fields, potentials, etc. that is desired. In short, one can build real, functioning "infolded" (subspace) robot weapon systems using this "backward engineering of spacetime itself process. The huge underground facilities (hundreds) that the Russians continued to build after the collapse of the Soviet economy and the fall of the Soviet Union, apparently contained the full CSR development and control facilities as well as the operational systems employed for this totally new kind of weapon system.

A great engineering of the future lies in engineering CSRs, which already constitute a great leap forward past the material nanobot technology being pursued in the West.

Making the First CSR is Extremely Difficult; Making a Million Copies Is Easy

The development of a specific CSR with a specific set of functions is akin to developing a highly complex software system of major proportions (several tens of millions of lines of code). The job is extremely difficult, and tortuous "debugging" is required for a lengthy period. Once a single CSR is completed and debugged, however, the production of thousands or even many millions of copies is then a trivial task.

The CSR may be visualized as a sort of vast complex of longitudinal EM waves (recall, we are speaking of ST curvatures, not the conventional EM waves thought to operate on a flat spacetime. *All* EM waves operate in a curved spacetime *a priori*, as clearly shown by Sachs). It turns out that all matter is mostly empty space, filled with potentials and fields. Space itself, considering its energetics, may be taken as a giant scalar potential. All those potentials and fields and waves are in fact nothing but sets of longitudinal EM waves and dynamics. In short, they are vast superhighways for the travel of CSRs and the propagation of longitudinal EM waves.

A CSR can be embedded within any kind of EM potential, wave, or field. So to replicate one, one embeds it in a magnetic signal and records that signal on a diskette or other media. Then one makes millions of copies of the diskette, for perhaps 10 cents or less each. Or do it en masse, by first completing a CD-ROM with a hundred or two hundred CSRs embedded in its signals (Figure 19). Then simply reproduce the CD-ROM. Every reproduction has another hundred or two exact duplicates of those CSRs, made for almost no cost at all. With communications built into the CSRs, the command and control facilities take charge of them, give them individual numbers or designations, and a robot armada emerges with most unusual capabilities indeed.

The puzzling underground facilities in Russia (which our fellows apparently never deciphered and which remained a mystery) apparently contained the scientific teams, the research and development facilities, the production

facilities, and the command and control facilities for the new vast CSR weapon complex. It was to see its first great employment at the end of 1999.

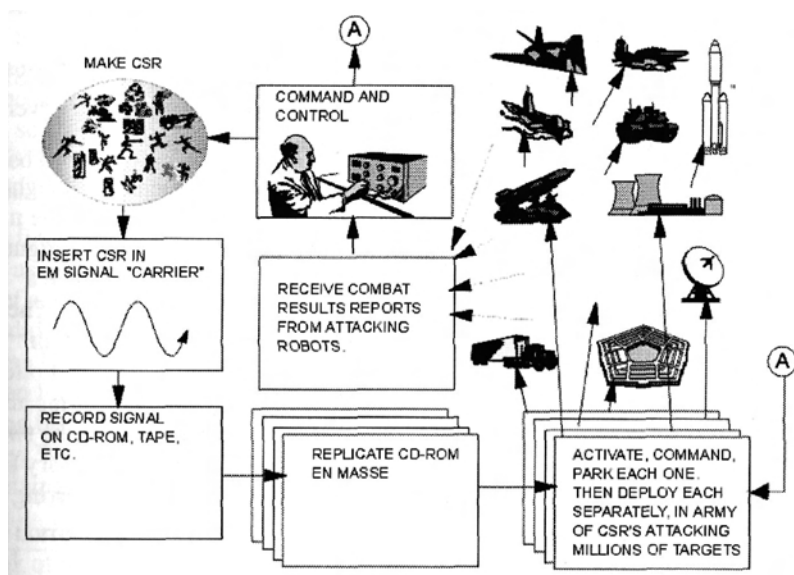


Figure 19 Mass reproduction of a CSR is simple and inexpensive. The CSR resides in, or propagates inside, any EM signal, potential, or field.

In 1999 The KGB Deployed Massive Numbers of CSRs for a Strategic Attack

In latter 1999 the KGB began massively deploying these CSRs of various types throughout the Western world, particularly including the United States. They simply sent the CSRs back "inside" the potentials and fields and waves being emitted from radio stations, TV stations, power lines, satellites, communications systems, inside matter, etc. These CSRs were deployed and infiltrated in major command posts and installations throughout the U.S. and its allies. True to form, the KGB even "stimulated" some major computer systems in critical U.S. government facilities by having the robots "surface" some effects on the Computers, right through the firewall programs (whose EM signals and operations indeed provided nice superhighways for the robots). Our fellows **detected** the interference as a "sophisticated computer hacking attack" (puzzlingly from the Russian Academy of Science), and then the robots "submerged" again after deliberately performing actions to produce obvious changes and guarantee the U.S. detection of those changes. The purpose of this "stimulus and probe" was to see if the U.S. was aware of CSRs and CSR **technology**. We clearly showed we were not, and we still are not aware of them. **Further**, the entire government apparatus—including all our vaunted national

laboratories—knows absolutely nothing at all about CSRs, and none of the laboratories believe it. That is the same posture they've been in with respect to energetics weapons for a half-century. Apparently they will be in that same posture for another half century, left to their own devices.

However, I was not allowed to remain a casual onlooker for this new CSR armada! The KGB also planned to use me as a stimulus to ping the government yet another way, and then assess the government's response.

Here in Huntsville, suddenly I was personally struck by such a CSR right from my computer monitor, with the attack riding through the light from the monitor to my eyes and retinas and right into the brain and nervous system (Figure 20). This was the type of CSR that can lurk in any potential or field inside a computer, and then strike and kill the operator looking at the screen. The CSR took over control of the machine, split the screen so that only one-inch horizontal strips were luminous—one at the top and the other at the bottom of the screen with the middle dark. These two separated horizontal strips allowed scalar interferometry via the inner LWs comprising the light from the two strips. The LWI signals crossed in my vision center, where suddenly ordinary EM signals and waves were produced by the scalar interferometry occurring there.

Stimulating apparently the only analyst capable of recognizing a CSR attack and connecting it with the scheduled giant strategic CSR attack.

KGB General commanding the energetics weapon previously confirmed that what this analyst writes on his computer is received as soon as he writes it. Apparently accomplished by Tempest techniques or directly by energetics.



Figure 20 Present author struck by CSR in latter 1999 as a deliberate nonfatal stimulus.

I saw rapid blinding flashes like a hundred flashbulbs exploding at once right in my face. However, the signals representing those "flashes" were being created right there in my vision center. An external camera would have recorded only the weirdly separated screen display. It *would not* have shown the brilliant flashes of light I was seeing, unless it was set up stereoscopically. The strike was deliberately sustained for only about 10 seconds so as to be severe but nonlethal; about 30 seconds would be totally lethal. Violent fibrillation of the heart also resulted explosively, and I was instantly hypnogogic and seriously weakened by

sudden hypoxia from near total lack of blood pumping (because of the fibrillation). The purpose was apparently to strike the only analyst in the U.S. who would recognize what the nature of the attack was, stimulate him, watch him try to notify the government, and then observe the government's reaction. It took four days to recover from the strike. But I knew immediately what had made the strike, and that I had been hit with a CSR weaponized by having a built-in scalar interferometry capability. It was also a very sophisticated CSR, as it showed by assuming complete "intelligent" control of my computer's functions.

When I finally recovered, I did notify the government and warn them of CSRs, exactly as anticipated by the KGB. As might be expected, the government's total disbelief and lack of reaction clearly showed they knew nothing of CSRs. They simply did not believe such weapons existed or even could exist. Sadly, once again one faced the "not invented here" syndrome. General relativity and its provision for spacetime curvatures and their associated dynamics (engines) operating back upon mass are apparently just supposed to remain a theoretical curiosity. Why, obviously no scientist in his right mind would think of weaponizing such!

A more correct answer is, *"Like hell they wouldn't!"* American scientists would not think of it, but *Russian* scientists with their national chess-playing psychology will immediately seize upon any opportunity—even many moves ahead in the game—and develop it and utilize it. They understand and use the boa constrictor. We only understand and use the immediate rattlesnake.

How the Asymmetrically Deployed Strategic Attack Was Stopped in Its Tracks

However, we also alerted the "little nation" that has advanced EM weapons technology, which—since early 1997—has been saving the U.S. by forcing the abortion of impending KGB energetics weapons attacks.

When I warned them in 1997 about the MindSnapper weapons and mind-control weapons used against Captains Button and Svoboda, unknown to me at the time they later reacted and suddenly destroyed those facilities in Russia (apparently with violent scalar interferometry strikes). So *that* mind-control type of attack being readied for 1999 was thwarted for a few years by these strikes sometime prior to mid-1998.

But to return to the CSRs. In the latter quarter of 1999, the Russians were developing and deploying throughout the West numerous kinds of CSRs. So the period at the end of 1999/first few days of 2000 attack was already scheduled for a massively programmed CSR attack. It was designed to cripple the entire **nation**, and perhaps even collapse it economically, yet all would be blamed on Y2K! Our scientific ignorance guaranteed that we would blame it on something **mundane that** our scientists could understand: Y2K problems in all the old

software programs running so much of our automated systems, communications, and centralized functioning, accounting, banking, etc. In short, the KGB planned to give us a bicentennial gift: a Y2K nightmare far beyond our wildest fears.

After my recovery from the CSR strike in the latter quarter of 1999, I again urgently alerted the friendly nation of the development of CSRs and their widespread deployment—and informed them of the personal attack on me and specifically why it was made nonfatal. Of course I also alerted our own government. We were scheduled for a *real* Y2K problem that would curl one's hair, so to speak, with everything imaginable failing—and probably all blamed on Y2K.

Admirably, beginning just at the end of 1999, the friendly nation simply began methodically and massively cleaning out all the CSRs, and they disposed of them in very short order! Such CSR systems⁹ may easily be located and destroyed by strategic longitudinal EM wave weapons {52}, when and if one has the longitudinal EM wave technology sufficiently developed. So Y2K came and went with only a few relatively minor incidents from the *normal* Y2k problems expected.¹⁰

However, unknown to our scientists and intelligence community, a great war of a very special kind—the *Earth's first strategic subspace war*—had just been silently fought and won, right there inside our power systems, command and control systems, major weapon systems, electrical power systems, electrical control systems of our nuclear submarines and strategic bombers and missiles, even inside the electronics of our nuclear warheads, etc. And not a bobble showed on the surface, anywhere. This was the first real "subspace" war, where weapons made of pure spacetime curvatures and dynamics were involved as the main offensive battle systems. LWI destruction of numerous CSRs inside potentials and fields in various electronic equipment throughout the nation, created little or no overt signs at all.

This time we won, thanks to the "good guys" and not to our own scientific community. Next time we may not be so fortunate.

The Mostly-Ignored Time-Energy Interaction

For some inexplicable reason, physicists in the West have omitted one-half the actual photon interaction.¹¹ If one allows the *spatial energy* component of the photon to interact, then one must also account for the simultaneous interaction of the time-component of the photon. A mass m absorbing a photon (AE)(At)

⁹ These early CSRs apparently had no "stealth" capabilities built-in, so they were easily detected and destroyed, rather like shooting fish in a rain barrel.

¹⁰ Even so, a normally disastrous Y2K problem was narrowly averted, in the nick of time, by a concerted national software reprogramming effort massively mounted and costing billions of dollars. Otherwise, the expected "ordinary" Y2K problem would have been very bad indeed.

becomes *masstime* $(m+dm)t$, not mass m . Mass m and masstime mt are as different as are force F and impulse Ft . No scientist in his right mind would ignore the t in Ft and consider just the force F . Yet that exact kind of giant *faux pas* has been done for many decades now in the photon interaction. And it is still ubiquitously done in physics. *Mass does not emit photons; masstime does.* Again, physicists confuse effect and cause.

As the Russian energetics weapon scientists know full well, time is actually spatial energy compressed enormously, by at least the factor c^2 . Hence time has at least the equivalent energy density of mass. The greatest amount of "energy" existing in a photon—particularly in lower frequency photons—is in that "time" part that is arbitrarily ignored and discarded. An ELF photon has enormously more total energy—by many orders of magnitude—than does a gamma ray photon.

Energy and time components in the photon are canonical. Low frequency photons are reduced in the magnitude of their *spatial* energy component and thereby maximized in their *time* components. For the ordinary (decompressed) *energy equivalency* of the time component, one must multiply the time in seconds by c^2 . Halving the frequency, e.g., doubles the time component, whose spatial equivalent energy is now $(2t) \times (c^2)$. With respect to the original photon, the new total energy (achieved by halving the frequency) is given by $[(\Delta E)/2] \times [(2\Delta t) \times c^2] = [(\Delta E)(\Delta t) \times c^2]$. So halving the photon's frequency increases its total energy by a factor of c^2 , which is approximately by a factor of 9×10^{16} . Hence photons actually carry enormously greater total energy (most is locked up as time) at low frequency than at high frequency. Indeed, the highest energy photon interactions in the universe are at low frequency, *if and when* a transduction of the available time-energy into spatial energy occurs.

This has been completely missed in the West, but not by the Russian energetics weapons scientists. They have been *engineering* that formidable new high energy but low frequency physics—a physics far more energetic than that used in our most energetic colliding beams in "conventional high energy physics".

The cold fusion processes¹² stumbled onto by Western scientists are using the

¹¹I.e., except for accounting for the overall "action" (angular momentum) and such things as **minimum** action theorems, etc. Treating the photon's increment of time specifically as a formidably compressed piece of spatial EM energy does not appear in Western physics. It has **long** been utilized in the KGB's secret energetics weapon science.

¹² For an explanation of the use of time-reversal zones in cold fusion experiments, and some of the resulting new transmutation reactions that result, see T. E. Bearden, *Energy from the Vacuum: Concepts and Principles*, "Chapter 10: Cold Fusion: Low Spatial-Energy Nuclear Reactions at High Time-Energy," Cheniere Press, Santa Barbara, CA, 2002. Available from www.cheniere.org. Statistically, the formation of significant time-reversal zones is guaranteed by the **transient** fluctuation theorem of Denis Evans et al., and by recent experimental work by Evans et al. proving that such zones (where the reactions run backwards) can and do occur at up to **micron** (colloidal) size and for up to two seconds in duration. We stress that this is a recognized, **proven** violation of the second law of thermodynamics already known to physics.

time-energy component of photon interactions, to generate enormous localized EM energy directly upon the interior quarks and gluons of nucleons {53}. We worked out a speculative explanation of the active time-energy transduction mechanisms that fits all the experimental phenomena, including the eerie instrument anomalies occurring in rigorous electrolyte experiments at China Lake for some years. That is included in my new book, *Energy from the Vacuum: Concepts and Principles*, Cheniere Press, Santa Barbara, CA, 2002, available from www.cheniere.org.

Of course consistency alone does not prove it conclusively; consistency is a necessary but not sufficient condition for proof. But at least the proposed explanation is consistent, and nothing else seems to be, at this time. In one chapter in my referenced new book we do cover the cold fusion mechanism and give specific new nuclear reactions producing the excess deuterium, tritium, and alpha particles in so many successful cold fusion experiments worldwide.

My "time-reversal zone" approach is stringent, because the recent work by Denis Evans *et al.* {54} has clearly shown that reactions can and do run in reverse—totally in violation of the second law of thermodynamics—at micron (colloidal) level in size and for up to two seconds in duration (and sometimes even a little longer). So experimental demonstration that the "time reversal zones" I assumed can and do indeed occur has now been accomplished by Evans *et al.* This provides strong experimental and theoretical support for the basic assumption (of the formation and momentary existence of localized time reversal zones that subsequently decay) we used to derive the fundamental cold fusion mechanism including some of the specific reaction equations for excess deuterium, tritium, and alpha particles now demonstrated in hundreds of successful experiments.

In a reversed zone *the law of attraction and repulsion of charges is reversed*, so that like charges attract—sometimes so closely that each enters the strong force region of the other, forming a quasi-nucleus (Figure 21). As the time-reversal zone subsequently decays back to a time-forward zone, the reduced strong force is restored much faster than the Coulomb force is reduced and then reversed back to normal. So during this readjustment decay process, the quasi-nucleus will simply change to an isomer and a known nucleus by quark-flipping to change an H⁺ ion to a neutron. Note that the "reversal zone" momentarily changes the Coulomb barrier—always the only thing that has really prevented chemical fusion and transmutation at low spatial energy—to a Coulomb attractor. Hence cold fusion—as now backed up by more than 600 successful experiments worldwide, by multiple laboratories and researchers in multiple nations—is an established fact and a herald for a vast new science based on deliberate and intentional reversal of the Coulomb barrier and use of time-energy.

With its usual perspicacity, the organized U.S. scientific community has flubbed it—and flubbed it badly—with respect to cold fusion. Its contribution has

largely been a tirade of ad hominem attacks, slander, and libel of a viciousness seldom seen in the annals of science. Once again, the community is far more devoted to defending its cherished dogma (and its own rice bowls from the conventional Big Nuclear Science that cold fusion thoroughly upsets), than it is in applying scientific method which calls for *believing the experiments* and changing the dogmatic theory.

- Fermions time-reverse in even numbers
- Like charges cluster
- Aqueous solutions contain H⁺ ions, which are just protons
- Quarks flip as TR zone fades

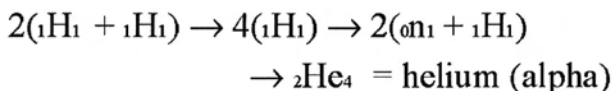
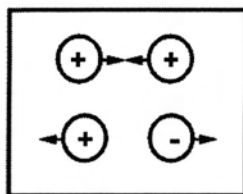


Figure 21 Example of a time-reversed zone nuclear reaction common in successful cold fusion experiments.

Development of Threats and Scheduled Attacks Aborted

KGBenergetics weapons have long constituted our single most pressing yet largely unrecognized national security problem. That problem has also increased with the growing development and deployment of such weapons by other nations such as China. Some 10 nations, for example, now have scalar interferometry weapons, and even the Japanese Yakuza has them and also has their own secret facilities for producing them in Japan, including small portable units developed for use in assassination and terrorist type warfare within a targeted nation—the United States of America.

Unknown to our government, we narrowly escaped destruction twice in the first half of 1997 from scheduled all-out strategic **KGB** energetics weapons attacks. **Only** the actions of a friendly small country countered the attacks and caused the **KGB** to abort on each occasion.

When the second scheduled Russian strategic attack was aborted just prior to May 1, 1997, a new **KGB** counter-counter for the friendly counter used by the **little** nation in latter April 1997 was already rapidly being deployed. The new **Russian** counter-counter—seizure and control of the mind of an operator at a distance, and complete control of his actions while he performs sophisticated

technical tasks—was tested in two separate incidents {55}, first on Captain Button (Figure 22, Figure 23) and then on Captain Svoboda about two months later (Figure 24), each flying an A-10 Warthog aircraft over the U.S.

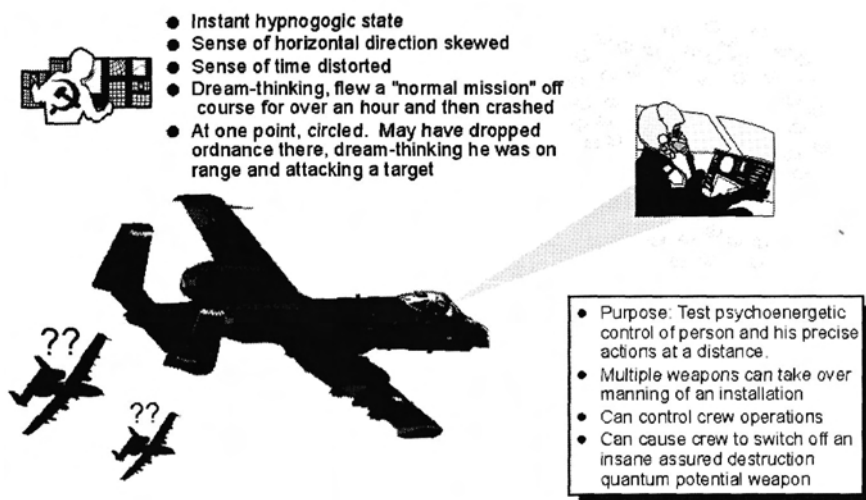


Figure 22 Captain Button's bizarre flight to his death on 2 April 1997.

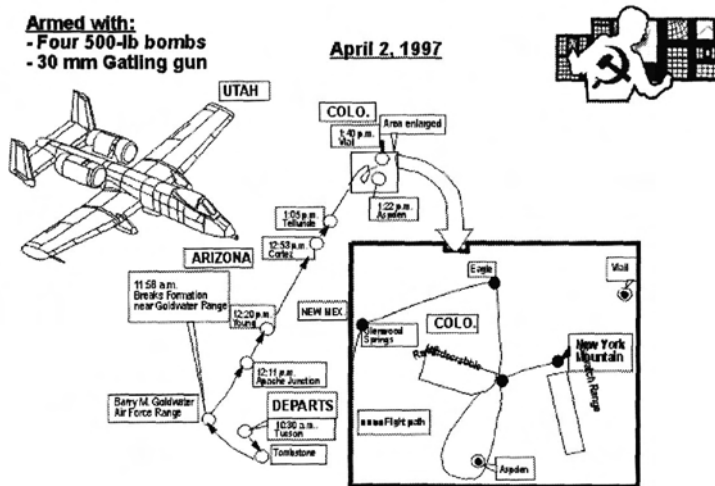


Figure 23 Captain Button's flyaway path to his eventual fatal crash.

The highly successful test against Captain Button (Figure 22, Figure 23) is

particularly significant, as we have explained. Captain Button was controlled while performing highly technical operations, for more than a full hour, and one hour was apparently the acceptance test specification. Captain Svoboda (Figure 24) simply had her mental perception of up and down instantly reversed while climbing her A-10 warthog from low level ordnance delivery on target. Erroneously perceiving she was diving, she immediately "corrected" sharply to "climb", thereby diving headlong into the ground and perishing in the resulting explosion of her aircraft.

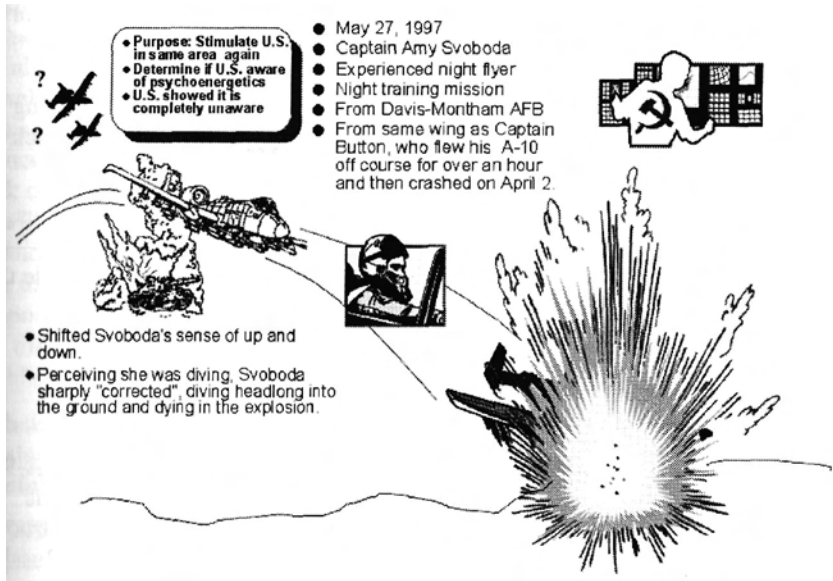


Figure 24 Climbing out of low-level ordnance delivery, Captain Svoboda suddenly dives headlong to her death on 27 May 1997.

Svoboda's kill demonstrated a *tactical destruction* usage, whereas Button's test demonstrated a *strategic* hostile usage of the adversary's defending weapons crew to take action against the adversary's defending strategic weapons system. A new KGB strategic energetics attack against the United States—using the mind control (psychoenergetics) weaponry to take over the operators of the little nation's QP weapon sites and stand the sites back down for maintenance—was rescheduled apparently for latter 1997 to mid-1998 or so. It appears that the extensive preparations for that attack were totally destroyed clandestinely and very suddenly by the friendly little nation some time after we warned them, as we mentioned above.

However, still another Russian counter—the development of "weaponized engines" (functioning causal system robot weapons, "infolded electromagnetic" in **form**) consisting of organized and functioning systems of spacetime curvatures operating in and traveling through EM fields, potentials, waves, and

signals—came on line (Figure 10, Figure 18). The KGB simply altered the attack plan for a Millennium Strike and completed the forward deployment of these eerie new CSR systems by introducing millions of them directly throughout U.S. facilities, command centers, weapon systems, power grids, ships, aircraft, submarines, missiles, nuclear warheads, computers, communications systems, etc.

We estimate that several million such systems were introduced in that manner, and readied for the Millennium Strike. The United States and its allies were and are almost totally unprepared for this dramatically new kind of strategic warfare that has been developed and deployed against us. No such weapons have previously existed in history. Consequently our national survival and the survival of our allies was once again at stake—and right on schedule during the critical period from mid-1999 through mid-2000 that we had predicted back in 1997.

The die-hard elements of the KGB indeed had a new millennium gift for us, but it was not at all the kind of gift we would appreciate. The KGB is not a monolith! This plot apparently did not include Putin, and it did not include the rest of the KGB, particularly that element reporting to Putin.

Live Destructive Tests Over and Near the U.S. Have Continued

Without elaboration, we believe that the Learjet crash incident and the EA-990 crash incident may have been very sophisticated tests of these new robotic causal EM systems. We also believe that the long years of Russian construction of over a thousand mysterious underground facilities, even though the Russian economy was collapsed and the citizens and soldiers were destitute, is significant. Those facilities apparently contain the set of command and control systems for this vast new strategic weapon system.

The facilities also include the "factories" where the CSRs are made, because the factories are unlike any other factories ever conceived. They do not build "physical" systems, but something more like "software." Only now the "software program" itself is an independent robotic system, with a full set of weapon systems functions, and capable of independent navigation and functioning anywhere, while remaining under KGB command and control via longitudinal EM wave communications infolded inside the potentials of earth, ocean, and space. The facilities also contain the operational forces, headquarters, and communication and control systems that maintain, deploy, and employ (fight) these CSR systems, and direct the battle.

The purpose of the 1998 document we sent to DoD—which did not include the causal robot system armadas later deployed throughout everything in the West—was to inform selected members of the Senate and Congress of the energetics threat situation and summarize it for them. Accordingly, we presented the

background of the development and testing of the KGB energetics weapons since WW II, in some detail, for selected Legislators and their staffs. We also included some specifics on the failure of the U.S. scientific community to keep American science and technology abreast of that of our adversaries.

The Scientific Basis For Energetics Weapons Is Established

As pointed out above, the scientific basis for our early use of Soviet scalar EM interferometry is now rigorously established by work accomplished by the Alpha Foundation's Institute of Advanced Study. It is also rather "old hat" now **that** all major weapons labs have discovered longitudinal EM waves and are **actively** working on and with them. The Director of the AIAS, Dr. Myron Evans, is an eminent scientist and theoretician with over 600 papers in the hard science literature. He and his colleagues also have had zero funding for their work on the higher group symmetry electrodynamics necessary to understand such things as energetics. A combination of non-Abelian electrodynamics, advanced gauge field theory, and the impact of E. T. Whittaker's work shortly after the turn of the century has shown that scalar interferometry is real, and that weapons based on scalar interferometry can be a potent threat on the battlefield. The time-like (time-energy) basis for electrodynamics is now clearly established.

With this important new work, we are now only some 40 years behind the **Russian** weapons scientists! But we are beginning to close the gap—and hopefully that will be done very rapidly.

In 1999 after being personally attacked by a CSR, I again contacted the office of the leader of the friendly small nation and again furnished all the information we possess on the new CSR systems programmed by the KGB as a countering method against the small nation's QP weapons. The outcome was that the little nation destroyed the CSRs in time, as we stated above. We were lucky that (i) the KGB did attack me with one of the weapons, deliberately to "get my strong and immediate attention", and (ii) deliberately did not kill me with the strike. Otherwise, there would have been no warning to the little nation, and the U.S. **and** its allies would have experienced a "Y2K" problem worse than their wildest fears, possibly collapsing the economy of the United States and much of the developed world.

Our Situation Here In the U.S. Is Precarious

Meanwhile, our own scientific community apparently does little or nothing in **these** areas, except to castigate, slander and libel anyone daring to suggest that such "out of the box" weapons areas even exist. E.g., there does not appear to be

a single U.S. scientist who knows how to create a *time-polarized* EM wave.¹³ There do not seem to be any concerted programs to deal with t-polarized photons and t-polarized EM waves. Our scientists still firmly believe that one has to propagate spatial EM field energy through space to affect a target electromagnetically, when that was obsoleted by Russian "subspace EM longitudinal wave propagation" weapon systems deployed as early as 1963, and was completely obsoleted by deployment of quantum potential weapons in 1989.

Yet a close colleague of the present author has single-handedly developed and demonstrated prototype superluminal communication systems using the infolded (longitudinal EM wave) electrodynamics, and these systems would have been heading onto the market in latter 2001 except for the sudden bankrupting of the major backing company. There has not been any funding forthcoming for his revolutionary work, but only clumsy attempts to take it from him. It is my fear that the further clumsy takeover attempts will be successful, and this desperately needed technology will never see the light of day in defense of our nation. As a single example without further discussion, his work revolutionizes the present notions used in the rapid development of quantum communication and quantum computing, because it revolutionizes the very notion of the Q-bit, completely removing the statistics of the quantum state and making it engineerable. This of course is completely counter to present QM notions, but is consistent with the Bohm hidden variable approach to quantum mechanics.

Meanwhile, our own weapon scientists apparently still do not recognize the possibility of a superluminal longitudinal EM wave communication system, and appear to have no motivation or intention to develop such. This is in a way quite sad; quantum tunneling at more than four times the speed of light, of a clearly recognizable Mozart symphony, has already been demonstrated in a section of a waveguide {56}. Whatever one wishes to call it and however one wishes to do it, superluminal communication of intelligible signals has been clearly demonstrated in the laboratory. For the "infolded" longitudinal EM waves, all the "normal" or "envelope" EM waves, potentials, and fields are just great *superwaveguides* for such longitudinal EM wave "tunneling through subspace" at superluminal speeds.

¹³ Keeping one's sense of humor, apparently there has also not been a U.S. scientist who even recognized and knew what actually powered an electrical circuit, until our solution to the source charge problem and publication of it in 1998. Eerily, even after the technical basis for a solution had been proven in particle physics in 1957, no one seemed to have applied the broken symmetry of opposite charges to the common dipole and to a dipolarity such as a scalar potential and a charge (with its associated virtual charges of opposite sign, in the modern view). Everyone accepted that the fields and potentials and their energy are established by their associated source charges, but no one had stated that the source charge receives its input energy from its asymmetry in its seething energy exchange with the active vacuum.

The Dominant Weapons Are Quantum Potential Weapons

Full-bore deployment of Russian quantum potential weapons occurred by the end of 1989, the first lab prototype weapon having been tested in April 1986 against the U.S. air attack on Libya (Figure 25). Beside Russia, two other nations—Brazil and the "little friendly nation"—also had developed quantum potential {57} weapons. The United States did not develop them, or at least apparently not just yet.

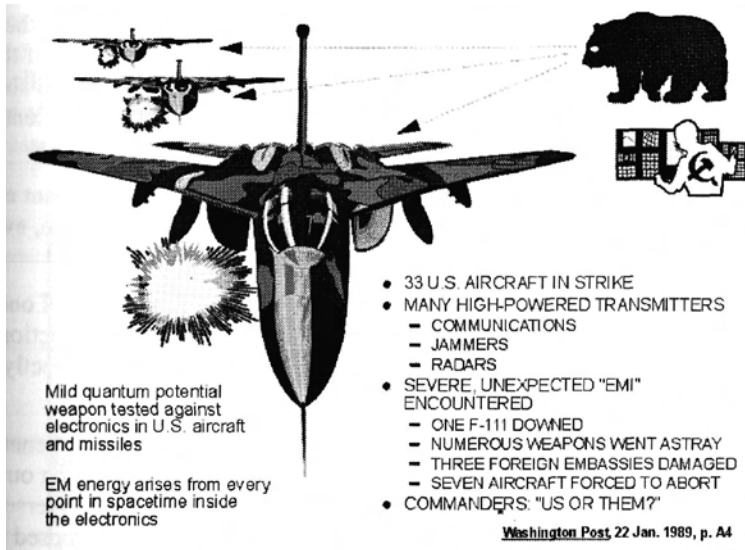


Figure 25 U.S. air strike on Libya, April 1986.

Burlier this year (2002), China also deployed QP weapons, and we now find that *another friendly* nation has them as well. That brings the total to five, as of this writing. Two of those are friendly, and a third is astraddle of the fence, so to speak. The other two are Russia (the KGB) and China.

At this point China could go either way, so it represents a future enigma. China **has** control of the Panama Canal, and has inserted more than 200,000 Chinese into Panama—which is on the way to gradually becoming a Chinese territory, as soon as the Chinese in Panama outnumber the native Panamanians. In addition, under the Clinton administration China gained access through two U.S. ports (with little checking, so anything can easily be inserted). China also has **additional** ports in the Western hemisphere. China is almost certain to eventually attack and seize Taiwan, which puts her on a collision course with the U.S., **since** the U.S. has an agreement to defend Taiwan. She has also declared the South China Sea—through which passes some 60% of the oil bound for Japan, **and** much oil for other nations also—to be Chinese territorial waters. China also has developed bioenergetics weapons, having long ago induced cancer into most

of the GRU Russian representatives then serving in China. She almost certainly has or is rapidly working to develop psychoenergetics weapons as well.

So far as I am aware, there still exists not a single funded U.S. scientific program to directly correct the glaring errors in our own classical electrodynamics—such as those problems deplored by Nobelist Feynman and Wheeler {58,59,60}. Both knew that the force field concept in space was erroneous. As they put it, only the "potential" for the force field exists in space, in case some charged mass is available there for interaction. But the field itself is created by the interaction and is the effect of it. It does not exist before the interaction occurs. Yet all our texts continue to teach the disinformation of the "field in space." And our science community continues to fiercely defend such dogma, attacking and sometimes destroying the careers of those brave scientists who do try to change it.

One notes that time is multiply-connected, since in theory the same instant exists at every point in the universe. Or said another way, in any instant in time, every point in the universe simultaneously exists.

Operating in the time-domain as a causal system, and then turning out of one point there into any point in 3-space desired, is a means of producing "action at a distance" that obsoletes our old concept of transmitting the energy directly through space {61}.

Presently the U.S. scientific community has little predisposition toward energy turning into the time-domain, operating in the time-domain, then turning out of the time-domain into any desired point in 3-space, anywhere in the universe.¹⁴ Every 3-space point in the universe simultaneously exists in (is superposed in) each point in time, as those points in time occur. In one sense, time can be considered to be the total multiple connectedness of space! We suspect that it may even be possible to interpret "instantaneous" communication—as by a quantum potential—in that "in here-out there" instantaneous fashion via "tunneling through the multiple connection of the time channel".

Finally, mass—being an observable and 3-spatial—does not exist in time. Mass continually turns into masstime (by photon absorption), then masstime turns back into mass (by photon emission). Masstime exists in time, but mass does not. U.S. scientists also seem unaware that the so-called "rate of flow of a mass through time" is generated by the sum total of all photon interactions (both virtual and observable) with that mass. The ubiquitous interaction of a mass with photons also causes that mass to continually recur, and thus to seemingly "continuously exist." It is continually observed, but it does not continuously

¹⁴ If one models the time domain in three dimensions instead of one, e.g., then in theory it becomes possible to "flip" a 3-dimensional mass object into the time 3-domain at a single "moment," then rotate from that "time 3-point" back into 3-space at a new 3-space location anywhere in the universe. Hence the "beam 'em up Scotty!" of the old Star Trek (and the more modern beaming version) may hold more of a promise than just for science fiction entertainment.

exist! Since the photon interaction is engineerable, then it follows that a specific muss can be time-reversed back to an earlier state {62}.

Cellular Time Reversal: Revolutionary Healing by a Team of French Scientists

Priore and eminent French scientists {39,40} unwittingly used the mechanism for time-reversing a mass and every part of it, to time-reverse diseased and damaged cells, including tumor cells, physically changing them back to their previous healthy physical state and condition *in vivo*. This included all parts of the cell, including its genetics. The Priore team demonstrated revolutionary cures of terminal tumors, infectious diseases, atherosclerosis, and restored depressed immune systems.

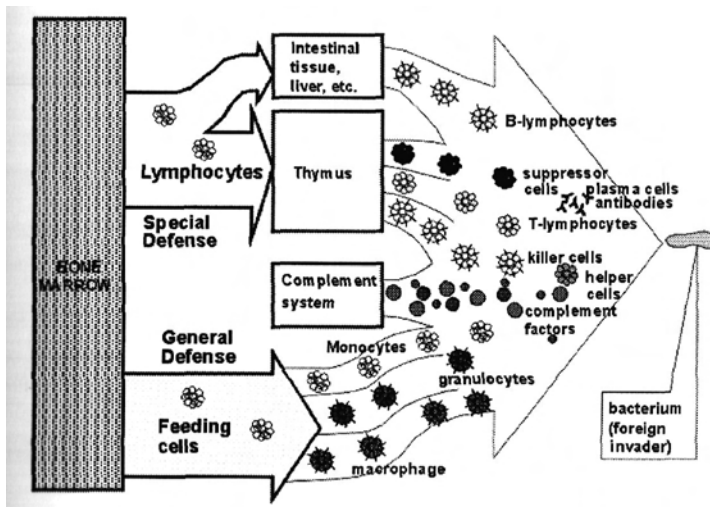
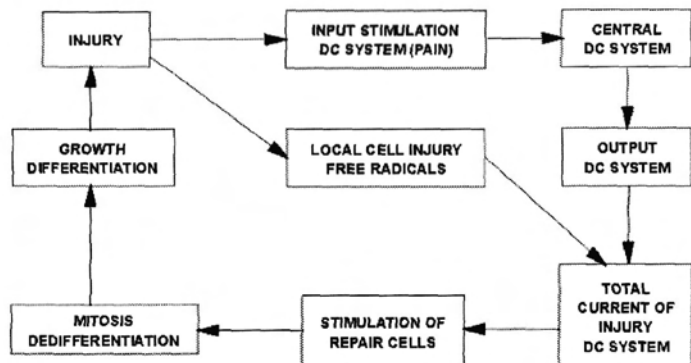


Figure 26 Simplified diagram of the immune system.

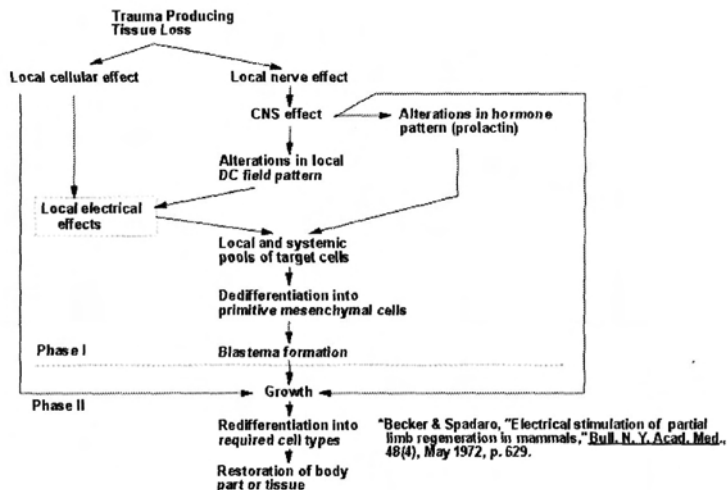
The immune system (Figure 26) *heals nothing, not even its own damaged cells.* The human cellular regenerative system {63} is responsible for all healing in the body—and it utilizes time reversal of the damaged cells as the active healing mechanism. The regenerative system (Figures 27, 28, 29) pumps the damaged cells with longitudinal EM waves (and therefore with time-polarized EM waves, which always accompany longitudinal EM waves), inducing the cells and all their parts to add the phase conjugates, thereby forming time-polarized EM waves and pumping in the time-domain rather than the 3-space domain. This dramatically extends nonlinear optics to the time domain, and mass pumped in that fashion is time-reversed (propagated back along its own time-track, to a previous physical condition.



Note: Becker only had conventional EM available, hence was unable to model the inner structuring and inner dynamics of the fields and potentials. So he missed the deeper "engine and antiengine" mechanisms.

"Robert O. Becker, "The significance of bioelectrical potentials," Bioelectrochemistry and Bioenergetics Vol. 1, 1974, p. 191.

Figure 27 Becker's theoretical control system involved with response to injury.



"Becker & Spadaro, "Electrical stimulation of partial limb regeneration in mammals," Bull. N. Y. Acad. Med., 48(4), May 1972, p. 629.

Figure 28 Becker's proposed control system governing regeneration.

(with its simultaneously time-polarized EM wave radiation), as was done for other diseases by the Priore team and properly reported in the French scientific literature. We have also uncovered a process and method for causing the body to directly produce the time-polarized EM wave pumping, reducing the irradiation to perhaps 30 seconds of pumping instead of two or three hours {64}.

Becker's Study of the Cellular Regeneration System

In all our medical science, the only true healing procedures being utilized appear to be the use of Becker *et al.*'s tiny EM stimulation across otherwise intractable bone fractures {65} (Figure 31), to dedifferentiate (time-reverse) red blood cells, then redifferentiate (time-forward) them again twice to form osteoblasts, which are deposited in the fracture site to make new bone growth. All the other medical procedures seem to be *interventions*, not *healing*. After the intervention—which of course may be urgently necessary—it is then up to the body to heal itself (restore its cellular and tissue damage and functioning). So we have little *healing* science today, and in fact our medical establishment hardly funds any *healing* studies at all. EM radiation is usually considered as something that simply heats tissue. Our present medical science is deeply engrossed in studying the immune system. Again, the immune system heals nothing, not even its own damaged cells.

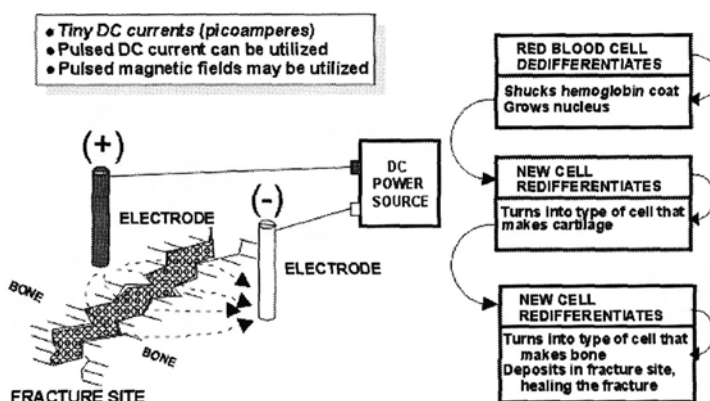


Figure 31 Becker's epochal bone fracture healing.

After the immune system "kills the bad guys" and saves the day, the battlefield is littered with residue and many cells of the body are damaged. The immune system sends in large scavenger cells that clean up the residue. And that's it for the immune system. Comparing it to an army's operation in the field, the immune system is the combat troops, not the medical services.

Restoration (healing) of the damaged cells back to normal is accomplished by

the cellular regeneration system (Figure 29). This system is little known and little studied, but mostly studied by Becker (Figures 27, 28). It is a system that **functions** electrodynamically, but uses time-domain pumping to time-reverse the **cells** and their every part (including their genetics) back to an earlier state. In biology, the effect is called *dedifferentiation*, but without any knowledge of the actual EM mechanism.

So, within its capabilities, the cellular regenerative system in the body already uses longitudinally polarized EM waves, time-polarized EM waves (TPWs), and optical pumping by LWs and TPWs. Here we point out that neither the longitudinal photon nor the scalar (time-polarized) photon is individually observable; however, the combination of the two is observed as the instantaneous scalar potential {66}. With a little correction to properly make the phase conjugate replica wave a time-polarized EM wave, Whittaker's fundamental bidirectional EM longitudinal wave decomposition of the scalar potential (Figure 32) is consistent. Immediately the direct involvement of both **the** scalar photon and the longitudinal photon—and both the scalar EM wave and the longitudinal EM wave—are seen in Becker's bone-healing work using a scalar potential (Figure 31).

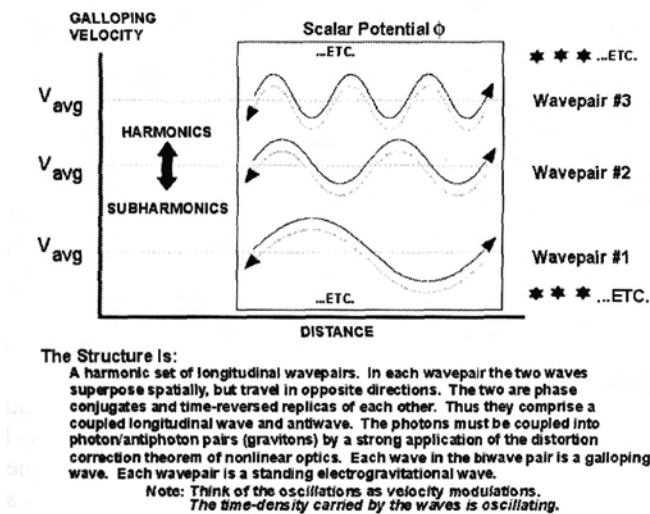


Figure 32 Infolded longitudinal EM biwaves composition of a scalar potential, per Whittaker 1903.

Priore unwittingly stumbled onto the actual mechanism used by all biological systems in "healing" (cellular regeneration), and also recognized how to amplify it (Figure 12). But no one understood its exact nature, including Priore and the **scientists** who worked with him at the time, and the conventional community still does not understand it. The Russian scientists not only *understood* it early

on, but *weaponized* it as well. So did the Chinese.

Need to Correct and Extend Classical Electrodynamics

The organized scientific community's protracted defense of a seriously flawed classical electrodynamics is long standing. The conventional, comfortable ways of "doing business as usual, leisurely" now threatens the survival of the nation itself. We need to quickly admit and correct long-standing EM errors—such as calculating a reaction cross-section of an entity and calling it the magnitude of the entity itself! Our electrical texts continue to make that fundamental mistake, and they have done it now for 100 years or more. We need to quickly change the classical EM model to include the active vacuum and its interaction, and we need to change all textbooks to clearly state that all EM energy in the universe comes from the active vacuum, via the asymmetry of the source charges in their fierce energy exchange with it.

We also need to point out that all primary electromagnetic entities—the charge, the field, the potential, and every joule of EM energy in the universe—totally violates the second law of thermodynamics. The charge produces continuously increasing negentropy, the field and the potential are formed at expanding light speed across the universe and are perfectly ordered (thereby totally violating the statistical mechanics basis of the second law), and every joule of EM energy is either field energy or potential energy, and hence violates the same statistical basis of the second law.

The Situation Is Serious

Admittedly these are strong statements highly critical of our scientific establishment's track record. But our national survival continues to be increasingly at stake, the situation is serious, and we must not continue to bury our collective heads in the sand like ostriches. We simply cannot continue to idly sit by and pontificate while other groups and nations methodically maneuver technically to cut our collective throats with advanced weapons we cannot defend against, once they find a way to "get by" the little nation that has been countering them for some years. Our own beloved nation may have less than 10 years {67} and perhaps less than three years to survive, unless the organized scientific community is galvanized to focus its very best scientific efforts in the energetics area.

So far, in truly innovative approaches to new methods for electrical energy, the U.S. scientific community is about as energetic as a sand terrapin sleeping in the tropical sun. There is no discernible move to recognize the seriousness of the problem, or to do anything effective about it. In 45 years, the asymmetry of the dipole (and the charge in its modern view as a dipolarity of special kind) has not made it across the university campus from the particle physics department to the electrical engineering department. In fact, the implication of broken symmetry to

electrical engineering and classical electrodynamics seems to still be completely unnoticed by the National Academy of Sciences, the National Science Foundation, our universities, and our great national laboratories. In the scientific community, other than work on vaccines etc., it is largely "business as usual."

A New Manhattan Project Is Warranted

Our need in the energetics weapons area is extreme, as are our needs in the medical area for quick, cheap, easy, and effective portable treatment of the coming mass casualties and our coming dramatic needs in energy. We *do* have superb scientists with the horsepower necessary to do something about it. The astounding, independent work of Sachs, the AIAS, and a few other scientists—which we stress has been unfunded—already clearly proves that. But unless we change the organized scientific community's normal rather snail-like pace—by a strong measure such as a Presidential Decision Directive and a declaration of a National Emergency—the U.S. scientific community will overshoot the point of no return now approaching.

We need a new Manhattan-type project. We need it very quickly. If we do not change and focus our present scientific procedure, then—all too shortly—little that the scientific and intelligence communities are doing will be of value. We shall all be very, very dead or else in a new Dark Ages where most of the world economy has collapsed and freedom has largely disappeared from the face of the Earth.

T. E. Bearden, Ph.D.
Lieutenant Colonel, U.S. Army (Retired)
President & CEO, CTEC, Inc.
Director, Assoc. of Distinguished American
Scientists

2002 ENERGETICS WEAPONS THREAT TO THE U.S.

T. E. Bearden 2000
Updated Oct. 1, 2002

The U.S. Narrowly Escaped Energetics Destruction Twice in 1997

On two occasions in 1997 (latter February and on May Day), we were scheduled to be strategically attacked without warning and completely destroyed. Eerily, in public statements the leader of the Aum Shinrikyo sect (Figure 33) had foreshadowed the dates for the planned attacks, since his group was also involved—in fact, shooting down the TWA-800 (Figure 34) as advanced practice and stimulation of the U.S. to see if it knew what was afoot. Those two planned strategic strikes in 1997 were avoided only in the nick of time by actions of a friendly little foreign country, which was the only nation on earth at the time that could counter the KGB quantum potential (QP) weapons. I am sure that proper U.S. agencies intercepted my urgent personal faxes to the Defense Attache in Washington, DC and directly to the Prime Minister of the nation involved. Actions by that nation did succeed in averting our destruction in the nick of time.

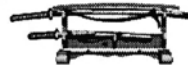
- Formed in 1987. Over 60,000 members. More than \$1 billion in gold and cash.
- Taught that U.S. would strike Japan with devastating blow in latter 1997
 - Japan should make preemptive strike first
 - AUM would get mass destruction weapons
 - Was developing BW weapons (anthrax, botulism, "Q" fever, etc.)
 - Developed own chemical weapons
- Sarin attack on Japanese subways
- Formed alliance with Japanese Yakuza
- AUM/Yakuza leased operational use of strategic Soviet energetics weapons in latter 1989
- Trained crews, planned to strike U.S. a terrible "pre-emptive" blow in 1997 by assisting KGB
- Using deception, killed targets such as TWA-800



AUM SHINRIKYO
"SUPREME TRUTH" CULT



Shoko Asahara, Leader



"I am certain that in 1997, Armageddon will break out. By 'break out' I mean that war will erupt and that it will not end soon. Violent battles will continue for a couple of years. During that time, the world population will shrink markedly... A Third World War will break out. I stake my religious future on this prediction. I am sure it will occur."

Figure 33 Planned KGB/Yakuza/Aum Shinrikyo attack in 1997 was foreshadowed in public statements made by Shoko Asahara.

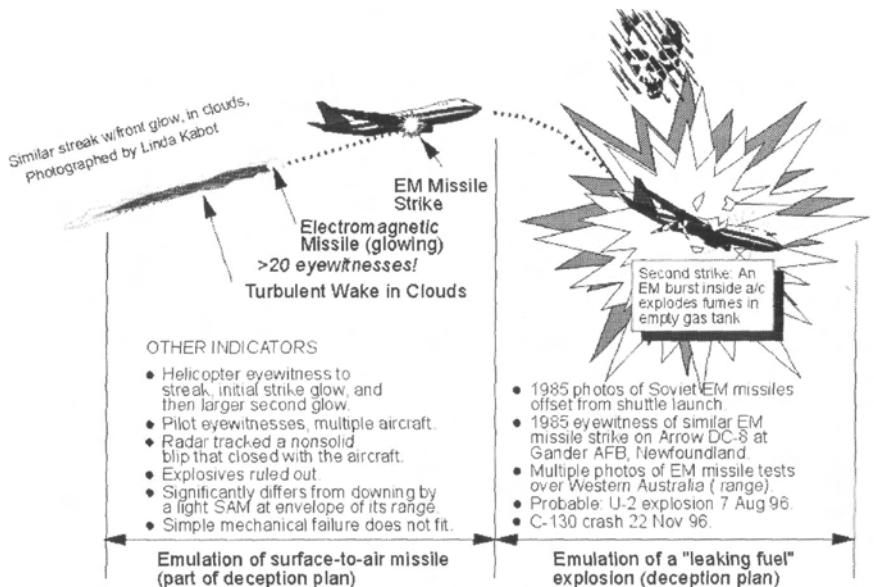


Figure 34 Kill of TWA Flight 800 on 17 July 1996 by Yakuza and Aum Shinrikyo.

Only five nations or national groups have quantum potential (QP) weapons, though one or more additional nations are almost certainly working on them and may even have them. First of the five is the KGB in Russia (the weapons are not in the regular Russian forces, and never have been). Second is the friendly little foreign country to whom we presently owe our continued survival. The third is Brazil (which has had a small and successful QP weapon program for some time). China deployed QP weapons in early 2002, and I recently found that at least one other friendly nation has them as well. I'm not too impressed with that other friendly nation, since they played no role in saving our bacon in 1997. It appears they did not actually know the coming attacks were imminent. They certainly do not have Causal System Robot weapons, nor do they believe such weapons even exist.

Initiation of the Brazilian Energetics Weapon Program

Brazil implemented an energetics weapons program after it employed the repatriated Dr. Hellman, a German scientist taken to Russia after WW II along with the German radar team. Years after being taken to Russia, Hellman was repatriated and made his way back to Germany. In a news interview Hellman reported that he had worked directly on the development of Soviet secret EM weapons which could suddenly free/e large areas of the ocean surface. That of

course is a scalar interferometry weapon, producing negative (converging) EM **energy** rather than positive (diverging) EM energy in their distant interference zones.

Also, when the U.S. made David Bohm *persona non grata* in the McCarthy witch-hunts, Bohm was later employed in lecturing and teaching in Brazil for some time. At the time our own scientists continued to pontificate as to whether they *liked* or could *tolerate* Bohm's quantum potential and his hidden variable interpretation of quantum mechanics {3}. Meanwhile, the KGB weapon scientists and the Brazilian Hellman project seized upon Bohm's hidden variable **theory** with alacrity as soon as he published his seminal paper. Those two **weapon** groups were already familiar with the internal longitudinal EM wave structuring of potentials, fields, and waves (Whittaker 1903), and immediately saw the fantastic weapons implications of a deliberately structured quantum **potential**, containing a specific "engine" as desired. Most of our scientists still are unaware of it to this day, and are unaware of its formidable weapon implications when combined with Whittaker's 1904 superpotential paper, his 1903 potential decomposition, and quantum field theory. Most of our scientists still adhere to the Bohr interpretation of QM, which excludes the normal, everyday, observable, ordered universe we all inhabit and observe.¹⁵

The Bohm quantum potential is, after all, a scalar potential, and at least in theory it has a Whittaker biwave decomposition {68}. Even in the Coulomb gauge, the **scalar** potential has infinite velocity, as pointed out by Jackson.¹⁶

Several tests of the "cold explosion" Russian weapons referred to by Hellman **have** since been openly made. One major test seen by at least five jetliner crews was **the** anomalous rapidly rising cloud and subsequent extremely huge light **globe** (ABM energy shield) effects off the Kurils in April 1984 (Figure 35). Two excellent scientific articles on the physical phenomena observed in that incident are published in the prestigious journal *Science* {69}. We had explained the cold explosion phenomena and the ABM energy shield effects some years before that incident. Even ordinary superpotential theory {70} and longitudinal EM wave **interferometry** at a distance can substantiate the capability. We also positively confirmed by private sources that the scalar interferometry, the MindSnapper (**negative** energy EMP), and the cold explosion weaponry are real.

¹⁵This **exclusion** is euphemistically known as the "missing chaos" problem in quantum mechanics, and it is resolved in Bohm's hidden variable approach.

¹⁶**J.D. Jackson**, *Classical Electrodynamics*, 2nd **Edn.**, John Wiley & Sons, New York, 1975, p. 222, 223. Usually **the** instantaneous scalar potential contributes only to the near field.

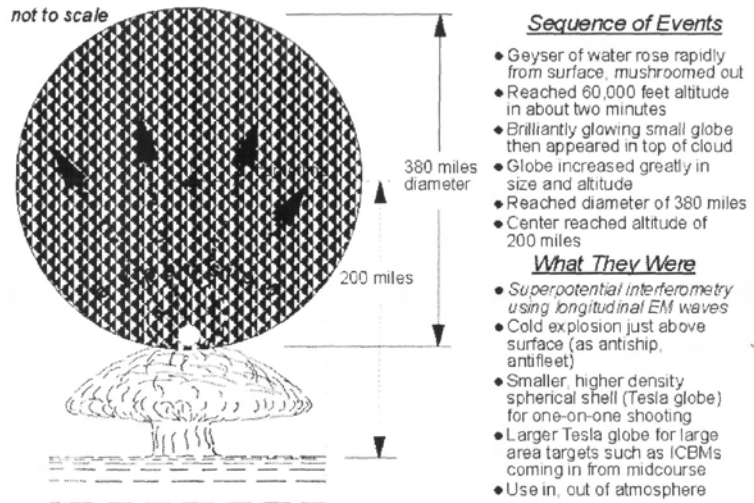


Figure 35 Exothermic (cold) explosion off the Kurils 9 April 1984. A second test, an expanding globe of light, was added in the exothermic mode to demonstrate rapid serial switching between weapon modes.

Related Phenomena

In 1969 in Toronto, Canada, Sid Hurwich demonstrated a device capable of "freezing" a pistol lying on a table so that the gun could physically not be moved and the trigger could not be pulled {71}. For this exhibition of *strong electrogravitation*, general relativistic fields initiated by the EM force field (including the usually unaccounted Heaviside nondiverged component that Lorentz arbitrarily discarded) as the agent of spacetime curvature were used {72}. The strength of the effect was attested by the fact that the hands of the observers' watches all showed "no passage of time" during the half hour they were in the room with Hurwich's device operating.¹⁷

Rapid development of that strong electrogravitational technology and concomitant energetics then proceeded in another nation. Weapons of such nature were then employed by that nation a few years later, in two well-known international incidents. Clear signatures of the nature of the weaponry utilized were present in those incidents. Details of these incidents will not be included in this paper.

¹⁷ We point out that this is highly interesting itself, since it showed that the observers were operating in a different frame from that of the watches and the gun, which were "frozen". We also point out that recently light itself has been "stopped" in quantum experiments, yielding something quite similar.

Since the energetics weaponry already utilized special EM "hidden variables," Bohm's hidden variable theory and quantum potential were directly adapted into the program to dramatically extend it into the development of quantum potential weapons.

Stalin *Personally* Initiated the Soviet Energetics Program with the Greatest Urgency

While Stalin was at the Potsdam conference, at the close of WWII, the U.S. exploded the first atomic bomb in the desert. Truman informed Stalin in general terms that a powerful new U.S. weapon had been successfully tested. Secretly, **Stalin** already knew of our atomic bomb progress, for he had a spy in the program. While he was still at Potsdam, he then secretly called the Director of the Soviet atomic weapons program and directed a speed-up.

After we exploded two atomic bombs on Japan, the Japanese surrendered and WWII was over. See again Figure 1. Stalin vehemently ordered his Academy of **Sciences** to produce the next great technical breakthrough at all possible speed, since the American atomic bomb had frustrated his plan to wait two years after the war while the West speedily disarmed, then march into Europe and take it in six weeks. Now his massed troops could just be bombed back into the Stone Age by U.S. bombers using atomic bombs.

A Great Technical Breakthrough in Physics Can Always be Had in Four Years

The scientific community can have a great new technical breakthrough whenever its furious and dogmatic resistance to innovative discoveries or the possibility of innovative developments can be suspended. All that is necessary is a concentrated group of highly skilled, open-minded scientists, the money and facilities, and a strong headlock placed on the powerful but dogmatic scientific groups who would otherwise hamstring the program and destroy it.¹⁸

¹⁸**Present** day examples are (i) the cold fusion fiasco, where the U.S. scientific community has revealed furious determination to ignore more than 600 successful experiments worldwide, (ii) a similar fury against any and all research into extracting EM energy from the vacuum, even though all EM energy comes directly from the active vacuum via the proven asymmetry of source charges and dipoles, (iii) violent suppression of proven "extended electrodynamics" methods of rapidly curing severe diseases, even in terminal stage (resistance to anything except "cut, drug, burn" and anything that would interfere with the monstrous profits of the large pharmaceuticals), (iv) continuing dedication to an electrical engineering model that does not even model or apply what powers an electrical circuit, (v) continuing resistance to quantum potential research and development, (vi) slavish dedication to "big nuclear science", massive accelerators, dangerous nuclear power plants, and a "hot fusion WPA program", even though much higher energy physics than these programs advocate and use can be and is being done on the tabletop, using time-energy instead of spatial energy, and (vii) increasing "lock-up" of all research funds into the organized hierarchy's politically approved agenda. The community has deviated so far from scientific

We proved it in the WWII Manhattan Project, where we went from nearly zilch to the operational atomic bomb in 4 years. But we did it only by secretly bypassing the conventional U.S. scientific establishment. Einstein wrote to President Roosevelt *around* the scientific community, and when the President approved and ordered the highly classified program, conventional scientists not on the project were just parked on the sideline and ignored so that the job could be completed. The naysayers were also muzzled because of the extreme classification of the project; they faced jail if they engaged in their usual ad hominem attacks and dogmatic eloquence.

Further, today the "Skunk Works" approach repeatedly proves that bold new projects can be done, when the skilled scientists and facilities are mobilized and no adamant opposition by the conventional community is tolerated.

Numerous examples of the U.S. scientific community's suppression of innovation and new technology can easily be furnished. Such are well known to any historian of science. Cold fusion, the amorphous semiconductor by Ovshinsky, the first laser papers, ultrawideband radar, Mayer's original conservation of energy law, Boltzmann's work, Wegener's continental drift, flight of heavier-than-air machines, the rocket as a great strategic weapon, and hundreds of other examples come readily to mind. Such suppression has been *the* major characteristic of the organized scientific community since its inception, as pointed out by numerous leading scientists and authors. As Planck stated, usually one gets a new physics only after the old physicists who so adamantly oppose it just die off and get out of the way.

Today, the U.S. scientific community is in fact our "front line troops," although—except for a little lip service—the managers of the organized scientific community are blissfully unaware of it and have little or no sense of mission in out-of-the-box areas with respect to national survival. It is ironical, e.g., that our orthodox scientific community does not even know what powers an EM circuit—energy extracted directly from the vacuum by the asymmetry of the source charge (considered in its modern view as a dipolarity) and by the source

method in defending archaic theory in the face of experiments that falsify it, that the ubiquitous violation of the law of increasing entropy (second law of thermodynamics) by electrodynamics itself continues to be adamantly resisted using ad hominem and inflammatory attacks, slander and libel, and destruction of scientific careers of researchers. We flatly are not getting our taxpayer money's worth from our present scientific community, and—barring a Stalin-like shakeup from top to bottom—we are not going to get our money's worth in the future unless the community is forced to free up funds for young graduate students and postdoctoral scientists wishing to work in "out of the box" scientific areas. As Max Planck stated, *"An important scientific innovation rarely makes its way by gradually winning over and converting its opponents: it rarely happens that Saul becomes Paul. What does happen is that its opponents gradually die out, and that the growing generation is familiarized with the ideas from the beginning."* In other words, one doesn't get a scientific innovation until the old dogs so bitterly opposing it just die off and get out of the way. This long-known and stated characteristic of the scientific community—its fierce and unrelenting resistance to change and innovation—is presently the greatest threat to the survival of this nation.

dipole (Figure 36).

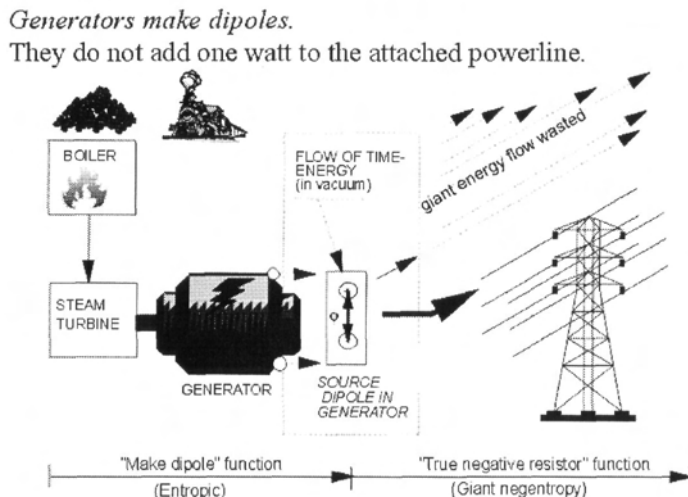


Figure 36 Energy extracted from the vacuum by the asymmetry of the source dipole powers every electric power line and electric circuit.

A Typical Example: The Suppression of Cold Fusion

As an example, much of U.S. Science—dominated by nuclear factions since the advent of the atomic bomb in WWII—vehemently attacked cold fusion and the **cold** fusion researchers, including wholesale ad hominem attacks, with a viciousness seldom seen in the history of science. Many dogmatic scientists declared the entire field at best a mistake and at worst a fraud. Even the character of many of the leading cold fusion scientists was openly impugned and the researchers were slandered and libeled. All this was done by conventional dogmatic scientists who have not solved the fundamental source charge problem {10,12}, have no inkling that all EM energy in 3-space comes from the time-domain {10}, and have not a clue as to what really powers every EM circuit. Since they also do not know where the electrical energy driving the chemistry actually comes from, they have no knowledge of the effects of time-energy in electrolyte solutions.

They also appear to have little or no knowledge of the implications of Evans' and Searles' *transient fluctuation theorem*¹⁹ in thermodynamics showing to what degree the second law of thermodynamics can be violated and reactions can run

¹⁹D.J. Evans and D. J. Searles, *Phys. Rev. E*, Vol. 50, 1994. p. 1645.

in reverse, nor its extension to the micron (colloidal) size level and to two seconds in duration.²⁰ If they did, then they would realize that the Coulomb barrier provided by *repulsion* of like charges (such as two H⁺ ions), often reverses into the *attraction* of like charges, with the barrier changing into the Coulomb attractor. This can last (by experimental proof shown by Evans *et al.*) up to two seconds, in a volume of fluid up to a micron in diameter. Hence it is not "against the laws of physics and thermodynamics" to observe attraction of two protons in an electrolyte so closely that each enters the strong force region of the other and the two form a quasi-nucleus. In the decay of this reversal zone, the preferred decay of the quasi-nucleus can be by quark flipping in one of the protons, yielding an atom of deuterium emerging from the decayed time reversal zone. Such results have been meticulously observed in many cold fusion experiments in multiple labs and nations, and by multiple researchers. Since these and other novel nuclear transmutation results are *replicated* experiments (more than 600, in multiple labs, multiple nations, and by multiple researchers), it means that no amount of theory can refute them or the results. The harsh skeptics launching the frenzied ad hominem attacks are thus revealed as the unscientific bigots they are, since they ignore substantial experimental results that contradict the prevailing theory. The excess energy production and inexplicable new nuclides (Figures 21, 37, 38) obtained by these multiple experimenters are completely inexplicable by ordinary nuclear interactions in the accepted theory.

- Fennions time-reverse in even numbers
- Like charges cluster
- Aqueous solutions contain H⁺ ions, which are just protons
- Quarks flip as TR zone fades

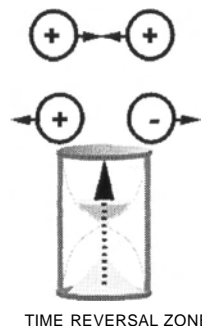


Figure 37 Electronuclear reaction in a time-reversed zone producing excess deuterium ions.

²⁰ G. M. Wang, E. M. Seivick, Emil Mittag, Debra J. Searles, and Denis J. Evans, "Experimental Demonstration of Violations of the Second Law of Thermodynamics for Small Systems and Short Time Scales," *Phys. Rev. Lett.*, 89(5), 29 July 2002, 050601.

- As TR zone decays, quasi-nucleus is usually in an excited state
 - Decay action starts from every point in spacetime inside the nucleons
 - Moves from inside toward outside
 - Strikes the nearly free quarks first
- Decay occurs by easy quark flip
- Quasi-nucleus transmutes to an isobar
- If quasi-nucleus is a stable state in a forward time zone, no decay occurs.

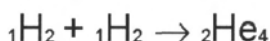
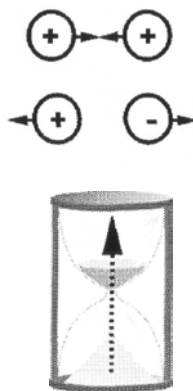


Figure 38 Electronuclear reaction in a time-reversed zone producing excess alpha particles.

Meanwhile, the U.S. Patent Office has been instructed not to accept any patent applications that would interfere with present nuclear planning. Positive cold fusion results have also been successfully obtained in several U.S. government laboratories, including at China Lake where very strange instrumental effects have the experimental team puzzled. I proposed an explanation of those anomalies in August 1998, and have included it in my book just published in September 2002 {73}.

Revolutionary New Processes Are Hidden in the Cold Fusion Experimental Results

Once understood, cold fusion holds the breathtaking key to systems that consume a tiny fraction of time flow itself as a fuel to produce copious heat energy for the world's needs. Unknown to the conventional scientists, of course, electrodynamics itself already does this, but it has just not been recognized and accepted. Transducing one microsecond per second of time into transverse wave EM energy will produce some 9×10^{10} watts of real electrical power, if all the transduced EM energy is intercepted and used. This is the *real* way to extract energy from the vacuum and use it cleanly and cheaply.

To grasp such a notion, recall that the fundamental units used in physics are completely arbitrary. It is perfectly possible to express all physics in only a **single** fundamental unit—for example, the joule. Time then becomes totally a function of energy. So it is not so insane after all to express time as highly compressed energy. Mass is also highly compressed energy. That concept is now familiar after Einstein, the nuclear age, and $E = mc^2$. Time-as-energy is just as straightforward as mass-as-energy, but it has just not yet come into

recognition.

The *use* of time as compressed energy, however, leads to some profoundly new types of electronuclear reactions presently unknown in particle physics. These new transduction reactions produce the new nuclides in cold fusion experiments, and generate the electronuclear interaction. We explain that in some detail in our new book, *Energy from the Vacuum*, previously cited {10}.

When interpreted as using time-energy, cold fusion shows us the way to a new electronuclear regime of nuclear reactions where nuclei, elements, and compounds can just be directly assembled by comparatively weak (in terms of *spatial* energy!) electromagnetic interactions. Presently we have made substantial progress in understanding the fundamental mechanisms generating these electronuclear reactions, after presenting preliminary results in August 1998.

As one example, time-reversing a single fermion (a particle with spin $1/2$, $3/2$, etc.) is precluded by the Pauli exclusion principle. But one can time reverse *two* of them, or any even number n , where they act as a semi-boson or group of semi-bosons. Simply put, if a time-reversal zone is established momentarily in the region where like charges exist, then the n -tuple fermion cluster can be achieved because the law of attraction and repulsion of charges is temporarily reversed {74,75}. This unexpected "attraction of paired fermions of like sign" will form quasi-nuclei in many cases, particularly in small clusters of two or four, etc.

Hence two H^+ hydrogen ions (two protons) in such a time-reversal zone in a fluid are drawn together into a quasi-nucleus, which actually is an excited isomer of deuterium (Figure 37). Time-reversal zones are temporary in cold fusion experiments due to the statistics of their formation and the transient fluctuation theorem {76} of thermodynamics. As the time reversal zone decays, the quasi-nucleus of two protons is increasingly in an excited and unbalanced state. The excited-state diproton nucleus decays by flipping a quark in one proton, converting it to a neutron. That produces a neutron + proton nucleus, which is a deuterium ion, strictly by electronuclear means. Or four protons may cluster by "attraction in a time-reversal zone" and form a 4-p nucleus. That is an excited isomer of a helium nucleus. As the time-reversal zone decays, first one quark flips in one proton and then another quark flips in a second proton. That produces a helium nucleus - i.e., an alpha particle. Or two deuterium ions can attract and form a quasi-nucleus (Figure 38), which is already an exact isomer of a helium nucleus and thus easily decays into an alpha particle by simply "tightening" as the weakened strong force recovers faster than the Coulomb force can reduce, vanish, and resume in the opposite direction. The exact reaction equations for these reactions are given in my new book, *Energy from the Vacuum* {10}.

We filed an Invention Disclosure on the process of forming and using time-

reversal zones to cause like charges to attract and unlike charges to repel *in vacuo*, in fluids, and in other media, resulting in the formation of semi-nuclei as excited isomer states of other nuclei, followed by decay into new nuclides. We will follow it with patent applications in the future. This represents a completely new kind of particle physics interaction presently not included in the textbooks, and not requiring high-energy processes. Literally thousands of new nuclear interactions—all *permissibly* violating the second law of thermodynamics because the statistics permit such violations and experiments prove it—are now possible.

Cold fusion does indeed hold a new kind of nuclear physics in its hand—but a physics presently considered very alien by our orthodox nuclear science community. For decades nuclear scientists have been seeking ever more *spatially* energetic particle smashing, believing that extreme high energy nuclear reactions and transmutations cannot possibly be done with charged particles at low *spatial* energy. One is sympathetic to the scientists, because even the **concept** of "low spatial energy transmutation" itself sounds like an oxymoron. And it would be, if one were limited to spatial energy alone, as is presently assumed by physicists. But one is also speaking of the neglected and compressed *huge time-energy* component of those low-spatial energy photons, and that is quite a different matter. The lower the spatial energy of the photon (the lower its frequency), the greater the amount of compressed energy transported in the time component as "time". The transposition of time-polarized EM energy into longitudinally polarized EM energy—and vice versa—is already justified in quantum field theory. Use of that extremely high energy component by its transposition or partial transposition into spatial energy in fact provides a much higher energy physics interaction than present orthodox high **energy** physics utilizes, knows, or considers.

Almost all the learned scientists are thinking *only* of spatial energy, since that is **the** only kind they have been "taught" to consider. Hence, from their view (i.e., on the premise of their implicit *assumption*) it is perfectly "logical" to condemn cold fusion, since in their view, "cold" implies low (spatial) energy and "fusion" implies high (spatial) energy transmutation. What is unknown to the orthodox community is that the "cold" in cold fusion also implies "extraordinarily high time-energy". So with a little transduction of highly compressed time-energy **into** spatial energy, "cold" fusion actually can imply "extremely high spatial **energy** made available by transduction" also.

As an example, the Chief Editor of *Science* recently had the courage {77} to **publish** results of sonoluminescence research reporting positive experimental transmutation results {78}. A paper was then published in *Nature* {79}, pointing out that the (spatial) energy involved is insufficient for such nuclear transmutation temperature, thereby implying that the reactions reported by the first researchers are not possible.

However, given formation of a time-reversal zone, this second paper is not

necessarily applicable to the sonoluminescence fusion process, because the paper is based on an unwitting two-part premise that (i) *only spatial energy can be used for nuclear transmutation* and (ii) *no time-reversal zones exist to nullify that premise by having reactions (such as the law of attraction and repulsion of charges) run backwards*. That premise is already experimentally proven to be invalid by Evans et al., and it fails when the time reversal zone effect is considered.

We strongly stress that thermodynamics—both in theory and as demonstrated in experiments—not only allows but predicts—for a certain fraction of the time—the formation and existence of just such "reversal zones" where the usual reactions *run in reverse* {76}. It is also experimentally proven {54}. In that case a much higher energy—time energy—can be and is employed to convert the Coulomb barrier into the Coulomb attractor.²¹ We know now (from the experimental demonstrations by Denis Evans et al.) that such "reversal zones" may be up to a micron in size and may endure for up to two seconds. The subsequent decay of that TRZ then allows the quasi-nuclei temporarily formed in it to decay by quark flipping alone, allowing the quasi-nucleus to easily transmute into a perfectly well known nuclear reaction product.

To quote Arthur C. Clarke, when a learned scientist says something is possible, he is probably right. When he says something is impossible, he is probably wrong.

Stalin's Dictatorial Impact on Soviet Scientific Management's Response

Stalin was a powerful dictator. He simply killed or jailed those who opposed his will. So after his blunt order (Figure 1) circa latter 1945 to find a great new technical breakthrough area quickly, his Academicians and high level science managers were faced with a severe dilemma: They could not afford to *oppose or criticize a vigorous search* for new innovations and a great breakthrough, and they could not remain passive. Their very lives depended on they themselves personally finding such a breakthrough in great haste and presenting it to Stalin. They had to actively spur the efforts of their most outstanding subordinates and Soviet science itself, or suffer dire personal consequences. Siberia and prison camps loomed for the lot of them unless they produced.

To put it bluntly, Stalin "got their collective attention" and their "whole-hearted support." Those few who resisted simply were shipped post-haste to the notorious prisons of Siberia, and worked to death in short order.

²¹ We strongly point out that, when the reactions run backward and negentropy appears in those reversed regions, the conservation of energy law is violated unless time-energy is being converted to spatial energy. Either we must begin accounting time as energy, or we must give up the conservation of energy law itself. The obvious solution is to account the time energy being utilized, as well as the 3-space energy.

So the highest-level Soviet scientific managers now desperately demanded of their subordinate scientists anything—anything at all—that was novel and had breakthrough implications. An almost convulsive national scientific effort was launched immediately, with hardly a detracting voice. A great team of the very **best** Soviet scientists was rapidly formed and methodically searched the scientific literature of the world from beginning to end. Nothing even remotely like that search and review has ever occurred in the West.

For example, one great technical center set up by the Soviets had a staff of about 2000 Ph.D.s with associated translators, staffs, etc. The Soviets purchased and **hauled** in copies of all the scientific literature of the West—by the shiploads—to such centers. Their scientists then methodically went through the material, **journal** by journal, paper by paper, page by page. There are and always have **been** myriads of innovations and discoveries sitting on the shelf in the scientific **literature**, never followed up, or opposed by standard models and credos. The first tier of reviewing Soviet scientists was composed of excellent scientists. They skimmed out the "cream" into a select pile which the second tier then analyzed in depth. The second tier was composed of the best nonlinear scientists in **the** world—the "superscientists."

They were seeking new principles of nature that could rapidly be developed into highly advanced technology, and they found them—sitting there in the literature, already pointed out, and long ignored by the Western scientific community.

Shortly Stalin had his great new breakthrough area emerging, and they had their heads.

Our Own Science Community's Progress During These Decades

For decades foundations physicists (Bunge, Feynman, Wheeler, Lindsey, **Margenau**, etc.) in the U.S. have repeatedly pointed out the substantial foundations problems in electrodynamics. Nobelist Feynman and the great John Wheeler tried to "fix" the problem whereby electrodynamics still erroneously assumes force fields in a space filled with a material ether (unit point positive charge, unit point north pole, and unit point mass assumed at every point in **space**). Unfortunately they failed, primarily because their absorber theory {80} contradicted the photon hypothesis and hence quantum mechanics.

Meanwhile, our own National Science Foundation and National Academy of Sciences has directed only minimal work on correcting electrodynamics and dramatically extending it. Faraday and Maxwell—as did every other scientist at the time—rigorously assumed a material ether. Maxwell's equations also implicitly included that material ether assumption. They still do, even after Heaviside's truncation and Lorentz's symmetrical regauging, because none of the Maxwell-Heaviside equations were changed to eliminate the material fields in **space** (material ether) assumption after the Michelson-Morley experiments

falsified it.

Every major university in America still teaches that implicit material ether, even though it was falsified over a century ago. That is an exact measure of the caliber of "foundations" work our own scientific community does if left alone. *In more than 100 years, they have not even chosen to root out the material ether from electrodynamics.*



Figure 39 This polluted and suffering planet. Direct result of the scientific community's adamant resistance to upgrading classical electrodynamics and electrical engineering.

The prevailing flippant attitude is that, "Well, your TV set works, doesn't it?" Yes it does, but we also do not have practical electrogravitation and inertial propulsion, nor do we have cheap clean EM energy from the vacuum. Instead, we have a severely polluted planet (Figure 39), ever increasing deaths from biospheric fumes and polluting byproducts, increasing destruction of species, and a monstrous unleashing of far more coal and hydrocarbon burning in our near future while the world tears itself apart and destroys its economy and civilization in a rising series of oil and energy wars. The direct responsibility for that mess lies directly with the scientific community and its fierce resistance to innovative research and development, and changing a century-old, long outmoded classical EM and electrical engineering model.

Wryly put, it's high time we "got the lead out" of EM field theory, where the lead is the material ether and other non-sequiturs cluttering the theory.

Such drastic modeling errors would not be tolerated of government-funded aerospace engineers and contractors developing a new missile system. So it should be equally intolerable in the government-funded scientific community

and in fact in the civilian scientific community as well, and it should not be tolerated of either the National Academy of Sciences or the National Science Foundation.

Einstein {81} said it perfectly, as follows:

"...the scientist makes use of a whole arsenal of concepts which he imbibed practically with his mother's milk; and seldom if ever is he aware of the eternally problematic character of his concepts. He uses this conceptual material, or, speaking more exactly, these conceptual tools of thought, as something obviously, immutably given; something having an objective value of truth which is hardly even, and in any case not seriously, to be doubted... in the interests of science it is necessary over and over again to engage in the critique of these fundamental concepts, in order that we may not unconsciously be ruled by them. "

Upholding and perpetuating flawed electrodynamics models seriously impedes **the** progress of scientific development and revolutionary new technology.^{22,23} At some point, one must legitimately question the upper management of the U.S. scientific community for not modifying classical EM and electrical engineering to include the active vacuum exchange with every charge and EM system. In not doing so, they continue to advocate perpetual motion source charges, creating energy from nothing, on a scale unparalleled in history.

It is little wonder that we do not have electrical power systems that successfully **and** freely utilize more than a trillionth of the vacuum energy they freely extract from the local vacuum. *There is not now and there never has been a single*

²² Oddly, the conventional electrodynamics model assumes that every source charge freely creates **energy** out of nothing at all, and pours this energy out continuously in all directions, thereby establishing its associated EM fields and potentials at light speed, reaching out across the **universe**. From the 1960s alone, the total assumption of incredibly vast numbers of perpetual motion machines has been carefully hidden from the new students, so that today even many **professors** do not realize that in their model all EM fields and potentials, and every joule of EM energy in the universe, are assumed to be created by a vast assortment of perpetual motion

machines called source charges. That problem has not been solved in electrical engineering or in classical electrodynamics, and if the scientists have their way, it is not going to be solved. Yet the basis for its solution—the asymmetry of opposite charges such as the dipolarity (in the modern view) of a source charge—has been in particle physics since 1957, with the award of the Nobel Prize to Lee and Yang in December of that year.

²³ One keeps one's sense of humor. The raucous skeptics and "defenders of the orthodox EM **faith**" who so noisily denounce legitimate $COP > 1.0$ EM system researchers as "perpetual motion nuts", are themselves unwittingly the greatest perpetual motion nuts ever recorded in history. Further, they are so ignorant of what their present model actually means, that they do not even know it. It is one thing to be ignorant and to recognize it; it is quite another thing to be ignorant and so ignorant one does not know it—45 years after broken symmetry was rigorously established experimentally by Wu and her colleagues, and the Nobel Prize awarded to Lee and Yang.

electrical engineering department, professor, or textbook that knows what actually powers an EM circuit—real observable EM energy extracted from the local seething vacuum by the source charges and the source dipolarity.

Since our scientific community cannot seem to make such a simple change (as including the active vacuum's interaction with every charge and the charge's broken symmetry in that interaction) even 45 years after the basis for that change has been resoundingly proven in particle physics, our national survival is at stake and the nation itself is seriously threatened by the superweapons developed by the KGB over the last five decades. We would have already been totally destroyed—twice in 1997 alone—had it not been for the intervention of a friendly little foreign nation. My colleagues and I played a very small alerting role in those affairs, so we are speaking from experience, not from extrapolation. We would be quickly destroyed today, were it not for the continuing "balance of terror" provided by the little nation.

U.S. Scientists Have Committed Monstrous Crimes and Gone Unpunished

Rather sadly, we also point out another thing that has to be said: *scientists are no more moral or immoral than any other slice of American citizens.* A percentage of scientists is capable of committing horrible scientific crimes, as distasteful as such a statement may be. That includes the deliberate experimentation on humans, resulting in deaths. In short, at least manslaughter and perhaps even murder, since knowledge of the probable results was there beforehand.

One would think U.S. scientists would *never* scientifically condone and perform experiments leading to mass deaths for 30 years (i) as they did in the Tuskegee case in Alabama. Over 400 poor blacks were supposedly treated for syphilis, while actually not being treated at all, but were deliberately tricked and allowed to rot with syphilis so our "ethical" scientists could watch how their brains decayed, so to speak. Over 100 of those poor blacks died with the disease while the scientists cold-bloodedly watched them expire and kept meticulous records. Or (ii) as they did in the case of whole body nuclear radiation for 30 years—again by trickery, deceit, and illegal use of security classification to hide these acts—of helpless retarded children and others, some of whom also died.

Once these heinous incidents were exposed publicly, the political power of the scientific community is such that *no scientist was ever indicted or tried for these heinous mass murders, and none is going to be.* The scientific community has not fiercely called for punishment of these mass murderers amongst their midst—guilty of precisely the same kind of horrible actions for which we tried and executed war criminals at Nuremberg.

Incredibly, the President of the United States formally apologized for these incidents! He did not turn the case over to the Justice Department for prosecution of high crimes against humanity and mass murder, *as would have*

been done for ordinary citizens. Had a single doctor in his private clinic done such things on his own, he would have been arrested, summarily tried, and either sentenced to life in prison or executed.

The sad thing is that there was really no sharp clamor from the scientific community to bring their fellow scientists to justice, a la Nuremberg. By their silence, the organized scientific community showed a side that scientists are **loftily** not supposed to possess. *So long as the scientific community continues to tolerate those mass murders of American citizens and not call for justice, then just so long do they stand convicted by their own resounding silence and inaction.*

We cite these painful incidents (there are others!) to point out that one must not **deify** the scientific community. The conduct of science is no better and no worse **than** the conduct of human affairs in other areas. Science is also a big business, and it has its moral scientists and its immoral scientists. It does its moral business and it does its immoral business.

We painfully submit that both sides of the scientific character must be considered, when one examines such things as the tolerance or intolerance of the scientific community to dramatic innovation and "out of the box" research. We have to consider it now, because it has become a serious threat to the continued **survival** of our nation. The conduct of scientific affairs will unavoidably include suppression, maneuvering, spin control, and fierce struggle for power and funds—such is in the very nature of human beings, and it is present in the scientific community on a bell-shaped curve as in all other human communities. It is ongoing widely today, and to an uncomfortably large extent much of science has been captured and effectively controlled by controlling the scientific funding and prescribing what research must be done for the funds available.

As the French say, "The more things change, the more they remain the same."

Science is still the same way as it was when Planck made his famous statement. It will still be that way tomorrow, and a century from now. As with any other big enterprise, it has to have checks and balances imposed and enforced on it from outside—by the government itself. Little or no indication exists of that **happening** in the near future, until we get something like an anthrax spray attack on a large city, and have a million or more Americans dying in the streets.

Energetics: New Principles of Physics and How the Soviets Found Them

Under Stalin's whip, the Soviets particularly sought anything that indicated *possible new principles of nature*. It is no accident that Nobelist Petr Kapitsa later informed Nikita Khrushchev that a means of total neutralization of foreign missiles could only come from *a group of new principles in physics called energetics*. A group of new principles is precisely what energetics *is*. So if our scientific and intelligence communities wish to understand energetics, they must

first understand the new principles it is based upon. They cannot just simply apply ordinary electrodynamics and "business as usual" as they have largely done. The massive Soviet scientific search program spurred by Stalin is where those new principles came from.

When the first tier of Soviet review scientists found something that had not been followed up, and saw that it had significant implications if found valid, that paper was laid aside into a "select" pile. That select pile then went to the "super" scientists, for full-blown review and analysis by some of the brightest and sharpest minds on the planet.

The Russians came up almost immediately with Whittaker's 1903 and 1904 work. That work shows a hidden electrodynamic *longitudinal* EM wavepair structure (in phase conjugate pairs) inside the scalar potential and comprising it.

This is a dramatic extension of electrodynamics to incorporate a full-infolded general relativity infolded inside the electrodynamics. Whittaker showed that scalar potential functions in interference already *create* all the "normal" fields and waves anyway (the beginning of superpotential theory). This novel interferometry and its inherent capability for action-at-a-distance did not elude the Russian superscientists. The superb Soviet scientific team came up with that and with much, much more.

Nothing like the comprehensive, intense review of the entire scientific literature has been accomplished by the U.S. scientific community. Nothing like it is being done now.

Longitudinal EM Wave Interferometry Energetics Was Almost Immediately Uncovered

At the end of WW II, the German radar team and infrared team were taken to Russia. Both teams were years ahead of their Western counterparts.

One of my close colleagues has validated that the German radar team had some severe instrumental anomalies while still in Germany. We think this is what they were:

In WW II the Germans invented radar absorbing materials, to coat their submarine snorkels and prevent Allied antisubmarine warfare bombers from tracking the snorkels and destroying the subs. A wide variety of highly nonlinear, doped materials were investigated. In addition to single beam radar cross section, the Germans also examined the materials in multi-beam illumination circumstances.

It appears that, in some multibeam experiments with some materials, conditions were just right so that the multi-illuminated absorbing material acted as a pumped phase conjugate mirror (PCM), and wave-to-wave interactions emerged. This meant that the absorber material PCM would suddenly gather up

all the energy in the pumping beams, use one of the other beams as a signal input beam, and fire an amplified retroreflected pulse right back down the signal input beam, wrecking the experiment and creating havoc in surrounding equipment.

When the German radar team went to Russia, their knowledge of these anomalies went with them. In the desperate Russian scientific climate to find *lust such anomalies*, this startling and anomalous phenomenon would have been exhaustingly examined and studied, once the German radar engineers got to Russia to their new laboratories.

In short, it appears that the Russians quickly came up with what today is called "nonlinear phase conjugate optics," but first in the radar band rather than optics.²⁴ So before 1950, it appears that the Russians already had working phase conjugating pumped phase conjugate mirrors for the radar bands and in other bands.

Fisher {82} details that we Americans did not "stumble onto" practical phase conjugate optics experiments until Russian physicists briefed Lawrence Livermore National Laboratory scientists in 1972 about the strange wave in **many** of their optical experiments that "came out of nowhere and restored order **from** disorder." At that time, the KGB energetics weapon scientists had known about phase conjugate retroreflection and its amplified pumping, for more than 20 years. Indeed, the first giant strategic scalar interferometers had already been deployed and utilized to kill the U.S.S. Thresher nearly a decade earlier (Figure 6).

By 1950 Russian Energetics Was Off and Running

By the beginning of the 1950s, the Russian scientists under iron KGB control were already experimenting with "scalar potential interferometry" at a distance, a la Whittaker 1904. Here transverse EM waves, EM fields, and EM energy—either *divergent* (heating) positive energy or *convergent* (cooling) negative energy—could be readily created at a distance {83} (Figures 40 and 41). Further, the longitudinal EM wavepairs used in this interferometry had the marvelous characteristic of easily penetrating right through the earth and ocean, with only a little intervening interaction, given that the LWs are sufficiently well made {84}. The interferometry "beams" can and do also move superluminally—again, right through the earth and ocean.

²⁴Of course, they would also have investigated it at all other bands as well.

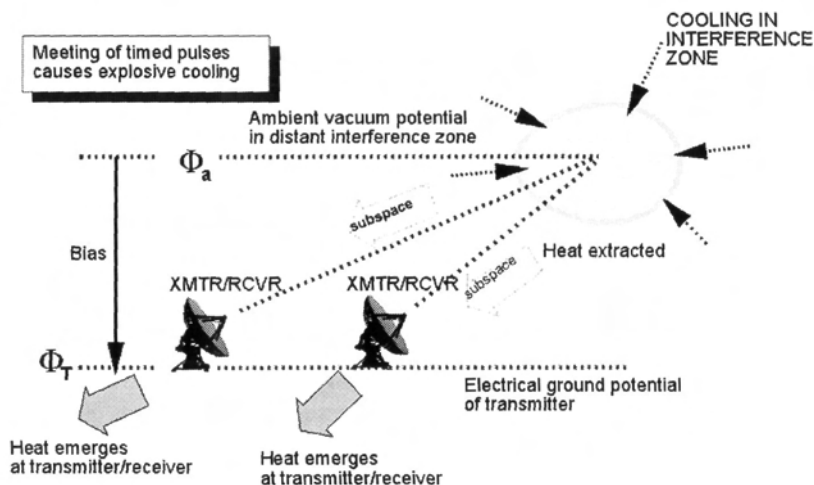


Figure 40 Scalar interferometry in the endothermic (cooling) mode.

It is not accidental that Admiral Gorshkov, head of the Soviet Navy, would later bluntly state: "We have made the oceans of the world transparent." And so they had.

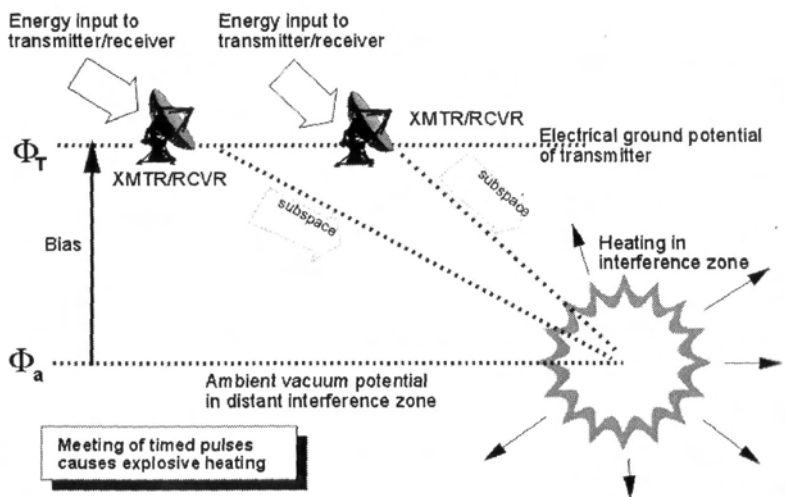


Figure 41 Scalar interferometry in the exothermic (heating) mode.

By 1950, the Russian scientists were experimenting with deliberately creating and phase conjugating longitudinal EM waves, forming phase conjugate

wavepairs. They then assembled the desired (mathematically calculated) sets of those waves, adjusted frequencies and magnitudes, phasing, etc., to produce EM potentials having a desired deterministic internal spacetime curvature set (internal spacetime engines) and dynamics.

As a result, by the mid-50s Russian weapon scientists were already experimenting in *bioenergetics* with the direct inductance of diseases and health changes via the transmission into human targets of such "internally structured" EM potentials, fields, and waves. They were also experimenting with the production of EM energy, potentials, fields, and waves at a distance, directly through the earth and the ocean. Either heating (energy flow divergence) (Figure 41) or cooling (energy flow reconvergence) (Figure 40) could be produced at will in the distant interference zone, merely by altering the bias voltage on the chassis grounds of the interferometer's transmitters. Rapid switching between the exothermic and endothermic modes thus was straightforward {85}, as demonstrated (Figure 35).

By the latter '50s, longitudinal wave interferometry weapons had already emerged from advanced engineering development and were in full production engineering toward deployment. The LIDA device {86} and even more advanced versions for directly affecting the human mind and its state of consciousness had emerged in *psychoenergetics* as one class of devices rather openly released and utilized. The LIDA uses structured EM microwaves {87} to induce a hypnogogic or cataleptic type of trance-like state in either a human or a cat. as tested years later by Dr. Ross Adey of the U.S. Early prototypes were purportedly used against our prisoners in North Korea during the Korean War to assist in their brainwashing by their North Korean Captors. Prisoners reported that its effects were irresistible.

Meanwhile, energetics weapon testing in several major modes was being conducted, particularly from Soviet research ships over remote regions of the ocean and at night. Descriptions of such tests—many of them seen by passing ship's captains—can readily be found in the open maritime literature. We gathered and published many such incidents and cited references.

Deployment of the Soviet Energetics Weapons and Their Quick Use

In January 1960 Khrushchev spoke obliquely of these "fantastic" new superweapons, just within the portfolio of the Soviet scientists, so to speak, in an important speech to the Presidium. Parts of that speech were reported in the *New York Times* {88}. No one in the West knew what Khrushchev was talking about. Our intelligence community, which bases many of its assessments on the tired old phrase "We have no evidence that..." simply treated it as propaganda. It wasn't, and the U.S.S. Thresher was to be destroyed (Figure 6) three years later by that same weapon Khrushchev was speaking of.

Khrushchev began rapidly inserting long-range missiles and nuclear warheads into Cuba in 1962, precipitating the Cuban Missile Crisis. Kennedy knew Khrushchev's strategic bombers and rockets were in horrible shape, due to direct information received from Colonel Oleg Penkovskiy, a Russian spy in our employ courtesy of British Intelligence. No one knew of the superweapons, but they were not yet operationally ready in Oct.-Nov. 1962. So Kennedy called Khrushchev's bluff and faced him off. Blustering awhile to obtain U.S. assurance that it would not invade Cuba, Khrushchev was forced to back down and withdraw the missiles. In his exuberance he had simply moved too fast in inserting the missiles into Cuba. Had he waited a few months later, the strategic superweapons would have been operational and ready. Any U.S. naval blockading force would have thus faced quick and eerie destruction or disabling, as was soon to be demonstrated in the case of the U.S.S. Thresher and its surface companion, the U.S.S. Skylark.

This severe loss of face by Khrushchev, before the Communist Party, made it imperative that he do something quite dramatic to stay in power, and do it as quickly as possible.

Khrushchev's first large, full-up, strategic longitudinal EM wave energetics interferometer weapon became operational on site by April 1, 1963. A few days later, Khrushchev employed it to kill the U.S.S. Thresher atomic submarine (Figure 6) underwater off the East Coast of the U.S. By simply creating EM noise in an interference zone placed on, in, and around the sub underwater, and thus jamming the sub's electrical controls so that it could not be controlled, the helpless sub sank to crush depth and imploded. The U.S.S. Skylark on the surface had multiple systems seriously jammed or rendered nonoperational. This was the Russian deception plan, to have the kill of the sub resemble an accident.

One day after the successful clandestine kill of the Thresher, the same weapon was used to demonstrate a powerful underwater electromagnetic burst 100 miles north of Puerto Rico (Figure 42). The energetics underwater burst equaled a substantial deep underwater nuclear explosion in size. The burst was seen by a passing U.S. jetliner crew and was reported to the FBI and the U.S. Coast Guard when the aircraft landed in Florida. A colleague interviewed the co-pilot of the aircraft, and relayed the interview information to me.

Khrushchev's Second Demonstration

Deep Underwater EM
Explosion 11 Apr. 1963

(Similar to this photo set of
a deep underwater nuclear
test explosion)

Phenomena observed and
reported by passing U S
jetliner

100 miles north of
Puerto Rico, over
Puerto Rican Trench
(One of the deepest
parts of the ocean)

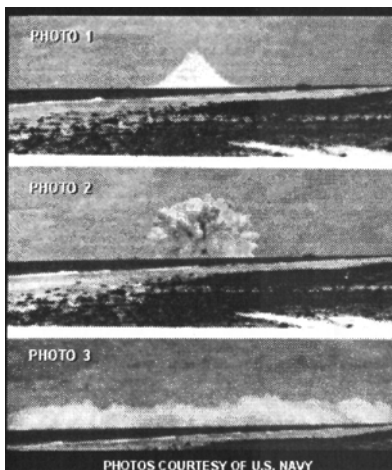


Figure 42 Deep underwater nuclear burst, demonstrating same water phenomenology produced by Khrushchev's second demonstration on 11 Apr. 1963, the day after killing the U.S.S. Thresher.

Why the Soviets Could Continue to Attack and Kill U.S. Targets with Impunity

Ironically, Khrushchev clearly demonstrated the inability of U.S. science to comprehend the numerous test incidents of Soviet LW interferometers, including the actual destruction of strategic U.S. targets (our latest and greatest nuclear attack submarine!) right off our coast. *The greatest strategic weakness of*

the U.S.—and the thing that may yet completely destroyallofus—is the continuing snail-like pace of U.S. scientific progress in revising, correcting, and extending its seriouslyflawed classical electrodynamics model. This scientific inertia placed us several decades behind in development of defenses in the areas of longitudinal EM wave weapons, quantum potential weapons, and causal

system weapons. It countered our strategic nuclear armada for two decades. We were for some time analogous to the Spanish Navy with its wooden ships, when it faced and was destroyed by American steel ships. Hopefully at least some

more modern work has now been accomplished in higher group symmetry electrodynamics, so that we are not quite as defenseless as we formerly were. But we still have a very long way to go.

When one performs a standard strategic analysis on a nation, one of the areas examined in depth is called *national style*. One of the major characteristics in the U.S. **national** style is that we do not react to slowly increasing threats or changes

(Figure 43). That style particularly applies to the scientific community. Because of it, the Russians knew that our government only inches forward in achieving new *basic* science. We run at enormous speed, doing *applied* science. We are essentially Romans and great engineers. We are largely not Greeks and not great esthetics discoverers. We also will just ignore new threats if they emerge very slowly and are only gradually perceived, and we will hide behind that infamous phrase, "We have no evidence that..."



BOA CONSTRUCTOR



LIGHTNING STRIKE

Americans tend not to react to slowly increasing things,
but react to rapidly increasing things.

Figure 43 America's national style: we do not react to slowly increasing threats.

In short, we react to the coiled rattlesnake, not to the boa constrictor. We are now in a long, bloody, costly war against terrorism because of that very characteristic of our national style. For decades, the slowly increasing infiltration of terrorists and their weapons was just ignored. Oh, yes, the official "threat studies" pointed it out, placidly.²⁵ But no one got very excited about it. The prevailing attitude was that "Ah, yes, but nothing like that will happen on my watch!"

As clearly demonstrated by their successful decades-long radiation of the U.S. Embassy in Moscow, the KGB chess masters knew that, if the test kills using

²⁵ Indeed, if one will look at the threat studies prior to William Cohen taking office as U.S. Secretary of Defense, one will find widespread complacency about the terrorist threat, and mostly just lip service to it. It was definitely not very important to most of the intelligence and scientific community. Cohen built a fire under the entire threat community, forcing them to get their act together and start actually studying the terrorist threat, asymmetrical warfare capabilities and dangers, and what could be done about it. He did force the research and threat communities to do a creditable job of studying it, and to publish reports detailing it. Unfortunately, the tenor of the political community outside SecDef Cohen's control was basically "business as usual, not to worry." September 11, 2001 changed all that forever. Once again we had waited until the rattlesnake struck and actually bit us, before the nation rose up and paid attention.

their superweapons were not too often repeated, and if they even vaguely resembled other things known in the world, the U.S. scientific community and government investigators would resist all suggestions of Russian superweapons and super technology using new principles of nature. And so would our intelligence community, since they rely on the scientific community for their scientific assessments. They were well aware of our historical "ostrich" position (Figure44).

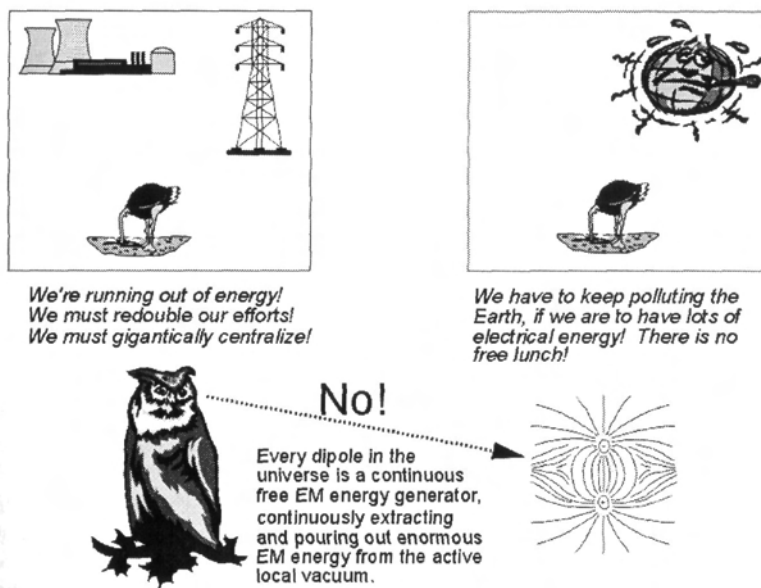


Figure 44 The only energy resource problem is the theoretical ostrich problem in science. We must become theoretical owls, rather than ostriches.

The KGB deception just depended upon the U.S. tiger to keep its stripes and exhibit its normal reactions or lack thereof. They also utilized (i) a series of strategic deception plans, deliberately designed to perform the tests suggestive of discredited phenomena such as UFO reporting and "lights at night" types of things, and (ii) a continuing series of subtle and anomalous stimuli (probes) designed to rather slowly attract the attention of U.S. Government at high levels, and of state-of-the-art U.S. government scientific contractors as well. The trick was not to attract U.S. attention *too suddenly or too strongly*. Show them the slow boa constrictor, not the lightning-fast rattler, and see how they reacted, if at all. By their reactions, the KGB could assess whether or not the U.S. government, intelligence, and scientific communities understood what was happening.

Precisely as anticipated by the KGB, we showed them for some decades that we

really had little or no comprehension of the superweapons and their testing right over our heads. Even today, at least in the open community there is still little recognition, even of the violent weather war raging right over our own heads since July 4, 1976 and easily recognized.²⁶

A case in point was the deliberate induction of diseases and health changes in U.S. personnel in the U.S. Embassy in Moscow for over 40 years (Figure 11). On a continuing basis, this excellent intelligence probe showed (by the U.S.'s actions or lack thereof) that we knew nothing about energetics.

Another KGB probe method was to kill a target once in a while, such as a jetliner or a submarine (deliberately rather seldom here, because the U.S. military would react if a certain frequency threshold were exceeded). Such kills resemble or can be posed as natural accidents or terrorist incidents. Quite a number of such incidents have occurred over the last three decades. The National Transportation Safety Board (NTSB) does not have higher group symmetry electrodynamics in its knowledge base or on its "checklists", nor does it have scalar interferometry, psychoenergetics, bioenergetics, or quantum potentials. In total, the results of deliberate stimuli of the U.S. continually assured the KGB chess masters (with 100% certainty) that we were a complete novice in the energetics game, and we were a lamb increasingly ready for the slaughter.

The major contribution to the continued success of these deliberate measures by the KGB has been provided for decades *in the "nonreaction of our own scientific community to slowly increasing threats."* To a lesser extent, our own intelligence community has also not focused sufficiently open-minded and highly qualified scientists to comprehend what is occurring in "new principles of nature" phenomena. "In the box" electrical engineers with Bachelor of Science degrees often are the analysts who analyze and assess such "out of the box" phenomena. Good luck!

Ordinary radar engineers may analyze an ordinary radar rather well. They will never, never become aware of a radar beam carrying infolded spacetime curvature engines. Such is not even in their lexicon or in their belief structure. They have no understanding or experience at all with longitudinal or time-polarized EM waves—most have never even *heard* of time-polarized EM waves. Mention curvatures of spacetime and their dynamics as deliberate "engines" impressed *inside* EM fields and potentials and waves, and one gets a glaze right over the eyes of the intelligence analyst recipient.

Western science conceives the mind as a meat computer, and does not understand that mind operations are totally electromagnetic and causal, but nonphysical—meaning in the time domain rather than in 3-space. Mind

²⁶ The weather war over our heads has been particularly violent, and violently resisted, this year (2002).

operations primarily use time-polarized EM waves rather than the transductions **into** transverse EM waves that the scientists actually measure. Hence Western science has not the foggiest notion as to what Russian psychoenergetics is all about, or how it can even "be." Certainly Western science has had no notion of deliberately creating time-polarized EM waves for direct engineering within the mind itself and within the mind's time-EM operations.

As Arthur C. Clarke puts it in his "third law," *"Any sufficiently advanced technology is indistinguishable from magic."*

Our long fascination with our "normal" (optics, IR, UV, radar, COMINT, **satellite** photography, etc.) technological intelligence collection systems will certainly not lead to any great breakthrough understanding of Russian energetics weaponry. That could only have come through HUMINT or COMINT. HUMINT is an area which, in the past, we have mostly just neglected or given lip service to for decades—and that came back to bite us severely on September 11, 2001. Even when we use HUMINT, it will not yield energetics results if the managers and directors themselves (and the agent handlers in the field) have no understanding of it and do not even know the proper questions to ask. And the **system** will not deliver results if the Intelligence Collection Requirements do not address the proper issues because ordinary electrical engineers and conventional electrical physicists having no inkling of psychoenergetics, or how it works, drew them up.

COMINT, on the other hand, suffers from its own extraordinary prolific output -as well as by only conventional analysts and conventional scientists examining it. Warehouses of COMINT information often have not even been read in any way except a casual glance by a junior analyst, and certainly have not had serious foundations scientists examine it in detail. ELINT does a little better insofar as a human analyst looking at it, but then what is a conventional electrical engineer or radar engineer to make of a giant hemispherical globe that slowly forms and expands from a tiny "seed bubble" of intense glowing light that appears (Figure 35), as it did off the Kurils in April 1984? What will he label it? "Light phenomena?" Where are the technical descriptors of the actual process forming the phenomenon? Where are the implications as to the strategic **military** use of such phenomena? The reader can see the point. For decades our **analysts** ignored prolific reports of such incidents by the hundreds. Why, everybody knew it was glowing swamp gas!

One cannot even write a proper "intelligence collection requirement" if one does not understand the basic phenomenology. So essentially no one in U.S. intelligence was writing the proper intelligence collection requirements.

The Science Behind the Soviet Energetics Weapons

The science behind these weapons is called *energetics*. (See again Figure 8.) Energetics consists of three branches, depending upon the nature of what is

being targeted. The branch targeted against nonliving matter is just called the same name: Energetics. Targeted against living cells and biological material, the nervous system, etc., that branch of energetics is called bioenergetics. Against the mind and its functions (which are time-like and thus involve scalar photons and time-polarized EM waves), energetics is called psychoenergetics {89}. See Figure 45. Psychoenergetics includes both the conscious²⁷ and unconscious mind²⁸ of the individual—and even Jung's collective unconscious mind²⁹ of the entire human species {90}, and in fact even the collective unconscious mind in all species on earth, which corresponds to Lovelock's *Gaia* concept.

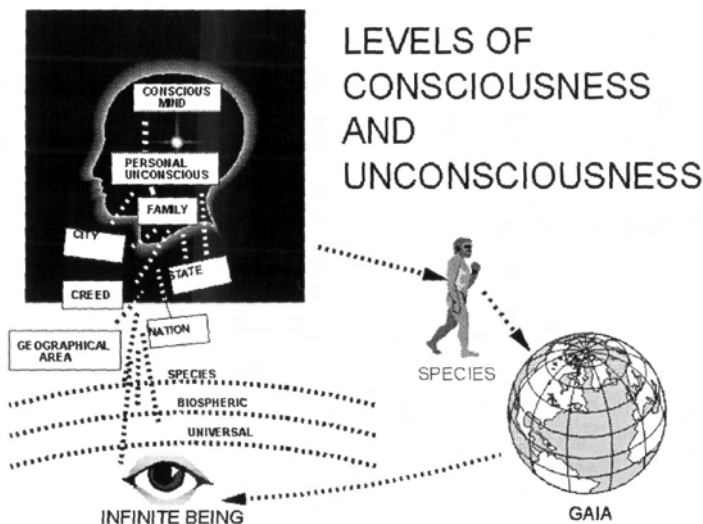


Figure 45 Mind levels are subject to engineering by higher group symmetry electromagnetic (psychoenergetic) weapons.

We remind the reader that we are talking *physics*, not metaphysics and not mysticism. Strong Soviet physics developments over a sustained period have occurred in all three energetics areas, and these areas continue to be developed at present.

Once a nation enters into LW EM development, it has just entered into unified

²⁷ The conscious mind is a very fast serial processor, processing one snapshot at a time.

²⁸ The unconscious mind is a massively parallel processor, doing a great many things simultaneously. It is totally conscious, but multiply so. Since the serial processor conscious mind can only "see a single slide projector in the viewgraph at one time", when it "looks at the unconscious mind" it sees a large number of slides simultaneously, hence just sees "black" or "nothingness" (no single thing).

²⁹ Jung himself labeled it a *mind* (and hence a living entity). His modern followers shudder at such a concept, and very much downplay the "mind" and "entity" aspect, preferring that it just go away.

field theory development also. Particularly with longitudinal EM waves, one is directly engineering general relativity itself, and spacetime itself, as well as the dynamics of spacetime curvatures and sets of such curvatures. But it is an even greater unified field theory than Western physicists suspect. Not only does it unite the four forces of physics, but it also unites mind and matter and their dynamics as well.

We shall also refer to time-polarized EM waves as *time-density waves*. The reason is that a time-polarized EM wave is one where the EM energy is on the time-axis and oscillating along it, like the squeezing of an accordion. In short, it is a longitudinal EM wave on the 4th Minkowski axis *ict*, where the only variable is *t*. Hence it is a wave of the variation of time-density along that axis.

All three branches of KGB energetics use longitudinal EM waves, longitudinal EM wave interferometry, and Whittaker-structuring of fields and waves to provide organized curvatures of spacetime known as *spacetime engines* or *vacuum engines*. They also use time-polarized EM waves, as mentioned above. Any or all can also employ the quantum potential as well as negative energy EMP aspects. For now, the reader should just recognize that each infolded longitudinal EM wavepair comprising the scalar potential, includes both a *time-density wave* along the time axis and a longitudinal EM wave in 3-space {91}. So ordinary electrostatic scalar potential ϕ —ordinary voltage—is made of a harmonic structure of *coupled time-polarized and longitudinal EM wavepairs*.

Oscillations of time density oscillate the local rate of flow of time. In turn, since time has the energy density of mass, its spatial energy equivalence W is given by $W = c^2 t$. Any change in a time density wave is a very powerful oscillation of local spacetime curvature. So time-density waves constitute a very powerful form of infolded general relativity, inside potentials and hence inside all EM waves and fields. The KGB weapon scientists call that inner general relativity (time density waves) the *information content of the field*. Unfortunately our fellows confuse that term with common "spectral analysis" which it very definitely is not. But as part of the deception plan, the Russians are quite happy to help them think it is exactly that, and in fact the Russians go to some pains to continue to help our fellows think that.

KGB energetics involves the use of a highly structured general relativity infolded inside electrodynamics—inside EM potentials, fields, and waves regardless of type. In addition, that very special GR is using the very strong EM force along the time axis as the main agent of curvature. By deliberately structuring these time-polarized EM waves and their dynamics, extremely powerful *spacetime curvature engines* can be employed, either created locally or at a real distance, or also globally in an entire selected distant region.

Once these spacetime curvature engines structure the distant targeted spacetime region. Then in that interference zone the engines therein act upon any mass present. In theory, any physical effect known can be engineered, according to

general relativity, once one can create and utilize the proper set of spacetime curvatures (the proper set of spacetime curvatures and their dynamics). In GR, curvature of spacetime acts directly upon any mass present, and vice versa. With such technology one can therefore *engineer mass* to any level and at any distance (and eventually in any quantity) at will, using energetics methodology. *The engineered mass may be either living or inert* {92}. It follows that bioenergetics and psychoenergetics effects can also be engineered at a distance in similar manner. All it requires is the proper engines for the effects desired in the targets desired.

By using time-density waves and their dynamics, mind itself can be engineered and controlled at a distance as in the cases of Captains Button (Figures 22 and 23) and Svoboda (Figure 24).

The Importance of Scalar Photons and Time-Density Waves

Now we digress momentarily. Again, there are four major photon polarizations in quantum field theory {93}. The first two are transverse photons, polarized in the x- and y-direction respectively (transversely to the line of propagation, which is customarily taken along the z- axis). Ordinary transverse EM waves are comprised of such photons or blends thereof. Though ignored, EM waves prior to interaction with mass do *transport EM time-energy* as well as EM spatial energy, though in electrodynamics that time-energy transport has been ignored, thus confusing the effect with the cause.

The third polarization is a longitudinal photon, vibrating along the z- direction (the direction of propagation). Obviously longitudinal EM waves are comprised of such longitudinal EM photons.

The fourth polarization is a scalar photon, since it oscillates only along the time axis (the word "scalar" refers to the fact that it has no vector field component in 3-space). In American physics the latter photon is largely ignored since time is not an observable in quantum mechanics. However, such scalar photons do comprise time-density waves and EM time-energy currents, and they are involved in powerfully curving spacetime via oscillating the time domain. Hence by their oscillations they produce spacetime curvature oscillations, which in turn project small components into 3-space. Sufficient such coherent projection components are in fact longitudinal waves in 3-space.

The combination of the scalar and longitudinal photons is observable as the instantaneous scalar potential, and when Whittaker's 1903 decomposition of the scalar potential is slightly corrected, then the scalar potential is comprised of coupled pairs of waves, where each pair consists of a time-polarized EM wave coupled to a longitudinal EM wave. The combination of the scalar and longitudinal EM waves in the presence of charge is observable as the macroscopic scalar potential. Negative charge absorbs the time-polarized photon from the time domain and re-emits a longitudinal photon in 3-space, while the

positive charge absorbs a longitudinal photon from 3-space and re-emits a time-polarized photon in the time domain.

Psychoenergetics: Engineering the Mind-Matter Interaction by Engineering Mind

We shall be interested in what actually constitutes a living biological system in **the** psychoenergetics view (Figure 46). Mind operations are *time-like* rather than existing in 3-space, and for that reason mind and its operations are not observable. Observation is a d/dt operator acting on an LLLT ongoing interaction, which removes the T and leaves a frozen LLL snapshot, via $d/dt(LLL) \Rightarrow LLL$. *Imposition of observation itself breaks*, any and all connection with time-like operations, including mind and its operations.

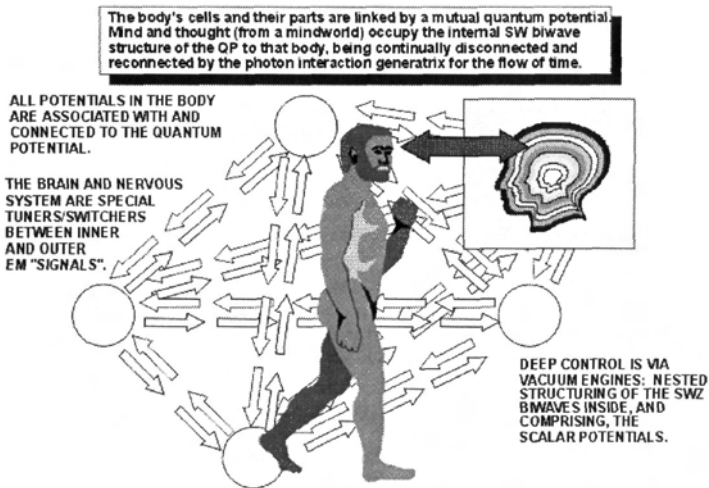


Figure 46 A living biological system (psychoenergetics view).

"Dynamics" involves "velocity", and in general relativity's 4-space velocity is rotation (Figure 47). Any mind-operation or change is dynamics and produces a small velocity, which is a small rotation. This projects a very small component into 3-space, in the physical body, but still in the virtual state. We are speaking of physics rather than metaphysics! *Sufficient* coherent mind operations (changes) have just such small (virtual) rotation components in 3-space that will project coherent little projection components (virtual) into 3-space. Coherently sustaining these components (intent) results in their coherent integration to breach the quantum threshold and become detectable (produce an observable 3-space result). That is how an "intent" change sustained in the mind becomes an actual physical energy input to the body and nervous system.

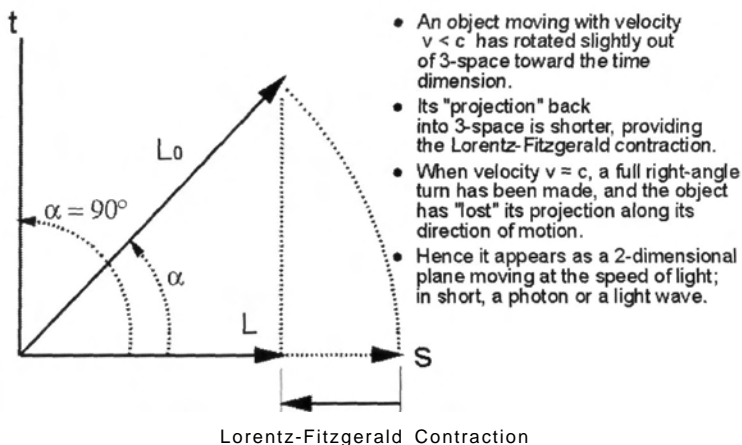


Figure 47 Velocity is rotation. Necessary to understand the mind-body coupling mechanism.

We again stress that the scalar potential is comprised of coupled time-density and longitudinal EM wavepairs. Mental operations also are time-density wave changes, hence they are changes to the interior of potentials, including the ambient potential of the vacuum itself. Potentials superpose, and their coherent internal structures add (integrate) coherently. Hence, mind changes can coherently integrate to produce minute but real, observable, physical input changes to the body system. *Mind permeates the body via the interlinked and superposed potentials of the body.* The living bio-organism's mind and its operations can be modeled as an organized operating wave dynamics inside a scalar potential and superposed potentials of the body of that organism. Since fields are made from the more fundamental potentials, these operations also function inside the fields of the body. The organized time-density dynamics constitute both the conscious mind and its operations and the unconscious mind and its operations. More subtle depths of the time-density dynamics also constitute the human collective unconscious mind functions and operations. Again, we are speaking physics, not mysticism.

See Figure 48. The "component projection" (coherent integration) process from time-like mind operations into 3-space in the body potentials introduces into the living body the *physical* commands correlated to the *mental intent* of that entity. This is the solution {94} to the long unresolved philosophical problem of intent, and addresses the unresolved physics problem of *just what constitutes the "observer."* But the subsequent physical changes accomplished by the responding body as a servomechanism, also produce small rotations into the time domain (into the mind domain) but in the virtual state. However, a series of coherent physical changes produces coherent virtual state changes in the mind realm, which in turn coherently integrate into perceptual input. In this fashion,

the mind senses the response of the body to its order, and any errors in that response that need correction. The time delay gives also the sense of identity and personal persistence, hence creates the perception of self, the "responding body belonging to self," etc. Interwoven perceptions of coherent rotation changes from other 3-space phenomena that do not respond to mind intent, also create the perception of the "separate physical world." That these phenomena do not respond directly to mental intent creates the perception of the "separateness" of this "external" physical world, while the interweaving creates the perception of "existing simultaneously" with or in the external world.

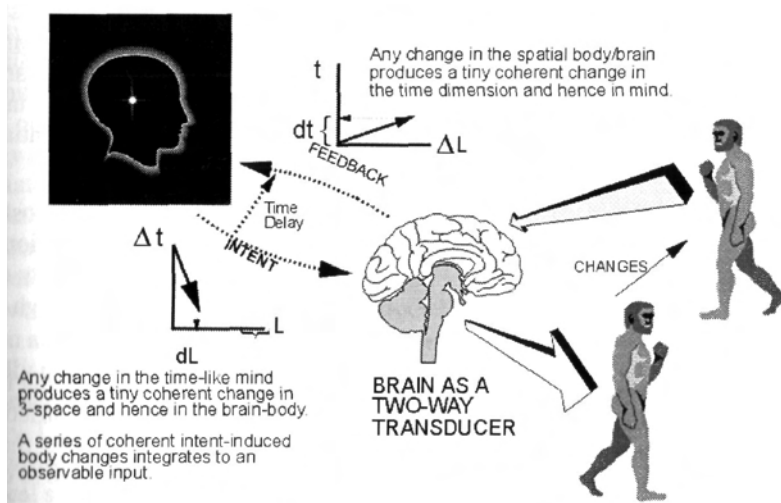


Figure 48 Mind-body coupling mechanism at work.

All of that perception, dynamics, rotation, and processing is subject to direct engineering via psychoenergetics means.

Without further elaboration, we again stress that the conscious mind is a serial processor, whereas the unconscious is a massively parallel processor.

Westerners are prone to equate self to consciousness or conscious mind operation alone. That is not the case. Consciousness is just one attribute of the self (of the total feedback loop having delay between feedforward and feedback).

The totality is the mind-body coupling mechanism (Figure 48) enabling a living biological system (Figure 46).

By using time-density waves formed of scalar photons, the mind realm also can be directly engineered by the same energetics technology. Hence, for the Russian energetics weapon scientists there followed the development of psychoenergetics as an entire class of breakthrough electromagnetic weaponry.

This resulted in the development of not only a unified physics of matter and space, but also a unified physics of mind and matter reaction. Any true unified field theory must integrate the observer and the unobserved as well as the various categories of the observed. It is now possible to *directly model and engineer both physical and mental reality and their interaction*. Russian psychoenergetics has been developed to do precisely this {95}.

Quantum Potential Weapons Are Utilized in All Three Energetics Branches

In addition to scalar interferometers, there is another category of energetics weapons used in all three branches. That category involves the use of quantum potential weapons, after David Bohm's quantum potential in his hidden variable interpretation of quantum mechanics {96}, published in *Physical Review* in 1952. We openly published one mechanism for creating a quantum potential {97}; there are others.

Presently these quantum potential weapons are the most powerful and most flexible weapons on earth. Nothing else can stand against them. Any nation not possessing QP weapons is already a second-rate power, regardless of how many nuclear missiles, bombers, and submarines it possesses, or how many high-energy lasers and high power microwave weapons it possesses.

The greatest problem the Soviets had was not in *making* the QP itself, but in (a) *localizing* its creation to the specific area or region desired, and (b) restricting its coupling to the type of equipment, entity, level, size, type of nuclei, etc. that was desired. We have not yet fully solved the problem of how they are able to do that, but have made a little progress upon it.

The Importance of Longitudinal EM Waves

The KGB energetics weapons use longitudinally polarized and time-polarized EM waves as their basis, rather than transversely polarized EM waves. There is a surge of renewed U.S. interest—and a revolution in electrodynamics—just underway in this country (and in the major weapons laboratories of other nations) *vis a vis* longitudinal EM wave solutions to the major equations of physics. E.g., one may check the Los Alamos National Laboratory Internet web site for summary papers by Rodrigues and Lu {98}. There are now formal EM wave solutions faster than light speed, slower than light speed, etc. {99}. There is also experimental support for superluminal tunneling of EM waves in waveguides {100}. In addition, as is well known, the speed of the ordinary scalar potential is infinite in the Coulomb (transverse) gauge {101}

Higher topological algebra is being used to embed the electrodynamics in most of the KGB energetics work. Maxwell's original theory {6} was some 20 quaternion and quaternion-like equations in 20 unknowns. Quaternion algebra

has a higher topology than either vectors or tensors. Heaviside and others reduced the quaternion-like theory of Maxwell down to four equations in four unknowns—or to two coupled equations, depending upon how represented—and formed the much lower topology vector algebra in the process. This seriously demoted the topology of electrodynamics and placed undue limitations upon what can be done with it. The subsequent mathematical promotion of electrodynamics to tensor algebra still did not recover much of the EM functioning possible in quaternion algebra. An even vaster, far more powerful electrodynamics emerges in Clifford Algebra electrodynamics, which may be **the** coming modern trend.

However, even with Clifford Algebra, there remain fundamental foundations difficulties—such as bluntly confusing *energy transport* with *energy dissipation*, by arbitrarily integrating the Poynting vector around a closed surface so as to select only the divergent portion of the Poynting energy flow. That produces the *energy dissipation flow* associated with the circuit, not the overall energy flow associated with it. The overall energy flow is some 10^{13} times greater in a nominal case, as (i) discovered by Heaviside in the 1880s, (ii) never even considered by Poynting, and (iii) deliberately discarded by Lorentz with a little integration trick {102} still used by classical electrodynamicists and electrical engineers. Electrical engineering departments, professors, and texts do not know and do not teach that all EM power sources—such as generators and batteries—actually pour out of their terminals a far greater energy flow than the meager shaft energy input to the generator or the chemical energy dissipated in the battery. Lorentz arbitrarily discarded the huge Heaviside nondiverged output energy flow component a century ago, with the observation that it "has no physical significance" {103,104}.

Part of the emerging electrodynamics revolution is intuitively obvious. Higher topology algebra used in one's electrodynamics model means that lots more things can be done—in circuits, equipment, and components. As an example, **suppose** one can only draw geometrical figures on a flat, uncurved plane. Then compare the figures there to what can be drawn when a third dimension is added so that the plane can be curved, twisted, folded, stretched, compressed, etc. in 3-dimensional space. That is similar to the dramatic differences between electrodynamics in a higher topology algebra and electrodynamics in the far more limited tensor and vector algebras.

Further, if someone's circuits *are working* in a higher topology, a lower topology **analysis** will not even see their true functioning. This turns out to be true for Tesla's work, where so many pundits have used vector or tensor algebra in the belief that they therefore knew what Tesla was doing. They did not, nor did they even use the proper tools to see what he did. For the proof, see Barrett's examination of Tesla's actual patented circuits, using quaternions {105}.

Energy, Wave Energy, and Wave Speed are All Dramatically Altered

The energy of a pure longitudinal EM wave (LW) is infinite (unlimited). In practice, only an imperfect LW is produced experimentally, and therefore its energy is finite, but that energy may be extremely large, and the wave's propagation may be many times faster than the speed of light. This is much like quantum tunneling, which has been measured to be superluminal. Nimtz *et al.*, e.g., have transmitted Mozart's 40th symphony through a barrier in a waveguide at 4.7 times the speed of light {100}. Other researchers have transmitted information at lesser velocities but still at greater than c , the speed of light in standard vacuum.

Einstein assumed light speed in vacuum to be universally constant. That is correct for *transverse* photons and *transverse* EM waves, but not necessarily for other polarizations. Instead, it can be a function of the energy density of the vacuum (i.e., its stress energy density), which can be a matter of the gauge and the wave polarization. Further, c as a constant applies to transverse polarized EM waves (which are "surface" waves of the medium, so to speak) and not to longitudinal or time-polarized EM waves (which are "subsurface" or "subspace" waves). In general, the speed of the EM wave can be a function of the energy density of the vacuum (i.e., its stress time-energy density). And it is also a function of the type of EM wave being utilized.

"Empty space" is filled and writhing with the continual transiting of higher order EM waves, the presence of standing high order EM waves, and energetically organized regions where the energy is in the LW mode and in the time-density mode. Indeed, space (more correctly, spacetime) itself is nothing but a plenum of such waves and their wave-to-wave interactions.

The longitudinal and time-density effects in empty space are correlated with seasonal and periodic variations of time-charging and longitudinal EM wave emissions from planets, stars, etc. As a result, the characteristics of empty space itself periodically vary, and these can be detected as variations in the speed of light through the affected space.

The interplanetary radar measurements, e.g., do indeed show several periodic variations of the speed of light in interplanetary space, on a weekly and essentially monthly basis. In this data the proclaimed constant speed of light is upheld only by averaging the measurements over a month-long period, as shown by Wallace {106}. Actually, the scientists are dealing with variations of the periodically varying local time-density of spacetime, but have not taken that into account.

There are also specialized "galloping wave" zones, created by variations in the interferometry of the interpassing and interfering longitudinal EM waves in space. Such galloping waves from wave interferometry are already known in the literature {107} from 0.1 to 100 times the speed of light, but they do this on a

"surge forward and lag backward" mode about an *average* speed of c in the laboratory here on earth. In space away from planetary masses, that value " c " varies from its textbook value also.

All that has really been shown is that interplanetary space is *not quite* uniform **after** all, contrary to present scientific assumptions.

One would think that this *fundamental foundations anomaly* shown by the interplanetary radar measurements would excite the entire scientific community and trigger a massive scientific investigation. Instead, scientists such as Wallace who publish critical analyses showing that the data directly prove the variation of c in "ordinary" space, are just ignored and essentially "parked on the side-lines" until they eventually fade away.

A Process for Creating Longitudinal and Time-Density EM Waves

Today we know that some plasmas very often can produce a longitudinal EM wave from a transverse EM wave, and can produce a transverse EM wave from an input longitudinal EM wave. This was not known when the Priore team was **performing** its experimental work. However, it provides one method for **producing** and detecting longitudinal EM waves.

The Priore team in France unwittingly made longitudinal EM waves by inputting transverse EM waves into Priore's rotating plasma in a giant plasma tube (Figures 12 and 49).

- At the end of the project, Priore had developed a large unit to treat humans.
- A few were treated.
- Cures replicated what had been done in lab animals.
- The massive size of the unit and long treatment time (hours) made the process bulky and very inconvenient — and expensive.
- We proposed a way to do it with a suitcase-sized unit and a treatment time of two minutes.*

*See *Porthole Briefing*, www.cheniere.org

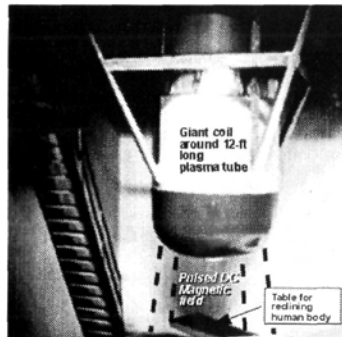


Figure 49 Priore's large plasma tube installation in his 3-stories-high treatment facility for humans. Results obtained in animal experiments were also duplicated in human experiments.

Quantum Potentials and Multiply Connected Spacetime

It appears that a sufficiently clean longitudinal EM wave can be utilized to

create a quantum potential, very similar to Bohm's notion, by iterative retroreflection between two phase conjugate reflectors. When sufficient iterative self-targeting occurs and persists, the waves eventually "snap in" and fully converge to laser-like beams without any energy divergence {97}. At that point, one has achieved an essentially "pure" LW, which has infinite velocity. For all practical purposes, there is then little or no difference between this wave and a quantum potential.

A pure longitudinal EM wave just "appears instantly" everywhere in space that it will be. It is already an element of a quantum potential. In this sense, all that a "quantum" potential is, is an ordinary scalar potential in which the composite EM longitudinal phase conjugate wavepairs really are pure longitudinal EM waves. It would seem that this also moves the gauge to the Coulomb gauge, so far as the potential is concerned. It follows that, by establishing significant and clean longitudinal EM wave contact between any two points via iterative retroreflections, one establishes a quantum potential if sufficient harmonics are established in the contact. The implications for "phase conjugate shooting" to go one step farther are obvious.

By "scanning" an area with the appropriate LW transmitter array, with deliberately imperfect LWs so that contact reaction occurs, and then decreasing the imperfections in the scanning by iterative retroreflection, it appears that a quantum potential can be created and connected between the transmitters and a desired distant region.

Essentially, in the case of pure longitudinal EM waves and quantum potentials, we must model the situation in terms of a multiply connected spacetime. The divergence-free waves are now pure longitudinal waves in one sense, and pure potential beams in another sense. In any case, the Coulomb gauge applies. As is well-known, the potential moves at infinite velocity in the Coulomb gauge.

Thus a single station can be connected by such a QP to any number of distant stations—by first "knitting them together" into a common multiply connected spacetime by iterative mutual LW self-targeting beams. It matters not if one or more distant station(s) is/are then moved beyond the star Sirius; the moment an energy signal appears in the initiating station, it is already instantly in each distant coupled station anywhere in the entire universe. There is no separation distance involved. Here *one no longer needs to propagate transverse EM wave energy painfully through space at the speed of light*. Instead, one is now dealing with multiply connected spacetime. One now has the instant appearance *in each and every distant coupled target* of the energy input into the single "transmitting" or "coupling" station. So the process is a startling and giant "energy amplification method" as should be expected from something that has infinite energy in the first place!

One vulnerability and disadvantage of a QP weapon is that, if the target is aware of one's coupling and also has QP technology, he can now immediately send

back any energy form or "greetings" he wishes, from any one of his coupled targets. He can even do it inadvertently, without even knowing he has been coupled by a quantum potential. In other words, the QP provides a two-way street, if the target is aware of it and has the technology himself, *and even if he is unaware of it and does not have the technology*. For that reason, actual use of the QP weapon in strategic strikes requires caution and special considerations. Usually it requires very rapid single use and then cessation of any further usage.

Need for Caution with QPs Used Against Biological Organisms

Another QP weapon disadvantage is that rather extreme care must be rigidly exercised, particularly when linking living creatures. For living things, the QP is best utilized in the absolute minimum energy mode. E.g., *an extremely weak OP already links every member of the human species*. Suppose one increased that linkage intensity carelessly. Immediately the entire human race is in grave difficulty. Every death of a person feeds into every other living person. Every birth of a baby feeds into every living human. Even the fertilization of one **human** ova instantly feeds into all other ova. The integration of all those changes would totally disrupt—and instantly destroy—all human life on Earth. Since chimpanzees have very similar genetics to that of humans, all the chimps would probably die also. Other higher primates would also suffer or die, as would many other species.

What might be useful, of course, would be to use a QP to kill every smallpox, HIV, Ebola, and other dread disease pathogen on Earth. If so, it would first have to be made extraordinarily specific, else it could threaten all or most of the life on Earth.

A very useful adjunct would be to use a QP device to nearly instantly scrub and decontaminate (disinfect) an anthrax-contaminated large city—such as New York or Washington, D.C.—by instantly killing all the anthrax spores in that locality. Or to clean all the antibiotic-resistant staph pathogens out of U.S. hospitals by just killing them all instantly and periodically. Or to rid the Earth of necrotizing fasciitis—flesh eating disease pathogens.

An extremely localized QP could be used to connect with all HIV viruses and DNA inside an AIDS patient's own DNA. One could then kill the HIV viruses not yet integrated into the patient's cellular DNA. One could also time-reverse the patient's own HIV-infected DNA back to normal, effectively "removing" the HIV DNA already dumped into the patient's own infected cells. In theory, 100% of the HIV infection could be removed from the patient's body, restoring him or her to a completely HIV-free condition.

A Hypothetical Example

Suppose one arbitrarily increased the even weaker QP that presently joins all living things on Earth, regardless of species. Instantly every living thing on Earth would die, and the Earth would be instantly converted to a sterile planet.

Even though *physically embodied* life was gone, however, all the forms of those species would remain in spacetime activity, their vacuum engines—for both minds and bodies—forever embedded in the local potentials and fields of the material Earth. In other words, the Earth's potentials and the local spacetime potential would still be dimensioned and conditioned for the life forms that once moved upon it in physical form. The dimensioning and conditioning (engines) for every life form that ever lived on the Earth *exists now* at every point in the Earth and in the local spacetime. With proper application of energetics, in theory it is possible to recover any of these life forms desired, back into living form.

When one understands that environmental aspect, one understands why the Miller-Fox-Urey biogenesis experiments {108,109,110} (Figure 50) would still produce living organisms again. A *physically* dead planet or test flask is not necessarily a "completely dead" planet or flask, when one considers the presence of spacetime engines and dimensioned potentials. One recalls that these forms and engines contain not only physical forms, but also the mind-aspects and the mind/body coupling and dynamics aspects as well.

In short, the entire biochemical notion of biogenesis from truly inert matter devoid of any form of life or pattern of life appears to be a false premise. Since potentials reach to the end of the universe, then any structured potential structures (*dimensions*) the universal vacuum potential everywhere in the universe {111}. The Miller-Fox-Urey experiments were not performed in a truly "sterile" environment after all, when the new energetics is considered {112}. One realizes that the entire universe is alive; the mere presence of a single living microbe or other form anywhere establishes an entire living noosphere. The Russian researchers—such as Kaznacheyev {113}—into EM induction of disease in targeted cells at a distance also realized that biology included a noosphere, and it could be engineered.

- Engines of and from all life forms ever on earth or in the universe exist in the ambient vacuum potential.
- The Miller-Fox-Urey experiments were not in a "sterile" environment.
- Heat (IR) and UV constitute (1) a harmonic interval with a difference frequency, and (2) amplifying by the process previously shown.
- These experiments "kindled" previously living forms from the available gases etc. by amplifying the ancient living engines from their virtual state to the observable state, so that the masses were molded into the physical states of their templates.

Typical Biogenesis Experiments

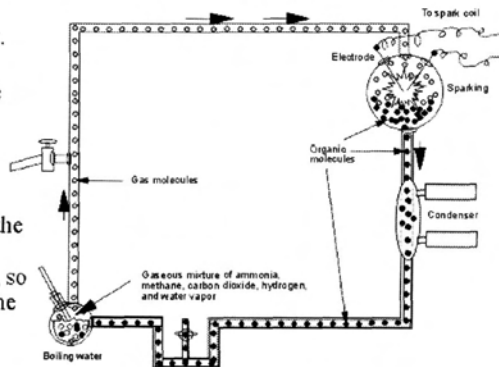


Figure 50 Typical Miller-Fox-Urey biogenesis experimental apparatus.

Herman Kahn, then director of the Hudson Institute (a leading think tank), once remarked that it did not concern him that there existed mechanisms that would destroy all physical life on earth. Instead, he stated, it concerned him that he know almost 200 such mechanisms. The quantum potential weaponry is yet another doomsday weapon with a thousand lethal mechanisms to add to Kahn's list, were he still with us.

The QP Weapon Is a Superb Energy Amplifier "For Free"

In a multiply connected spacetime established between multiple separated (to the observer) stations, one can instantly input one megawatt of power into *every distant station* by inputting it into a single station. Suppose that coupling station is coupled via QP to one million distant stations (scattered anywhere in the universe). Then in each distant coupled station there now instantly appears one megawatt of power, even though we have input only a single megawatt in our "transmitter" coupled station. This is a superb *one-on-many weapon system and energy amplifier*—perhaps the ultimate weapon system.³⁰

AS an analogy for understanding, one can look at it this way. Put a dot (point) on a piece of paper. Mathematics tells us that an indefinite number of other points can be "superposed" directly on that original point. Now input some "energy" into the original point. It instantly appears in each and every other superposed point. That is precisely the way a quantum potential linkage between stations

³⁰ However, we should not be too surprised at such "astonishing" effects, once we appreciate that with the quantum potential and pure longitudinal waves one is playing with infinite energy anyway.

works, except that in normal singly-connected 3-space the points are *observed* by a normal observer to be widely separated. Aristotelian logic—which is an "either/or" logic—does not apply. Instead, a higher topology logic applies.³¹

The QP weapon can be used with microwatt input to induce low-level disease states or pre-disease states (*shadow disease states*) (Figure 51) in entire populations. Tests done in this fashion will violate the "vector carrier" aspect of infectious disease transmission. Instead, the tests will cause a few widely spaced nearly simultaneously cases of the disease being tested. Several such tests (e.g., with necrotizing fasciitis) have already been conducted in the populace of the United States.

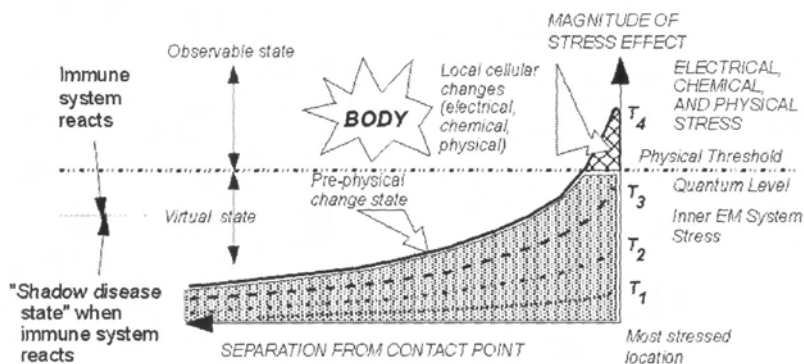


Figure 51 The shadow disease state is that structured virtual state level of the promoting disease engine template, at which the immune system reacts.

Or a QP weapon can be used with megawatt or gigawatt input to blast multiple distant targets simultaneously. One may destroy, e.g., every single transmitter of a given type. Or one may instantly kill all ships and weapons and paraphernalia in a large naval task force steaming toward its target. Or if one wishes to take the ships and equipment, the weapon can just kill all the humans instantly in that task force. ICBM sites, e.g., are vulnerable and obsolete since 1990 to any nation possessing QP weapons. So are underwater nuclear submarines and long-range strategic bombers. The entire strategic and tactical armada we have built up so painfully over the decades is obsoleted—also meaning *countered*—by any enemy possessing sufficiently advanced energetics weapons, and particularly quantum potential weapons.

³¹ We developed such a logic years ago, and have recently included it in *Energyfrom the Vacuum* 2002, *ibid.*

Other Novel Uses of QP Weapons

If an enemy has such QP weapons and you do not, you are easily and directly destroyed at will, once certain other deterrents are overcome. One of these previous deterrents that had to be overcome was the stability of nuclear weapons in our nuclear arsenal. To remove this stability and render them easily destroyed, the holder of a scalar interferometry capability could induce sudden massive fissioning and fusioning of many of the targeted onsite weapons if the scalar potential interferometers were used massively. However, the resulting tremendous nuclear explosions—many "in the dirt and dirty"—would also unacceptably damage the attacker. Further, major antagonists usually clandestinely introduced hidden nuclear weapons into the cities and target areas of their opponents, which practice was known as "dead man fuzing." The notion was that, even if one side suddenly destroyed the other, that destroyed side could still detonate its secret nuclear weapons hidden in the attacker's homeland territory, destroying him as well. In essence, the killed side (the "dead man") had set off the fuzing of his pre-planted weapons, to destroy the attacker even though the "dead man" was already dead.

One strong reason that the Russians pursued the quantum potential weapon so strongly was precisely because it offered a mechanism to solve this "dead-man fuzing" problem, removing it as a viable deterrent. Obviously it would be quite advantageous to be able to dud or destroy these hostile weapons in one's very midst, even though one did not know their locations, and pull the fangs of the dead-man-fuzing installed by one's opponent.

There appear to be ways of directly connecting a QP, e.g., to every atomic nucleus of a given type, in a given region (say, in a region consisting of on the surface of the Earth, in the Earth to some depth, in nearby space, on the surface of the ocean, and beneath the ocean). Connection can be made, e.g., to every U235 nucleus and to every weapons grade plutonium nucleus. Or with the technology developed, the users ought to be able to make such connection only between certain pre-selected *localized amounts* of U235 nuclei or plutonium nuclei.

Now suppose that such a QP is established between weapon-sized groups of U235 atoms. Then one hits one U235 nucleus in such a group in an activator station with a neutron bullet. Voila! One simultaneously hits every other linked U235 atom (including the activator station—one just blew it to smithereens if it contained very many U235 nuclei) in such weapon-sized groups. The raw U235 in ores in nature is still okay if the ore contained only tiny traces of U235 nuclei. But all the "neutron-struck" fissionable nuclei in nuclear weapons worldwide—regardless of owner or location—fission in the weapons immediately. That destroys all the nuclear weapons on Earth—including the clandestine nuclear weapons that various nations have spirited into other nations perceived to be their enemies, as a "checkmate" against sudden surprise attack. *One* does not need to know where a weapon is at all.

However, it gets all the weapons by exploding them, and that itself could create a giant nuclear destruction and fallout problem that would probably do in most life on earth because a great many nuclear weapons will have exploded "in the dirt and dirty." In short, it is an entirely unacceptable solution to the dead-man fuzing problem.

Of course, no *sane* enemy would wish to use the QP in such fashion, because it is quite suicidal for him and essentially destroys civilization. But suppose the sane enemy is well aware of the exact nature of the new cold type nuclear reactions (we explained these in an initial rough paper given in August 1998 at an Energy conference in Utah). The energy initiating these "time-reversed" nuclear reactions starts from "inside" the nucleons in the nucleus and moves outward (that is true of any "reversed" zone).

- Via quantum potential joining U235 and Plutonium in warheads
- Includes weapons airborne, underwater, in storage
- Transmutations of the nuclides themselves
- Part of the initial barrage launched by Aum/Yakuza/KGB
- Will occur in the first minutes (10) of the strategic strike, following psychoenergetically crew-disabling QP weapons



Note: Duds both overt and covert nuclear weapons and weapons-grade materials -- including "suitcase-delivered" covert weapons on site in Russia which otherwise provide dead man fuzing.

Figure 52 Simultaneous dudding of nuclear weapons worldwide. Also duds nuclear reactors and nuclear propulsion systems.

Direct *isomeric transmutation* then becomes a preferred decay reaction to induce in the nuclear weapons one wishes to dud. By gradually inducing (slowly "kindling") one of these transmutation reactions, one can just "transmute" the U235 to—say—an isomer such as U238, with some readjustment and energy balancing in the ensuing rebalancing decay processes. In that way, one gets no nuclear explosions. One can even choose the transformation or several successive transformations so as to minimize any resulting nuclear radiation. The attacker also destroys all the nuclear reactors, including those in civilian power plants, nuclear submarines, and elsewhere. But he gets just about all the nuclear weapons if he transforms both U235 and plutonium (Figure 52). In about 10 minutes he will dud them all, without any nuclear explosions, but he would probably allow about one hour "just for good measure and nearly 100% certainty."

This offered the Soviets the ideal solution to the worrisome hostile nuclear arsenals of the world, since they also had additional nonnuclear strategic weapons of a different kind and of great power.

Apparently that very kind of QP weapon became operational, on site in Russia, circa 1989 under KGB control. For the first time, it provided the KGB with a guaranteed solution to the nuclear dead-man fuzing problem that had until then prevented its massive use of the scalar potential interferometers (such as in 1985-1986 as originally envisioned by Brezhnev).

By almost simultaneously leasing the earlier scalar interferometer weapons to ~~the~~ Yakuza and Aum Shinrikyo at the end of 1989, the KGB obtained an influx of vast new funds {114}. It thus concentrated even more intensely on the more advanced energetics weapons such as QP weapons and psychoenergetics weapons {115}.

So with a QP weapon one can attack multitudes of targets, using a single "coupler" or "transmitter," all without "propagating the EM energy through 3-space." Further, with the technology developed, only the number of outrigger stations coupled limits the energy amplification achievable. One can alter matter at any level, from the quarks in the protons and neutrons in the nucleus, to the lattice bonds, to the molecular bonds, etc. Or one can structure the emerging energy (that emerges directly out of the local spacetime itself), so that structured local spacetime curvatures (engines) appear in the target zone(s). These ST engines can be generated so as to perform macroscopic functions against real systems—e.g., jamming electronics, as against the U.S. air attack on Libya in April 1986 (Figure 25), or as was done by a longitudinal EM wave interferometer in the attack and kill of the U.S.S. Thresher (Figure 6) in April 1963 {116}.

The U.S. Narrowly Escaped Destruction Twice in 1997 Alone

On two occasions in 1997 the United States would have been utterly destroyed by the die-hard faction of the KGB, except for direct countering by a friendly little foreign nation. The present author and three colleagues played a very minor role by alerting that nation to the impending attacks. There was certainly no reason to contact officials of our own country; the U.S. was and is powerless to prevent such attacks, although *hopefully* that is changing! It made much better sense to contact the only nation that could possibly avert our impending disaster. Of course we later also informed proper U.S. government officials of our actions.

The first strategic attack was scheduled for between early to mid-February, and involved (1) dudding all nuclear weapons, (2) striking the QP weapons in the little nation simultaneously, as well as extant scalar interferometer weapon sites in other foreign nations, and (3) then leisurely blasting cities, facilities, and installations with iterative and continued scalar interferometer strikes. This third

phase would include work assigned to the Yakuza/Aum Shinrikyo teams. That is how the Yakuza (and Aum Shinrikyo) expected to revenge themselves for the Western defeat of Japan in WWII, and for the West's dropping the atomic bomb on Nagasaki and Hiroshima. To be able to "get in on the kill" is why the Aum Shinrikyo and Yakuza leased the scalar (longitudinal EM wave) interferometers from the Russians in the first place {117}.

These, along with negative energy EMP weapons, are the kind of energetics weaponry that now determines our fate, and against which the U.S. presently has still inadequate defenses. Our own scientific community does not believe such weapons even exist—apparently due to the "not-invented-here" syndrome. Most of the U.S. scientific community is thus relatively useless and outdated as far as contributing to the strategic survival of the United States is concerned.

Purpose of the Novel Attack on Captain Button

Hopefully, some scientists are aware of the strange incident that involved the mental seizure of Captain Button in his A-10 (Figure 22) and controlling him for well over an hour (Figure 23), including controlling his perceptions, intent, and actions while performing complex technical tasks. That was the test of a KGB *psychoenergetics* weapon, developing and to be deployed by the KGB. That was the "acceptance test", so to speak—deliberately conducted over the United States—for the KGB's system that would be produced in numbers sufficient to counter the QP weaponry, if the QPs of the little friendly nation were to be placed in the insane command and control mode. This was yet another Soviet counter, planned for the near future against the counter by which the little nation did force abortion of the KGB second attack (scheduled for May 1) in 1997.

The purpose of the attack on Captain Button can be understood as follows: The later second scheduled strategic attack on the U.S.—scheduled for May 1, 1997—was forcibly aborted after the friendly defending nation switched to an *insane* command and control mode. The insane C3 mode counters the MindSnapper type attack that instantly kills all on-site operators and renders the sites too "hot" for new personnel to come in from outside and control it. In short, the U.S. could have been destroyed in that scheduled May 1 attack, but with the change of the friendly QP weapons to insane C3, Russia would also have perished in the immediate quantum potential counterblow from the little nation³² that would have been automatically delivered by the site weapons themselves. The May 1 attack had been predicated upon the fact that a preliminary MindSnapper (negative energy EMP) attack on the friendly QP

³² There are also variations. As an example, the insane C3 can also include a separate channel requiring a countering "punch in" code every 15 minutes (as in a heightened alert status) or the control system will order the launch initiation (this accepts that all on site personnel have now been suddenly killed). So the insane control system is also flexible, and many variations and considerations are possible.

weapon sites would have instantly killed all persons on site,³³ and neutralized the site for some months because of the resulting longitudinal EM radiation. However, the shift of the C3 of the QP weapons to insane mode rendered such a pre-emptive MindSnapper attack totally ineffective because Russia would still have been destroyed.

Hence another countering means was required, and in fact that additional system was already in development. It was a very sophisticated array of psychoenergetic weapons, each with a special, highly trained team of operators capable of fully controlling one targeted individual while he was directed and controlled to go about performing desired technical tasks. We estimate that it required one psychoenergetic weapon (very complex, multiple transmitters) and an operator team of perhaps 20 to 30 skilled operators (one for each major human function to be controlled) to adequately control the mind and actions of one distant person performing quite technical tasks. Hence several hundred such "weapon sets" were required to take over all persons on the targeted QP weapons sites in the friendly nation, have the controlled crews deactivate the QP weapons including using the security code and procedures to standdown for maintenance, etc.

Once the QP weapons were totally on standdown, then the MindSnapper would have struck suddenly and killed every living thing on site, neutralizing the site for several months due to subsequent strong longitudinal EM wave emissions from the struck site. No new crews could have entered the site and lived, so the sites could not be operated after MindSnapping, even though the QP weapons were still intact but just on standby. Of course, a third phase then would have involved strikes by scalar EM interferometers to leisurely and completely destroy the systems and sites, permanently taking out the physical system as well.³⁴ With the first two of that three-part series of strikes completed successfully, then the KGB weapon sites would have been absolutely free to blast North America and our European allies into smoking ruins, leisurely and at will, given the first 10 minutes of dudding all nuclear warheads worldwide, to take care of that old type of "dead man fuzing".

From the open reports of the Button incident, and from the kill of Captain Svoboda a few weeks later, the nature of the next strategic attack that would be scheduled was immediately apparent. Accordingly, we warned the little nation about the shift to a new attack plan, and estimated the new schedule between mid - 1999 and the first of 2000. Of course, we also passed that information on to

³³ We point out that it required a longer time to develop the more powerful negative energy EMP weapons capable of just destroying the sites, personnel and all. The first effective weapons of that type could easily kill personnel brains, nervous systems, and hearts while still doing little damage to the much more robust QP systems and on site equipment.

³⁴ We strongly believe there are shielding provisions at those sites, against scalar interferometry attacks, which reduces their effectiveness and delays their destructiveness. However, so far this analyst has not deciphered those shielding methods or mechanisms.

our government as well, but apparently, no one believed it. The proper U.S. intelligence agencies, however, certainly intercepted my faxes to the little nation's Military Attache in Washington D.C., and particularly my fax a few days before May 1, sent directly to the Prime Minister of that nation and urging the change to an insane command and control system for the QP weapons and the reason why.

It turned out that, some months after I alerted them to the coming psychoenergetics, MindSnapper, and scalar interferometry attack in that order, to be scheduled between mid-to-end of 1999, apparently the friendly nation suddenly struck and utterly destroyed the KGB facilities for the MindControUer negative energy EMP weapons being painfully built up in sufficient number. Probably scalar interferometry weapons were used to destroy them. The onsite psychoenergetics crews and facilities were destroyed and neutralized completely.

Anyway, as we passed mid-1999, the type of "Y2K" problem we were worrying about was whether or not the attack was on, headlined by a psychoenergetics weapon strike on the little nation first, with the three phases as previously scheduled back in 1997.

Later, in early 1999 I realized the Russian/KGB development of the causal system robots (Figure 10), mentioned in the introduction. In the latter part of the third quarter of the year, working at my computer at night, I was struck by one of these very beasts from within my computer (Figure 20), in very bizarre but unmistakable fashion (previously detailed). In 10 seconds I was nearly killed and severely disabled for a period of time (it took four days to recover completely). Because of the features deliberately utilized by the CSR on my computer screen so I would recognize it, I grasped the nature of the attack (the KGB *wanted* me to recognize it, and live to tell about it!), how it was done, how it jammed the brain and vision center and strongly fibrillated the heart, upset the equilibrium, etc. I also realized that, in 20 seconds or so additional exposure, I would have been a very dead person, expiring with a very violent heart attack and severe brain embolisms. Note that the CSR deliberately struck directly from the computer screen through my retinas and onto the nervous system, passing through the vision center and flashing it tremendously, and jamming my mind, brain, and nervous system.

When I recovered shakily about four days later, I notified the small nation, once again, as best I could, giving the exact symptoms of the attack and explaining what it was. By then I knew what was coming down, the form it would take, and the deceptive cover (Y2K uncorrected errors!).

The little nation then quickly proceeded to search out—apparently *inside* the North American signals, potentials, fields, and waves "superhighways" for the CSRs—all the CSRs and destroy them in place. It turns out to be a fairly straightforward operation, once one possesses advanced longitudinal EM wave

interferometry weapons and techniques. Locating a "very dense" and very dynamic set of LWs performing organized functions is analogous to a normal radar locating a large bomber in cloud cover. One "burst" from the LW "radar," and the targeted CSR is completely disrupted and electronically destroyed.

So a very short (lasting a few days) and strange strategic battle was fought in infolded space or subspace, inside our electrical and electrical systems and inside the fields, potentials, and waves in them. A mighty attacking armada of perhaps several million main battle systems was intercepted and destroyed throughout our homeland, without the slightest notice by our own government, scientific, and intelligence communities. And without a whimper of what is usually recognized as "combat actions".

Afterwards, a very simple and innocuous little message was received which, reading between the lines, simply meant "thank you very much." In short, my hard-pressed colleagues and I got a small "Attaboy!" for our role in alerting the friendly nation.

So Y2K and the Millennium Celebration came, while we waited to see if the CSRs were gone or if they would erupt with damage all over the U.S. Fortunately, they were gone like popping balloons, and so the *fourth* scheduled strategic attack upon the U.S. in the space of three years—this time actually launched—was successfully destroyed.

Whatever I can do to help the survival of my country I will continue to do without hesitation, regardless of whether the U.S. scientific, intelligence, and military communities are aware of the new threat or not, and regardless of whether they believe it or not. Presently our fate and that of the Western world rests on the shoulders of a small but advanced and friendly nation. That is beginning to change, it seems, but still not swiftly enough to suit our needs.

We simply must change all that, by developing QP weapons and defenses ourselves. It is not an option; as an example, China has now finished—as of earlier 2002—and deployed QP weapons. Almost simultaneously, China also finished and deployed the more powerful negative energy EMP (MindSnapper-type but much more powerful) weapons and deployed them as well. So we have entered a very dangerous period when the strategic changes that are likely to occur will be both massive and traumatic.

AS this is being written in early October 2002, it is obvious that our nation is also preparing to strike Iraq if need be, either with a coalition effort or alone. If so, then Saddam Hussein will certainly unleash whatever terrorist forces he has in North America. He will attempt to unleash upon us all the weapons of mass destruction at his command. This could even happen within the next 30 days, with the MidEast exploding, giant polarization of the Arab world, general chaos in the MidEast and upset of world oil supplies, and skyrocketing fuel and energy costs with severe impact upon the already seriously ailing U.S. stock market.

If Saddam Hussein succeeds in doing sufficient damage to our cities and energy infrastructure with more weapons of mass destruction than we have credited him with, then the potential economic collapse of the United States and much of the developed world is an uncomfortable possibility. If that happens, turf wars will erupt all over the world, the world economy may collapse, the KGB and rogue Japanese (Yakuza and Aum Shinrikyo) will move and unleash further destruction, Pakistan and India are likely to erupt into a nuclear war, and several other regions may also erupt into nuclear war and use weapons of mass destruction. What China might do in such event is anybody's guess.

In short, the Armageddon we have so long feared, with the resulting collapse or destruction of much of civilization, could well be approaching. Let us hope that dark picture is terribly, terribly wrong, and that we successfully avoid Armageddon one more time!

Meanwhile, we would be in much better shape to weather the coming storm had our scientific community not grossly betrayed us. But if and when millions of Americans are dying in the streets with no effective means of treatment, and no effective defenses to prevent onslaught after onslaught against our nation, all those deaths and all that suffering will be directly the fault of our own organized scientific community.

Rogue Japanese (Yakuza and Aum Shinrikyo) Have a Role

In the information briefing furnished the previously named agencies, we briefly detailed the elements of the attack, how our own nuclear weaponry can be duded anywhere, etc.

We also detailed the strange role of the Japanese Yakuza and the Aum Shinrikyo, who leased the operational use of the early generations of KGB longitudinal wave interferometry weapons in 1990 directly from the KGB. The first down payment on the lease was \$900 million. I previously furnished pertinent information on this to an investigative U.S. Government agency. Since then, the Yakuza have set up their own scalar interferometry weapons development facilities in Japan, including portable energetics weapons,³⁵ and have assumed a very secret and nearly unsuspected role somewhat similar to Bin Laden's role in the attacks of September 11, 2001—but much more deadly when the coming Armageddon erupts.

Inducing the Gulf War Disease

In 1986, the Russians had already solved the dead man fuzing problem theoretically, but had not yet completed the development and deployment of the

³⁵ We strongly suspect some of these portable weapons have already been infiltrated into the United States—e.g., to be used against nuclear power plants and other lucrative targets such as refineries, oil fields, etc.

necessary QP weaponry. The KGB's first "combat demonstration" test of the **ability** to localize a QP in a selected region of space was against the U.S. air attack on Libya in 1986. That test apparently used a laboratory apparatus to prove the process. In short, it was a major milestone whose success moved the system into full production engineering and production. The system was then developed at very high speed after the successful demonstration in 1986. The first strategic KGB QP weapon(s) became operational on site in latter 1989.

It was this QP weapon that was used to generate the so-called *Gulf War Disease* in our soldiers in the MidEast. In the action package, I explained precisely how that was done. I have also finally placed the simplified gist of that explanation openly on the Internet for all to see (website www.cheniere.org). Those suffering U.S. veterans were *casualties of war*, not victims of just nerve gas whiffs or chemicals or their own stress, etc. The initial U.S. Government and U.S. scientific community's assertion that "it was all in their heads" and due to stress, insults every veteran who has ever served his nation. One justifiably has contempt for such treatment of our veterans. Sadly, the latest "studies" are **beginning** to conclude the same thing once again.

Apparently our intelligence and military command agencies have not yet learned **the** lesson of the decades long Soviet microwave radiation of the U.S. Embassy in Moscow, which was responsible for health changes of many kinds in U.S. personnel and was also responsible for the deaths of three U.S. Ambassadors to the Soviet Union. Apparently we are still using radar engineers and electrical engineers for electrodynamics analysis, and these analysts apparently still believe that in the absence of the EM fields there can be no induced EM effects. One sadly comments that, just as the electrical engineering departments of our universities have been unable to walk across the campus to the particle physics department and find out what the discovery of broken symmetry in 1957 portends for their discipline and model, then the intelligence community apparently has not yet learned that no EM analysis of such things as the microwave radiation of the U.S. Embassy in Moscow or the shootdown of the TWA-800 is worth a tinker's dam unless it is a higher group symmetry EM analysis. As Barrett showed, our fellows still have not grasped what Nikola Tesla already accomplished in actual patented circuits circa 1900 and shortly thereafter. Tensor analysis and vector analysis simply will not show what is really there.

Our veterans were hit with a "cocktail mix" of specialized disease "spacetime curvature engines" just below the observable threshold, in the "shadow" (virtual, but nearly observable) state³⁶ (Figure 53). The immune systems and the cellular

³⁶One should think deeply about this, in terms of the solution to the source charge problem (which our engineers have not thought of very much, much less solved). Every charge already "engineers" the virtual state at will, converting virtual energy into deterministic observable EM energy. That means we can directly engineer the virtual state vacuum itself if we put our mind to it. **Actually** Nobelist Lee has already pointed out that we have *not even tried to do this!* See T. D.

regenerative systems do react to that shadow state level.

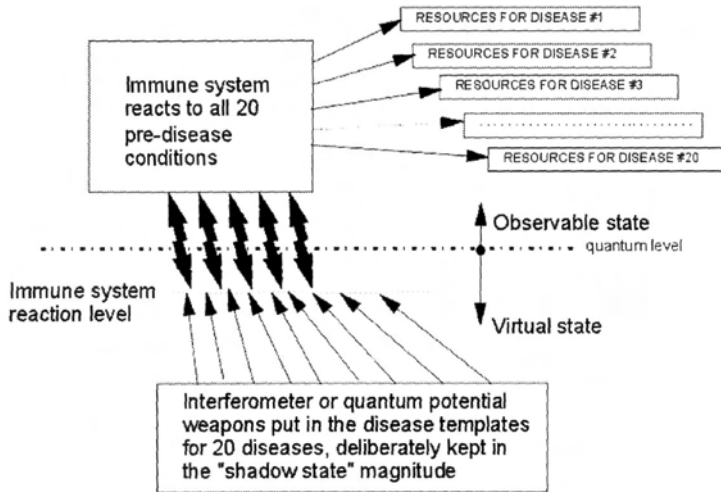


Figure 53 Spreading (thinning) the immune system's ability available to meet a new pathogen.

Such a "simultaneous mix" shadow induction "spreads" the reacting *finite* immune system and regenerative system (Figure 53) and their resources all across that entire mix of shadow diseases, so that only a much smaller portion of the immune system and of the regenerative system is directed against *any one* of the shadow diseases. This in turn greatly heightens (by a factor of 5 or more) the susceptibility of the body to all additional disease pathogens, and it greatly lowers the ability of the body to recover from any disease or biological warfare strike. In addition, the exposed veteran's body fluids and masses have accumulated a persistent "time-density charging" that very slowly decays (by emission of weak *longitudinal* EM waves) over months or even a few years.³⁷ The sperm from these veterans did indeed have the innate "engines" and therefore the capability to gradually infect their wives. So did the saliva in their mouths. The weak "dimensioned" LW radiation from their bodies could also slowly alter the cellular regeneration and immune systems of their family members in close proximity, over a period of time, thus inducing the disease in them {118,119,120}.

Lee, *Particle Physics and Introduction to Field Theory*, Harwood, New York, 1981, in his "Chapter 25: Outlook: Possibility of Vacuum Engineering," p. 824-828. On p. 383 Lee points out that the microstructure of the scalar vacuum field (i.e., of vacuum charge) *is not utilized*. We add that the West does not utilize it. It has been utilized for some decades in the former Soviet Union and now in the continuing KGB energetics and bioenergetics weapons programs.

³⁷ See T. D. Lee, "Can Time Be a Discrete Dynamical Variable?," *Phys. Lett.*, 122B(3,4), Mar. 10, 1983, p.217-220.

The induction of GWS in our troops was in fact a test for the *present* clandestine use—already ongoing—of that technique to spread the immune and regenerative systems of the targeted U.S. population. This in turn gradually makes us more susceptible to terrorist BW attacks and disease pathogens of all types *from anyone else*. This tactic is already in place and accomplished, and it will substantially increase the American civilian casualties in our cities when they are subjected to terrorist BW attacks in the near future. *Those attacks now will have some five times the effectiveness that our present planners estimate*. In short, it is going to insure the deaths of millions more Americans. The approaching war in the MidEast, with Saddam Hussein's unleashing of his terrorist assets in the U.S. to the maximum extent possible, thus will probably see a five-fold increase in the effectiveness of some of his mass destruction weapons that Hussein's assets are able to unleash on America.

The entire affair of the Gulf War Disease was both a preliminary test and also a magnificent intelligence probe by the KGB, to clearly demonstrate once again that the U.S. Government and the U.S. scientific community are still nearly totally unknowledgeable of QP weaponry, immune and regenerative system "spreading," disease induction by bioenergetics means, etc. It follows a methodology used with great success for four decades by the KGB,³⁸ and one that our own government, scientific community, and military community has yet to decipher. *So long as the threat only slowly increases, Americans remain complacent in their ignorance, ignoring the boa constrictor slowly strangling them, while awaiting the cobra seen in the distance?*³⁹ We have unwittingly cooperated with the KGB boa constrictor for four decades, even as it slowly prepared to crush us. In the Gulf War, that crushing moved to the next threshold, to actually inflict casualties and deaths on U.S. troops and totally get away with it because of the bioenergetics (in the Russian sense) ineptness of the U.S. scientific community.

³⁸ The decades-long microwave radiation of the U.S. Embassy and induction of health changes and diseases, was a case in point. A high level target—the U.S. Ambassador—was involved, guaranteeing U.S. Government attention at the highest level. Puzzled, the U.S. government would then call in their most trusted EM scientific analysis groups. By the responsive actions then taken by the U.S. at the Embassy, the KGB could ascertain with absolute certainty whether or not our scientists knew of the use of infolded engines in bioenergetics. For more than four decades our actions assured them with 100% certainty that we knew nothing of what their "information content of the field and potential" actually was, or how it had been weaponized and was being used right in front of our faces and before the entire world.

³⁹ It is bizarre that our scientific community—even after those decades of EM induction of diseases and health changes in American personnel in the U.S. Embassy in Moscow—*still do not and cannot believe that conditioned EM radiation can induce cellular disease*. Such total blindness is inexplicable.

40-Years of Russian Induction of Diseases In U.S. Embassy Personnel

Sadly, our own fellows have never even figured out how the diseases and health changes were previously induced by the KGB for decades in personnel in the former American Embassy in Moscow. Three U.S. Ambassadors to the Soviet Union died as a result of their exposure to that radiation. Many other Americans on site were made ill or suffered health changes.

When Johns Hopkins scientists studied the problem, they found a most anomalous thing: no health changes occurred in areas *where the EM forcefields existed* in the microwave radiation. Instead, the health changes only occurred in areas where the potentials were gradient free so that the force fields were zero—and thus the potentials (and their specific internal "engines") were *persistent*. Using only a classical EM force field analysis—which does not show any of the internal longitudinal EM wave substructuring of the fields, potentials, and waves—the Johns Hopkins scientists erroneously concluded that it could not have been the weak microwave radiation causing the health difficulties, *because no such health difficulties occurred where the forcefields were present*. That is, they very naively assumed that "no force fields" meant no EM effects were possible. Their entire findings thus were based on a total non sequitur, the assumption that there can be no electromagnetically induced physical changes in matter in the absence of fields! The Aharonov-Bohm effect alone falsifies that entire premise. So does general relativity and higher group symmetry electrodynamics.

Actually, the Johns Hopkins scientists had just clearly proven the exact opposite: *that it indeed was the radiation that induced the health changes*. That is simply shown statistically, and it is a deep and continuing mystery how good scientists and their governmental overwatch did not notice the violation of inference methodology.

Simply put, there was 100 percent correlation to the presence of *gradientfree EM potentials—the persistent kind*. There was zero correlation (or 100% anticorrelation) to the presence of the normal electric and magnetic fields—i.e., where the potentials changed over a very small region of space. Hence it could only have been the constant potentials, else we must throw out statistical inference theory altogether.

If the changes had *not* been caused by the EM radiation at all, one would have had some health changes in regions where fields were present and some health changes where the fields were absent. Considering the lengthy time the radiation persisted and the number of personnel affected, the statistics are decisive. Without question, the cause was indeed the persistent potentials where the **force** fields were zero. Whittaker's two papers—one in 1903 and the other in 1904—would then show how it was done. The 1904 paper and superpotential theory alone would *not* have explained it, since that alone does not include the

"information content of the field"—i.e., spacetime curvature engines infolded inside the normal EM potentials, fields, and waves.

So, the U.S. government and U.S. scientific community "botched it badly," unfortunately, by elemental statistical inference standards. And unfortunately, they have continued to "botch it" to this day. Both the scientific community and the intelligence community missed it. Elementary statistics theory alone, coupled with the Johns Hopkins results, clearly indicates that the microwave **radiation** was causing the health changes, to a very high degree of confidence.

This demonstrates how "totally inexplicable" some of the effects generated by longitudinal EM wave interferometry and by "structured" or dimensioned **potentials**, fields, and waves can seem to our conventional scientists. If we examine the serious foundations flaws in classical electrodynamics and electrical engineering taught in our universities, and the near-total lack of higher group symmetry electrodynamics training, we can understand why our scientists and intelligence analysts did not and do not have the background required to properly assess the incidents and effects.

Western Electrodynamics Is in Sad Shape

Actually, numerous scientists have long pointed this out. For example, quoting Mario Bunge {121}: *"...it is not usually acknowledged that electrodynamics, both classical and quantal, are in a sad state."*

In quantum electrodynamics, it is the *potentials* that are the primary causes of all electromagnetic phenomena, not the force fields as used by Johns Hopkins and the Government in its analysis. We know that classical EM is wrong in its focus upon force fields as primary EM causes; the Aharonov-Bohm effect, Berry phase, and geometric phase work in some 20,000 papers in the physics literature **already** show that. Indeed, we also know that the classical force fields do not even exist apart from mass; in space, only the potential for such a force field exists, in case some charged matter is brought in to interact with the EM entity as it exists in mass-free space (as curvatures of spacetime).

The Aharonov-Bohm effect and its implications have been published in *Physical Review*—our most prestigious physics journal—since 1959. Later publications have included the Berry phase extension of the AB effect, and Aharonov and Anandan's further extension of the Berry phase to what is today called the *geometric phase*. The potentials are indeed the primary EM causes, and *the force fields do not even exist as such in mass-free space, but only in mass*. Yet our classical EM taught in our universities has not been changed in its fundamental acceptance of the material ether since 1865.

Every university in America is still teaching and defending a rather mangled electrodynamics where

(1) The material ether is still assumed, even though destroyed more than a

century ago by the Michelson-Morley experiments;

- (2) The force fields are erroneously assumed to exist in massfree space, but in force-free form(!!!) when what actually exists there as an EM disturbance is a general relativistic perturbation of spacetime (i.e., an oscillation of the local curvature of spacetime). Actually, force identically is the time rate of change of momentum, where momentum is mass times velocity. Thus mass is a *component* of force and force field. There is no force or force field without mass. As Feynman put it, there is no force field in massless space; instead, there is only the potential for such a force field to be formed at the various points, should a charged mass be placed at (added to) each of them;
- (3) The source charges are erroneously assumed to *create* their fields and potentials and all that energy in them, reaching across the entire universe from each and every charge, right out of nothing at all. This perpetual motion and creation of energy error continues even though particle physics has known (and proven, both theoretically and experimentally) that any charge (as a set of composite dipoles, when the charge is taken with its clustering virtual charges of opposite sign) is a broken symmetry in its fierce energy exchange with the vacuum. Hence the charge extracts that energy in its fields and potentials *from the active vacuum*, and outputs the extracted energy across space {122}.

Our own electrodynamicists and electrical engineering professors and departments would have us believe - and they continue to imply such in every university in America—that every charge is a perpetual motion machine clearly in violation of the master energy conservation dictum that *energy can neither be created nor destroyed*. The complete lack of scientific understanding that every charge extracts energy from the vacuum and freely and continuously pours it out as real observable EM energy, is reflected in rather silly "witch-hunts" {123} against electrical systems which exhibit more energy output than the operator himself inputs—i.e., systems which exhibit a coefficient of performance (COP) of $COP > 1.0$, which are open EM systems far from equilibrium in their active environmental exchange.

Let us reason together! If the second law of thermodynamics really did prohibit $COP > 1.0$ *electrical* systems, then it also would prohibit the demonstrated $COP = \infty$ of a solar cell array. It would also prohibit the demonstrated $COP > 1.0$ *mechanical* systems such as a windmill, waterwheel, or sailboat—all of which have $COP = \infty$! In other words, the second law cannot even be a law if it discriminates only one type of energy prohibited from being used for $COP > 1.0$,

For some inexplicable reason, EM $COP > 1.0$ systems have come to be dogmatically labeled "perpetual motion machines" by the professional skeptics since EM systems must take their excess energy from the known active vacuum environment! In short, the dogmatic scientific community is saying that "windmill-type EM systems" with $COP = \infty$ are permissible for exchanges with

physically active and observable environments (such as the sunlight used in solar cells, the heat in the air used in heat pumps, the water currents used hydroelectric power plants, the winds used in windmill power generation, etc.), but they are not permissible for exchanges with the proven modern active vacuum *virtual particle flux energy* environment, even though the discovery of **broken** symmetry in 1957 already proves that all EM energy is indeed freely taken from the seething vacuum environment by the asymmetry of the modern dipolarity of the source charge! We refer the interested reader to the proven broken symmetry of opposite charges {124}. We also refer the reader to Nobelist T. D. Lee's statement applicable to the skeptics' naive notion of symmetry. Finally, in modern physics all the major forces of nature are generated by the exchange of virtual particles. It is these forces that then translate against a resisting mass or entity to provide useful work. So all useful work in the universe already comes from the interactions of the seething virtual flux of the vacuum. On what distant planet have the skeptics been hiding while all this modern physics has been developed?

One must keep one's sense of humor! It is ironic but true that every major university in the U.S. continues to teach, uphold, and advocate—by implication—EM charges as ubiquitous perpetual motion machines, freely creating energy from nothing. And that is those professional skeptics and witch-hunters never mention that their own naive understanding of electrodynamics **already** implicitly assumes and teaches perpetual motion machines freely creating energy from nothing at all—and on a scale unparalleled in scientific history!

We have one chart with some 32 major foundations errors and flaws in the electrodynamics taught in all our schools; there are many others in addition. **This** erroneous teaching has so indoctrinated our graduate students that most **electrical** engineers no longer know the real difference between power (the rate of change of form of energy and thus the rate of production of work) and rate of **energy** flow (whether it is being dissipated or not).

Every textbook speaks of "sources furnishing power," when it is the rate of dissipation of energy in the individual loads and losses to provide the rate of doing work that *constitutes* power. Sources do not furnish power! They furnish energy flow (specifically, their source dipole furnishes energy flow, extracted and transduced directly from the active vacuum, and only a tiny bit of that enormous energy flow is diverged into the circuit and used). The various components of the receiving circuit interact with that energy flow to catch and dissipate a little of it, thus producing power and work locally in the intercepting and dissipating component.

A massive nondivergent (nonintercepted) energy flow has zero power (time-rate of doing work), but if intercepted and diverged, the divergence may develop enormous power (time rate of doing work) in and upon the interceptor, diverger, or collector. Even many physicists today are confused on the difference between

rate of work and rate of energy flow per se. E.g., for about 30 years now, there has been a polite debate involving that very subject in the *American Journal of Physics*. It is still not completely resolved, because the argument has not actually addressed where all EM energy in fields, potentials, and waves comes from in the first place: directly from the seething vacuum via the asymmetry of the source charge. It also has not addressed the long unaccounted giant Heaviside nondiverged energy flow component.

Toward a Deeper Electrodynamics

The first thing the Soviet Academicians did after WW II was to completely overhaul electrodynamics, but in highly classified areas controlled totally by the KGB. Stalin's boot firmly planted on their backside saw to it, creating the terrible fear that if they failed to produce, they would surely die. Not having experienced such a "Stalin boot," our own scientific community continues leisurely onward, while it teaches 110 years old electrodynamic material filled with non-sequiturs.

The Russian use of the "information content of the field" euphemism is a case in point. Our fellows (in both the intelligence community and the scientific community) assume the Russians are speaking of simple transverse EM wave spectral analysis. Nothing could be farther from the truth. Let me explain.

In 1903, E.T. Whittaker—a leading theoretical physicist at the time—showed that any scalar potential is comprised of a harmonic set of bidirectional *longitudinal EM wavepairs*. Each pair consists of a longitudinal EM wave and its true phase conjugate replica (i.e., its "antiwave", or time-reversed twin, coupled together).

Unknown to Whittaker, that LW wavepair actually includes a *time-density wave* in the time domain, coupled to a longitudinal EM wave in 3-space. Per quantum field theory {66}, such a coupled pair would be observable as the scalar potential. Knowledge of this specialized coupling is necessary in order to properly decipher the Priore mechanism. That mechanism was demonstrated to *time-reverse* (dedifferentiate) a diseased or damaged cell and all its parts back to its previous normal state, *genetics and all*. The time-reversal was accomplished by "pumping" the cell and all its parts in the time-dimension so that time-reversal propagation of the mass-energy is achieved. The time-domain pumping is done by the associated time-density wave, which always accompanies any longitudinal EM wave a priori. So sometimes we sloppily say that the "longitudinal EM wave pumping" causes the time reversal of the mass, but it is really the associated time-density wave pumping that causes it. The time-density wave component also can cause *time charging* or *time-excitation charging* of a mass. During its alternate existence as masstime, the time portion is altered, and that is a time-excitation or time-energy excitation.

It turns out the human cellular regenerative system (Figure 29) also uses the

same time-excitation charging methodology to produce time-pumping of the cell and all its parts. This produces a slow time-reversal (dedifferentiation) of damaged cells back to a previous state. This is in fact the basic mechanism for healing, as used by the living body.

Reversing aluminum, for example, just converts it back to ordinary aluminum. Not too interesting.

Reversing an HIV infected cell, however, would produce a healthy, normal cell with normal genetics. When a damaged cell turns into a cancerous cell, it is due to a process called *promotion* (change of the cell to a cancerous cell). *Reversing a cancerous cell would change it back to a healthy, normal cell again—in short, it would constitute demotion of cancer and then healing of the damage in the now normal but damaged cell.* In the AIDS patient, simply pumping the entire body with the time-density wave accompanying the longitudinal EM waves produced in a plasma—as Priore did for terminal tumors—would time-reverse all cells, completely ridding them of any residue of HIV infection. This would remove all the "HIV factories", thus completely solving the problem of AIDS. We have also uncovered a more advanced process where *matter can essentially be directly engineered in any conceivable manner*, including nuclear transmutation etc. We have filed a Provisional Patent Application and will file formal patent applications on those processes in the future, as soon as funds are available (patent attorneys are expensive!)

Time Is Highly Compacted Energy

Since time is energy compacted by some 9×10^{16} , even small time-density changes can produce enormous spatial energy, should any of that compacted energy be *transduced* from time-density waves into transverse EM waves and thus into spatial EM energy. Such transduction can indeed occur in nonlinear materials and processes, such as in electrolysis.

The New Transduction Model Explains the Cold Fusion Results and Mechanisms

In August 1998, we presented a conference paper pointing out that cold fusion uses this very *transduction of EM wave types*, one into the other. We presented such new concepts as (i) TW to LW to TDW transduction and in the other direction also, (ii) time density charging of a particle to an excited time-density state (analogous to energy charging to an excited energy state), and (iii) the observation that excess phase conjugation in a local region can generate a time reversal zone where like charges attract and unlike charges repel.

With these concepts we were able to explain the excess heat appearing in the cold fusion experiments of hundreds of researchers. We also came up with (iv) a totally new class of nuclear reactions without the usual high-energy

considerations. That is, we showed the exact nature of the electronuclear reaction that is forming the anomalous nuclides in cold fusion experiments. Production of the new nuclides was revealed to be simply what one would expect from this mechanism, as indeed was particle clustering of like-charged particles.

We also explained (v) all the instrumental anomalies occurring in a series of well-documented cold fusion electrolysis experiments at China Lake. In fact, (vi) we added a completely new term to the conservation of energy law, thereby extending it.

An updated explanation is included in my new book, *Energy from the Vacuum*, 2002, *ibid*. With the new transduction interactions, one must state that the total energy in (a) spatial energy form, (b) mass-energy form, and (c) time-energy form is what is conserved.

So when transduction occurs in cold fusion experiments (electrolysis), some of the time-density charge energy is gradually transduced into ordinary transverse EM wave energy, which as it scatters produces excess heat not accounted for in present particle physics interaction models.

Scientists with only the "old" 2-term Einstein conservation law in mind, will be firmly convinced that this excess heat represents a violation of conservation of energy, hence is impossible. So they will question the calorimetry ability of the cold fusion scientists, etc. Unfortunately, the more ardent defenders of the orthodox faith will unjustifiably impugn the intentions and morals of the experimenters themselves with vicious ad hominem attacks. Such has indeed been precisely the case. Many of the harsh scientific critics have acted like cur dogs in a pack attack, and not as scientists at all.

Once one analyzes cold fusion in the new 3-term conservation manner and with the new transduction concepts, one immediately sees that the *overall* conservation of energy is upheld, while the *special case* represented by the former energy conservation law (conservation of the sum of the spatial energy and the mass-energy) is *permissibly* violated. The former case was a special case in that it arbitrarily assumed that no transduction of time-energy into spatial energy or mass energy—or vice versa—occurred.

In essence, successful cold fusion experiments show that, via transduction, a bit of time itself can be "utilized for fuel" and transduced into ordinary EM energy. Energy-wise the system has become a nonlinear open dissipative system⁴⁰ far

⁴⁰ But we point out one idiosyncrasy of thermodynamics, which defines a "closed system" as one in which mass does not cross the system boundary, but energy is free to exchange across that boundary {125}. Hence, eerily a "closed thermodynamic system" is actually an open system with respect to energy exchange between system and environment. As such, energy-wise the system can be a system far from energetic equilibrium with its external active environment, and still be considered a closed thermodynamic system! Energetically, a closed thermodynamic system that exchanges energy but not mass is permitted to exhibit $COP > 1$.0 and even $COP = \infty$!

from thermodynamic equilibrium {125}. As such, it is permitted to (1) self-organize, (2) self-oscillate, (3) output more energy than it itself has, by merely receiving, converting, and using excess energy from its environment (in this case, from the transduction of a tiny bit of the time-charging that has occurred), (4) power itself while simultaneously powering a load or performing useful work, and (5) exhibit negentropy. With the exception of transduction of time-charge into excess energy, all of that is already in the thermodynamics texts, though it has not been clearly spelled out in electromagnetics texts. The source charge, e.g., exhibits all five of those capabilities. *The inclusion of the time-domain as part of the external active environment, however, is an extension of previous open dissipative system work by leading researchers such as Prigogine. It dramatically extends the meaning of "active environment".*

Why There Is a Time Delay in the Onset of Cold Fusion Phenomena

With an energy-to-time compaction ration of 9×10^{16} , energy processes have to transduce spatial energy into time for quite a while in order to build up very much time-excitation charge. This leads to an initial delay in the onset of the "new law" transduction phenomena, as directly shown by the vast majority of careful cold fusion experiments. This build-up occurs during the "palladium-lattice loading" time, e.g.

By the same token, there is a time delay after cutoff of the input power to such experiments, during which time the slowly decaying time-density charge by its transduction into spatial energy continues to maintain the anomalous new processes (such as excess heat production) as they slowly subside. So the hours-long or even days-long delay phenomena after input power shutdown are also explained by the new approach.

In summary, there exist some very anomalous but very good experiments by excellent scientists—more than 600 of them—that are at least totally consistent with the above new wave polarization transduction model. Consistency with experiments is the first element of proof (it is necessary but by itself it is not sufficient). The new model also contains and obeys the conventional conservation of energy law until the new transduction phenomena become observable, at which time the extended energy conservation law applies. So in its lower limit, the new model corresponds to the present model—again, another requirement of any model purporting to extend a scientific area past that area's conventional model description.

The KGB weapons scientists—not the regular Russian academic establishment—have about a 40-year lead on us in all these areas. While our own scientists have dallied and pursued the standard model, the Russian weapon scientists have produced the equivalent of 10 Manhattan Projects, back-to-back, in the "new" energetics area.

The Early Soviet Longitudinal Wave Interferometers

Using longitudinal EM waves, the early KGB energetics interferometers could pass their beams right through the earth and ocean. LWs readily penetrate matter, reacting with it only weakly.

Some LW interferometry was also done using ordinary EM waves as carriers for the LW wave functions. Each such transverse wave carrier is in fact two scalar potential functions (Whittaker 1904, the initiation of superpotential theory). In each scalar potential for which functions are extracted and used to make the normal transverse carrier wave, there exist LW biwave pairs comprising said potential. So by assembling the desired LW biwave subsets, the two scalar potentials and their resulting interference-produced carrier wave are internally structured as desired. This is the use of the so-called internal information content of the field. We speak of such a deliberately structured potential, field, or wave as having been conditioned, dimensioned, or activated. If these terms are deemed inappropriate, just use the more generic term "internally structured." Then one has to explain what the "internal" is, and how this "internal" can be "structured."

In the distant interferometry zone, those *dimensioned* potentials, fields, or carrier waves would interfere and produce the desired alterations in the local spacetime (including specific spacetime curvature engines). Remember, the potentials are just bundles of special waves. We are discussing a special form of nonlinear multiwave interferometry, where the individual waves and waveforms comprising the total wave package assembly constituting a carrier have been carefully chosen in advance.

In the local spacetime in the distant interference zone, such multiwave longitudinal EM wavepair interferometry creates ordinary EM waves and energy that arise directly from each and every point in that individual interference zone. We stress that ordinary transverse wave EM energy propagation through the intervening space between the interferometer transmitters and the distant target *does not occur*.

In January 1960, in a speech to the Presidium, those are the weapons then in final engineering development for production that Khrushchev spoke of as "fantastic new weapons".

Khrushchev Killed the Thresher to Prevent His Own Dismissal

The first deployed large force-structure interferometer weapons became operational circa 1 April 1963. Khrushchev was still smarting from his Cuban missile crisis fiasco and his humiliation by Kennedy. Having overplayed his

hand and gotten caught,⁴¹ Khrushchev was desperate to stay in power and not be thrown out by the Communist Party leaders for such a massive loss of face.

On April 10 of 1963 Khrushchev used his new interferometers to reach through the earth and ocean and "kindle" EM jamming in the electrical controls of the U.S.S. Thresher nuclear submarine underwater off the East Coast of the U.S. **The** reader should recall that, wherever the interference zone is established—including in the earth or underneath the ocean, in the atmosphere, or in space—the energy arises directly out of the local spacetime. There is no Faraday shielding of such effects, which do not depend upon ordinary transverse wave EM field energy propagation through space. The energy appears everywhere within the targeted object, simultaneously.

It is extremely important that the reader recognize the dramatic difference in the way energy propagates in the new mode as compared to the old "propagation through space" mode. In the old mode, energy transport arises in one spatial location and is considered to proceed serially through the intervening spatial points to the intercepting and interacting particle's location. The Poynting model presently uses only this mode. In other words, the energy propagates from without the object to the object, and thence inward inside the object, if possible as the object interacts.

On the other hand, when the energy arises at each and every point in spacetime, it then propagates outward from each arising point. Thus in the nucleus of an atom, the "energy flow" starts at all interior spatial points and flows or diffuses outward in all directions. So the energy "meets" and interacts with the quarks in the nucleons, before it meets the "nucleon as a whole" and translates it. For this reason, with energetics it is easier to alter and "flip" quarks in nucleons than it is to translate nucleons, since one is using the new energy propagation mode. This simple reversal of the outside-to-inside energy propagation to an "inside-to-outside" mode, is a revolution in particle physics and effects on materials.

In fact, the energy dramatically enters the "interior" areas of nuclei, nucleons, etc. in a manner heretofore impossible or extremely difficult to achieve by high-energy physics, which can only do it by smashing into the object with sheer brute kinetic energy. Therefore the new "inside to outside" energy propagation mode can produce—at feeble spatial energy—extraordinary nuclear interactions not possible by brute force "outside-to-inside" energy propagation means. By controlling the structuring of the arising of the energy at each point in spacetime, the energy structure interacting with the quarks and other interior components can be tailored to order. This is the primary secret of transmuting an element at a distance by a specialized energetics weapon. The structuring of the emerging

⁴¹Oddly, had he simply waited a few more months or a year before injecting the missiles and nuclear warheads into Cuba, Khrushchev's strategic scalar interferometers would have become operational. With those in operation, a "Cuban missile crisis" might well have had a different outcome.

internal energy can be deliberately tailored to change quarks in—say—some of the nucleons of U235 and plutonium nuclei. In this fashion nuclear warheads, nuclear powerplants, and nuclear propulsion systems of atomic submarines can be altered at a distance, beneath the earth's surface, beneath the ocean's surface, in space above the earth, etc.

The EM "hash" emerging from the Russian interferometry simply jammed the electrical controls and systems of the Thresher *from inside its very electrical circuits*. Out of control and helpless, the Thresher sank to crush depth and imploded (Figure 6). The EM "splatter" from that interferometry, arising from the local spacetime throughout a surrounding region, engulfed the Skylark, the surface companion of the Thresher. The resulting spurious EM jamming severely interfered with multiple electronic systems on the Skylark. Several electronic systems just ceased working altogether. Their electrical forces were time-energy excited and time-reversed so that electron currents in them became impossible (blocked).

It required over an hour for the Skylark to transmit an emergency message back to the Navy that the sub was in difficulty, through all that interferometry jamming effects. The Russians undoubtedly "tracked" the sub till it imploded, then cut off the interferometry. As the "time-density charging" in the area slowly diminished, all failed electronic systems in the Skylark returned to full functioning. This was because the excess time-energy excitation just decayed away, so that electrical currents could again flow.

Khrushchev Demonstrated the Powerful Blast Capability of Strategic Interferometry

The next day, 100 miles north of Puerto Rico, the same KGB interferometer weapon was powerfully pulsed to produce a giant EM burst deep under the ocean's surface (Figure 42). A cone of water rose up from the surface to about a half-mile in height, observed by the startled crew of a passing U.S. jetliner and reported to the FBI and Coast Guard when the aircraft landed in Florida. As it rose, the cone of water spread into a cauliflower shape typical of a deep underwater nuclear burst that does not vent the gas bubble. Then that giant cauliflower of water fell back out of the sky and into the ocean. The second successful demonstration of Khrushchev's scalar interferometer weapon had been made for the benefit of the Presidium and the leaders of the Communist Party.

With those two dramatic tests, Khrushchev had killed the latest and greatest U.S. atomic submarine and demonstrated the awesome power of energetics weapons. He had shown the leaders of the Communist Party that the U.S. had no inkling of his new superweapons. He had struck the U.S. a formidable blow in a direct act of war—but a new kind of *clandestine* energetics war—and gotten clean away with it. Now it was Kennedy, rather than Khrushchev, who had been

duped. So had the entire U.S. Intelligence Community and the U.S. Scientific Community. Sadly, mostly they apparently remain duped or partially duped to this day.

Khrushchev managed to stay in power nearly two years longer by these two demonstrations. So the KGB/Soviets embarked on a decades-long program of buildup and development of the new weaponry, clandestinely, in order to take the U.S. by surprise attack and destroy it utterly.

In 1972 Brezhnev named 1985 as the target year when Russia would be able to do as it pleased, and would essentially control the land, the oceans, and space {126}. This was stated at a secret meeting of the European Communist parties in Europe. A British intelligence agent was in the meeting, and furnished the U.S. that information. Later it was openly released and published.

The Russians met that 1985 deadline, and the resulting increase in killing U.S. missiles and aircraft in 1985-1986 was most indicative. Other indicators such as massive weather engineering were already ongoing.

Weather Engineering Over North America

The first KGB weather engineering tests over the U.S., using their relatively new interferometers, produced signatures of anomalous perfectly round holes appearing in clouds. These experiments started in 1967 or thereabouts. The Russians gave us that very severe "deep freeze" winter of 1967, as an initial weather-engineering test of their energetics interferometry weapons.

The KGB communists do have a sense of historical dates, and they often do things on certain dates in symbolic fashion. Full-time Soviet weather engineering over North America started in earnest on July 4th, 1976—our Independence Day and our bicentennial. This was the KGB's "gift" to the United States on such a historic occasion. Full-bore weather engineering over the Americas has continued to this day, and even increased. It was passed into the hands of the Yakuza and the Aum Shinrikyo upon their leasing of those interferometers on site in Russia at the end of 1989. In 1985 I produced a rather crude videotape⁴² (40 minutes) with pictures of the giant radial cloud signatures etc. associated with such weather engineering operations since 1976.

The *basic* weather engineering method is simple. Use an LW interferometer (LWI) to reach through the earth and *cool* the air in a region and produce a high-pressure area, due to the densification of the air. Use another interferometer to *heat* another area and form a low-pressure area, due to the expansion of the air. Then carefully steer those *highs* and *lows* by gradually and slowly rotating the distant antennae and slowly adjusting the interferometry range simultaneously, according to a calculated schedule.

⁴²T. E. Bearden, "Soviet Weather Engineering Over North America," 1985.

By that means, the LWIs easily catch, entrain, and steer the jetstreams largely responsible for our weather. Put sharp loops and twists in that steering, and the huge angular momentum of the jetstreams developed in those sharp turns and circles will spawn tornadoes, violent weather, etc.

The first complete weather engineering system over North America in 1976 also used the Woodpecker's normal EM carrier signals with dimensioning and internal assemblage of the composite longitudinal EM wavepairs. A giant "interference grid" was established over much of North America. A great deal of local adjusting of the interferometry in the grid was necessary. These local grid readjustments caused "sudden popouts" of EM energy, creating many atmospheric booms, rumbles, and explosions.

To really stir up big weather trouble, the Russians—and now the Yakuza and Aum Shinrikyo—also heat or cool areas of the ocean where El Nino and similar "water engines" form. A dimensioned LW interferometer is required for this operation. By slowly and protractedly heating or cooling the water in one of the "warm water engines" fueling the weather, one causes a very significant, long-term, later effect on perhaps an entire continent.

One can create great droughts in some areas, great floods in others, etc. The KGB has been doing this extensively, since 1976. The great floods in Red China a few years ago are a direct example of KGB/Yakuza weather engineering, as is much of the extreme heat of 1998. In fact, thanks to the weather operations of the Yakuza under their KGB mentors, 1998 was the overall hottest year on record till then, since records were kept. At least for the summer of 2002, the record may have been broken again, with a significant season of giant forest fires burning away.

One purpose of the excess heating of the atmosphere, of course, is to do damage. An added "benefit" to the KGB is to furnish support to the environmentalists who are concerned about global warming. Understand, there is indeed such a thing as global warming. But by augmenting the atmospheric (and ice sheet) heating just a bit in a single year, the statistical analyses are skewed. The skewed analyses will show that the global warming problem is far more imminent than it really is, if the LWI engineering of it were suspended. Nobody on either side of the global warming debate seems aware of the LWI intervention that is ruining the results of their models and calculations.

In turn, the heightened global warming indications, detected as a result of the LWI interruptions, impel strong activist support for such things as the Kyoto treaty, *which is specifically designed to the strategic detriment of the U.S.* if and when the U.S. Senate ever approves it. The Kyoto treaty does not even apply to some 160 countries including Russia, China, etc. This focuses a certain proportion of our government time and effort in grappling with an inflated global warming problem, immediately. It directly fits the KGB strategy of "spreading" our government energy and attention all over the map, anywhere

but upon the coming strategic energetics strike and upon energetics weaponry.

The die-hard section of the KGB strategists are chess players. *They will come at you anyway, anyhow, and anywhen that they can.* Everything that can be impressed to serve or support the overall objective, will be impressed and used. **That** is the overriding principle when analyzing Russian KGB strategy.

Khrushchev meant every word of it when he said to Nixon in their famous Kitchen Debate: *"We will bury you!"* Interestingly, to this day Americans and **their** government officials have continued to be deceived as to exactly what Khrushchev meant. He meant it literally.

Earthquakes to Order

According to U.S. Defense Secretary Cohen, electromagnetic induction of earthquakes is now recognized by the U.S. Department of Defense, considering **his** little-noticed statement in Georgia in 1997, which we previously quoted. An interesting exchange of induced earthquakes (Figure 54) had occurred in latter 1988 and early 1989. Here two sides seemed to be "counting rifles."

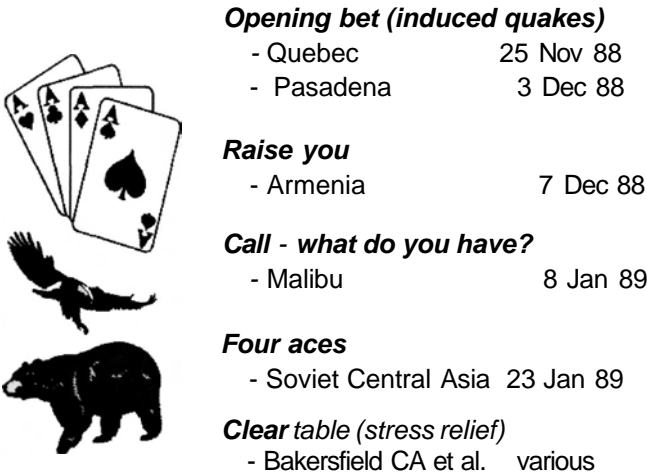


Figure 54 Counting rifles with earthquakes: Put up or shut up.

As Secretary Cohen made his April 1997 statement obliquely recognizing the scalar interferometer weapons, the little friendly nation had just completed countering and averting a massive strategic energetics strike upon the United States and Western Europe, scheduled for May 1, 1997 —just three days later. A little more than two months earlier, a previously scheduled attack had also been countered and averted by the same friendly little nation.

Once one can reach into or through the earth and ocean and create energy in a

desired interference zone, induction of earthquakes is simple. Use the interferometers to deposit energy in a fault zone over a period of time. Keep it up, and the piezoelectric plates build up enough mechanical stress to forcibly "slip" and produce an earthquake.

Put the energy in very slowly, and one gets a long "overpotential" effect where the rocks do not slip for a long time, while the energy builds to higher levels due to the static friction of the rocks. Then there occurs a rather rapid catastrophic slip. In short, one produces a large destructive earthquake. The KGB weaponry can produce earthquakes of the highest magnitude if they work at it.

If one wishes to induce a quake in an area where there are no known faults, then one simply focuses the interference zone there inside the solid rocks and proceeds to deposit the energy, preferably rather quickly (in hours instead of days). The entire rock will be expanded and it will fracture, producing an anomalous so-called "flat plate" earthquake.

Around the early 1900s, the "normal" rate of large earthquakes was two or three per year. That gradually increased after WW II. During one week in year 2000, there were some 20 major earthquakes around the globe. Obviously, someone is doing it, since this is far beyond what could be expected naturally. Presently that "someone" is mostly the Yakuza and Aum Shinrikyo, on site in Russia and leasing the LWIs. With the scheduled CSR attacks forcibly aborted, the KGB has the problem of restraining an increasingly impatient Yakuza and Aum Shinrikyo group, while keeping them paying the lucrative lease money. Consequently, inducing some big earthquakes is one way to "keep the troops occupied and busy." Shooting down the occasional aircraft or missile is another way.

I worked for 8 years or more with an inventor (Floyd Sweet, now deceased) who had an energy device {127,128} sensitive to *artificially* induced quakes of that fashion, even such quakes thousands of miles away. The device would sit right on top of a *normal* quake and not react. We could tell within some 8-10 thousand miles—and often even for greater distances— which quakes were artificial and which were natural.

So during that period I was able to clearly ascertain what was going on, and who was doing what to whom, and which quakes were normal and which were manmade. Several artificial U.S. quakes, the Armenia quake, and a subsequent big quake in Russia were particularly interesting in the mid and latter 1980s. The huge 1976 China quake was directly induced by the KGB.



Figure 55 Brewer briefs President Reagan on Soviet scalar EM weapons October 1984, then briefs National Security Council

In 1984, on my behalf Roy Brewer {129} had briefed President Reagan on these scalar interferometry weapons (Figure 55), then briefed the National Security Council. Let us hope that these high level briefings may have borne at least some fruit.

Readying the Weapons for the 1985 Readiness Demonstration Tests

In latter April 1985 I received an urgent call from my close colleague Frank Golden. In his avionics repair work, he suddenly found that his best calibration instruments were very "noisy." He replaced one expensive instrument, and the second was "noisy," also. A third proved equally noisy. This was unparalleled. It was not the instruments, but instead it was all the electronics to be repaired, that were emitting electromagnetic noise!

So Frank borrowed one expensive instrument and brought it home for the weekend. He altered it by a proprietary method so that he could detect energetics radiation. Voila! The entire earth was alive with Soviet energetics signals. The weak interferometry of so many signals impinging into the weakly interacting electronic systems to be repaired, had generated the electronic noise his instruments had detected.

In response to Frank's call, I immediately proceeded to his location. I personally observed on the oscilloscope, as detected by Golden, some 27 pairs of Russian energetics signals, each of the two in a pair being 12 kilohertz apart. (We have

previously explained why two frequencies are used, and one "pretends" one transmitted the difference frequency). Each of these frequency pairs represented the entire earth held in entrained resonance. Each pair was an "energy tap" in the earth, extracting enormous energy from the heat of the molten core of the earth itself and outputting it as 12 kilohertz power for transmission to giant interferometry weapon sites.

Each "tap" was extracting energy sufficient to power perhaps 4 to 6 of the giant intercontinental energetics interferometer weapons. We were observing something like 100 to 150 massive weapons on line and radiating. A full-up strategic dress rehearsal—or preparations for a full-up strategic attack on the U.S.—was underway.

Gorbachev was still a "new man on the job" at that time. Further, 1985 was the 40th anniversary of the end of WWII, and a very important occasion for the Communists and in fact for all Russians. The May Day celebrations that year went on for several days, not just on May 1.

What we were seeing were preparations for a massive May Day weaponry demonstration in and around May 1, 1985. We were observing the preparation and demonstrated readiness of all that great armada of Soviet energetics weapons, to meet Brezhnev's 1985 schedule laid down back in 1972 {126}.

Longitudinal EM wave communications to deep underwater Soviet subs, the huge interferometer armada, and everything else—all were being readied and demonstrated. I can assure the reader that observing full rehearsal of preparations for the next World War was a most sobering experience.

After May 1, most of the armada of interferometers was stood down again because it had been demonstrated that the "ready schedule" had been met. All but one of the giant energy taps in the Earth were also stood down again. That one remained active.

The May Day report to the heads of the Communist Party that year must have really been something!

As usual, apparently our own scientific and intelligence communities did not detect the main activities, and would not have believed it if one told them. They certainly did not believe it when I published it in 1986 in *Fer-de-Lance*, but labeled it sheer fantasy or at best total conjecture.

It was neither fantasy nor conjecture. It was direct experimental measurement. It was in fact what used to be called *scientific method*. The problem with our intelligence agencies was that they operated behind *policies*. Once the *policy* is decided, then regardless of what the intelligence analysis indicates, anything against the official *policy* is just ignored. This neat little *policy* method of doing business has resulted in making our intelligence agencies some of the most political-minded and manipulative groups on Earth.

Meeting the 1985 Schedule for Readiness

In 1985, KGB/Russian preparations began in earnest for the energetics weapons readiness projected for that year by Brezhnev in 1972. Being full-bore tests, these actually went after destruction of vehicles and killing people. These were actual acts of war. The so-called "Cold War" was not nearly so cold as pictured in the news media!

Early that year, an LWI was used to cool the combustion in the engines of a jet liner off the coast of San Francisco, bound for Los Angeles (Figure 56). This flamed-out the engines. The stricken craft fell 30,000 feet before the time-density "cooling" charge drained away, sufficient for the pilot to restart his engines and limp into San Francisco. Gravitational and inertial anomalies—a *clear signature of the use of this EM/GR weapon*—were exhibited upon the personnel in the cockpit. The official investigators ignored those signatures; after all, such is not in their standard checksheets! And everybody knows the standard checklists are already perfect!

SIX MILE DROP IN TWO MINUTES

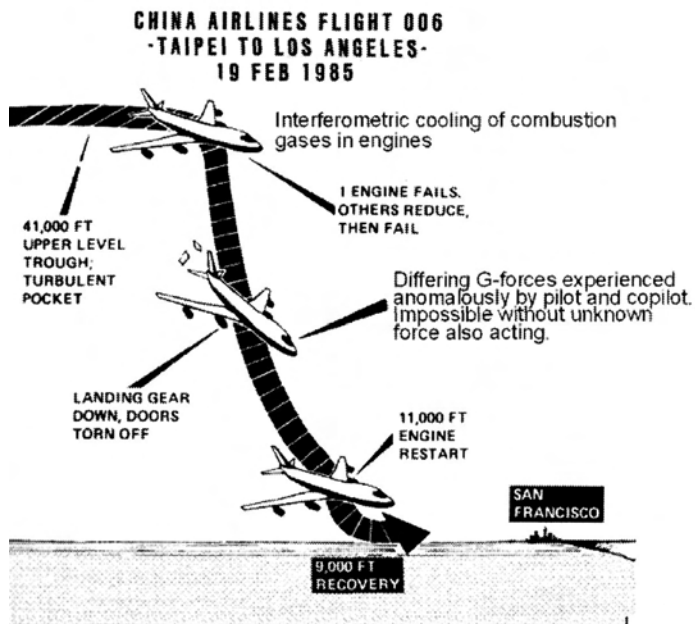


Figure 56 Extinguishing combustion in the engines of a jetliner 19 Feb. 1985.

KGB Crews Regularly Practiced Against U.S. Rocket Launches from Cape Canaveral

In a late Nov. 1985 night shuttle launch at Cape Canaveral, the Russian interferometer crews continued their practice of using the U.S. shuttle launches as convenient "simulated" ICBM launches, for energetics interferometer crew practice (Figures 15 and 16). EM missiles (balls of EM energy formed in the area by distant LW interferometry through the earth) were used as the "destructive agent", but were offset from the actual launch in order not to destroy the shuttle. This was *normal crew drill*, not combat operations. The practice range for energetics weapons is—as might be expected—the actual targeted area and targeted nation itself.

As shown in *Fer-de-Lance*, I published an actual picture (Figure 15) of such a KGB EM missile strike, offset from that shuttle launch in late Nov. 1985 and snapped by Bob Gladwin. I also published an actual picture of a second such EM ball of glowing energy (Figure 16), over the launch site for the same launch, and used as a registration point (the LWs deviate slightly in passage through the earth, since the potentials in the earth are not constant). George Suchary took the second photo.

A standard artillery "shift-from-known registration point" method of firing was being used. In other words, the crews establish LW track on that EM registration ball, right through the earth. That represents *a point having a known set of coordinates*—a registration point—established in the firing computer. Then when the targeted strategic missile (in this case the shuttle's main booster) ignites, the interferometer also tracks the huge ionization target of the exhaust with the same weapon system.

That gives a known *relative* location of the missile rear end, with respect to one's registration settings for the registration point ball of light. Then add some meters to move up onto the missile body proper, and voila! The center of the target missile that will be fired is now in the bulls-eye, so to speak. That is a standard "shift from a known registration point" method of shooting, well known to every artillery group on the planet. The "marker beacon" is what is known as a "high burst registration," except it is not a burst but a steady ball of energy maintained over the area as the registration point.

The distant rocket or missile can now be destroyed in a variety of ways:

- (1) Just create a sudden EM surge arising right in that spacetime (that is, just pulse the interferometer). That burns out some of the inner electronics of the missile, causing partial or complete missile failure.
- (2) Sharply pulse the interferometer to introduce EM energy surges and sparks in the fuel or solid propulsion, igniting it massively and blowing up the rocket. Works well for aircraft fuel tanks as well.
- (3) Form another EM missile and hit the missile broadside with that, burning

through it and destroying it immediately.

- (4) Hit it with an explosive EM missile internally, instantly exploding the missile into pieces. Or
- (5) Hit it with several of the above simultaneously.

Suchary and Gladwin had captured the direct evidence of KGB dress rehearsal for the strike and kill of the Arrow DC-8 in Gander, Newfoundland about two weeks later.

Kill of the Arrow DC: Practice Turned into Performance

Two weeks later, the same KGB weapon tested against the Cape Canaveral shuttle launch was used to destroy the Arrow DC-8 at Gander, Newfoundland, killing some 256 occupants, 248 of them being U.S. soldiers returning from peace-keeping operations overseas. The aircraft *was not* iced up; later that was clearly established.

See Figure 17. As the ill-fated Arrow aircraft began its thrust down the runway for takeoff, it was already under LW interferometer track (the exhausts of the **engines** were being precisely tracked) by distant KGB operators. The KGB operators simply began to cool the combustion gases in the engine combustion chambers as had been done to a U.S. jetliner earlier that same year (Figure 56) off the coast of San Francisco (there they had completely flamed out the **engines**). Now they did not want to flame out the engines during take-off, but just wanted to reduce the thrust of those engines.

So the available thrust of the engines began decreasing as the aircraft picked up speed on the runway toward takeoff, even though the turbines were rotating at full speed. For powered flight, it is the *thrust-per-drag ratio* that is important. One can reduce that ratio by ice-loading and therefore increasing the overall aircraft drag, as all Transportation Safety Board checksheets assume if the engines are at full rotation and if operation and icing conditions are present. Or one can reduce the ratio by reducing the engine thrust itself, as was done for the Arrow, even though the plane is de-iced. All the Transportation Safety Board checksheets *assume* that it has to be drag increase, and thus due to icing.

The National Transportation Safety Board (NTSB) investigators know nothing about longitudinal EM wave interferometry and its capabilities—and its development by several nations of the world. Neither do their checksheets. **Sadly**, the NTSB is not even aware that the electrodynamics and electrical engineering it assumes is so perfect is in fact a decrepit old model based on century-old errors. They are unaware that much better electrodynamics models have long been developed for particle physics, because the crusty old classical model is totally inadequate. Their checksheets also are "unaware" of anything really modern such as electrodynamics models of the higher group symmetry **kind**.

The thrust reduction by combustion gas cooling *does not appear on the official checksheets and is never considered*. It is not considered to this day. It will probably still not be considered this century.

Observers on the ground heard those engines "laboring," which can be a direct symptom of combustion gas cooling and engine thrust reduction. Rough running and missing can be another, if the cooling increases. Engine flameout occurs when the combustion no longer can be sustained because of the dramatically lowered temperature of the gases.

The Arrow Pilot Sensed the Lack of Power, But the Aircraft Was Immediately Hit

See Figure 17. At rotation and liftoff, the pilot of the Arrow DC-8 immediately sensed his lack of lift, and started a slow turn to the right, apparently intending to come around and land again as an emergency measure. Meanwhile, crossed beams had formed in the sky above and off to the right side. From those crossed beams of light, there shot down a bright "streak" of light that struck the fuselage of the aircraft in the right side, ahead of the engines. That was the EM missile strike—just as had been offset from the shuttle launch two weeks earlier in Florida, and photographed by Bob Gladwin.

That piece of Arrow DC-8 fuselage hit by the EM missile, with the burned hole in it, was recovered and tested. Tests showed no explosive residues on the edges of the hole, so it *was not* made by a bomb or other explosive device. Instead, it was made by an EM missile of the type that over a decade later hit the TWA-800 several times off Long Island and killed it.

In the Arrow aircraft's kill, the fiery EM missile sharply ignited the plastics in the forward cabin, which explosively outgassed. One product of such outgassing is hydrogen cyanide. A whiff or two, and all the passengers in that section were already dying of cyanide poisoning. *In the autopsies of the recovered bodies, about half the passengers were already dead of cyanide poisoning before the plane impacted the ground and exploded.* They died while that aircraft was still flying and sinking tail-first toward the ground.

The results of those autopsies were deliberately withheld from the Canadian investigative board.

The impact of the EM missile on the Arrow DC-8 was clearly recorded by sharp, vertical EM surges (spikes) in traces on both data recorders on board the aircraft. In *Gravitobiology*, on p. 82 I printed the recorded sensor responses **for** that signature also.

Elements of the U.S. Government Deliberately Suppressed Vital Evidence

Several eyewitnesses, including Judy Parsons, physically observed the formation of the crossed beams in the sky. Parsons and perhaps others actually saw the streak-down and strike of the EM missile when it hit the doomed Arrow DC-8. Parsons tried to testify, but her testimony was never allowed to be heard by the Canadian Transportation Safety Board. A major U.S. News agency interviewed her, but then squelched the story for some "unknown reason." Other witnesses (who are still reluctant to come forward) did observe the strike of the EM missile also.

Why would the U.S. government deliberately suppress information relating to the cause of the deaths of 248 of our soldiers returning from peacekeeping missions overseas? Why were they so determined that this direct act of war be declared an "accident" in the face of overwhelming evidence that it was not an accident at all?

Iran Contra was not yet divulged at the time. Recall, at very high level our own fellows had directly violated the law, and were engaged in the illegal Iran Contra fiasco up to their eyeballs. Also, some officials in Washington in certain high U. S. Government circles were in near panic, in their personal (erroneous) firm belief that a MidEast-sponsored terrorist bomb had destroyed the Arrow. In that case, so they reasoned, with the murder of 248 of our soldiers, the American public would be so aroused and angry that they would force military action against the MidEast nation or group, and that would then reveal Iran Contra. *Too many highly placed people's hands were dirty!*

So extreme spin control was the major requirement. Damn how many American soldiers had just been killed in an overt act of war against the U.S. Damn the implications of the use of eerie new weapons we did not possess. A hue and cry from the U.S. public would almost certainly reveal Iran Contra and smoke out the duly secrets. That must not happen at any cost. Some high officials—particularly the ones who engage in such illegal acts, in assassinations, murders, etc.—are far more interested in covering up their nefarious deeds than they are interested in any kind of justice or morality. Consequently, the fix was in.

So U.S. officials placed enormous pressure on Canada to produce a finding of icing. Lots of other skullduggery occurred, which probably constituted criminal activity by some U.S. officials. A high-ranking U.S. military officer arrived on site quickly, apparently under orders to erase that scene as fast as possible. He almost immediately wanted the Canadians to bulldoze over the site, even before recovery operations were complete and while the investigation was just getting underway. The site was bulldozed over in unseemly haste not long thereafter. That would appear to possibly constitute deliberate tampering with the evidence at an official site of investigation, on the part of whoever ordered the General to bulldoze the site precipitously.

In addition, witnesses such as Parsons were never allowed to testify. The Canadian Board waited until the half of its members who strongly opposed any ad hoc finding were absent, and hastily approved a finding of icing as the cause of the "accident." Later the disgruntled Board members who were absent when the "voting" occurred, issued their own minority report. Unfortunately they knew nothing of scalar interferometry and energetics weapons, and so they strongly believed it had to be sabotage and explosives.

Anyway, the blackguards hiding Iran Contra buried the incident, and the savage kill of 248 of our soldiers and 8 civilians went unpunished. Anyone such as the present author who pointed out what had really happened and why, was just branded a lunatic. After all, the blackguards who do not flinch at murder and unapproved assassination do not blink an eye at slander and libel.

The sad part is those fine young soldiers and the 8 civilians who were killed, and the grief and lasting changes made to their families. It is the children who had to grow up without their fathers, the mothers whose husbands were suddenly dead, etc. They deserved much better from their government than they got.

Other Direct Energetics Signatures on the Arrow DC-8

Meanwhile, in the lifting DC-8 the strike of the EM missile had also time-density charged the forward cabin materials. Those materials slowly decayed from their excited states via longitudinal EM wave emission. When a human body is subjected to fairly significant LW waves (accompanied with their time-density waves), it gets its internal immune system and cellular regeneration system "jammed," since these systems use LWs and accompanying time-density waves. The cells and tissues are also "time-energy charged" as well, and so spurious LWs continued to be slowly emitted in their tissues and cells locally, leading to gradual, general debilitation. After a time delay for the effects of this time-charge decay to be exhibited, such exposed persons will get sick with odd symptoms of various diseases such as influenza.

The ground handlers on the scene and exposed to the struck materials of the aircraft, were also exposed to longitudinal EM wave radiation from those materials which had been instantly "time-charged" at the powerful strike. Hence they were exposed to fairly significant LW waves, and should therefore have shown later symptomology.

Some 60 or so of the ground handlers actually retrieving the crash materials later sickened with all sorts of mysterious maladies: dizziness, stomach cramps, flu-like symptoms, weakness, nausea, fatigue, etc.—precisely what would be expected if some the materials they were handling were emitting longitudinal EM radiation, exposing them to significant LW radiation. That is a clear signature again of a strike by an EM missile, and the exposure of those retrievers to LW emissions. *In no normal way could 60 of those ground crewmen handling the wreckage debris all come down simultaneously with the exact symptoms of*

LW radiation sickness, unless that was what it actually was.

Many of those sickened persons remained debilitated for years. Probably a few are still alive and debilitated.

There are other signatures on the Arrow DC-8 kill. I did a small bit of work on **the** problem in the interests of Arrow airlines, but of course the conventional investigators they also hired could only conceive of an ordinary explosive. Nevertheless, I did tell them as best I could what happened to their aircraft, their crewmembers, and our own valiant soldiers.

Our troops on board the tragic Arrow DC-8 *did not* die from a simple over-iced **plane** that crashed as a result of carelessness in deicing operations. *They died as the result of an act of war against the U.S., carried out by the KGB as a test in an entire series to demonstrate the 1985 readiness that Brezhnev had specified in 1972.* That war is still partially ongoing and undeclared to this very day, with other players such as the Yakuza and Aum Shinrikyo also now in the game—and possibly even the Chinese, who certainly have had the weapons for some time, and have had QP weapons and negative energy EMP weapons since earlier this year (2002).

With the kill of the Arrow DC-8, the KGB made its deadline that had been set down 13 years earlier by Brezhnev. To meet the 1985 schedule, something significant had to be killed successfully and clandestinely, no later than Dec. 31, 1985. The KGB made the schedule on December 12, 1985, by killing the Arrow DC-8 after a warm-up and full dress rehearsal against a U.S. night shuttle launch at Cape Canaveral about two weeks earlier. And they also demonstrated just how ignorant of such energetics weapons and their usage the U.S. government, scientific community, and investigative boards really were.

We were fortunate they did not just go ahead and kill that same shuttle in late November 1985. Instead, they waited and killed the Challenger a few months later.

Other Acts of War Completed the Milestone

Apparently the final demonstration of milestone completion called for the destruction of an aircraft, kill of an ICBM, kill of a space shuttle, induction of earthquakes, and demonstration of the new quantum potential weapon still in the advanced laboratory stage. The KGB completed much of the milestone demonstration in 1985. The remainder they completed in 1986.

In January 1986 they killed the space shuttle Challenger, and the very next night the KGB even gave a big party in Moscow, to celebrate the "perfect success of their active measures" against the shuttle. General Daniel O'Connor, former head of U.S. Army intelligence, personally issued an alert to many high-ranking U.S. government officials, pointing out the almost certain involvement of the KGB and the fact that the loss of the shuttle was almost certainly due to a hostile

act by the Soviets.

In April 1986 (May Day report time was coming!) the KGB killed a Titan ICBM fired from Vandenberg Air Force Base. They also induced several large earthquakes for practice, and then began the induction of the long-dreaded "giant California quake" in the San Andreas Fault zone.

This latter induction of what would have been a massive quake in both San Francisco and Los Angeles, and all along the San Andreas Fault, was countered (destroyed) by a civilian group known to this author, with a backlash that resulted in the Chernobyl incident.

In April 1986 (for the same May Day report) the KGB also demonstrated the effectiveness of their newly emerging quantum potential weapon against the convenient U.S. air attack on Libya (Figure 25).

Kill of the Titan Missile Over Vandenberg Air Force Base

In 1986, the KGB began gingerly using those energetics interferometry weapons to kill other U.S. aircraft and several U.S. missiles, including killing a Titan 34-D fired from Vandenberg AFB on 18 April 1986. The Titan was killed 9 seconds after launch, partially crippling the U.S. space surveillance program. That kill was part of the demonstration of readiness milestone completion.

There was a completely decisive signature on the kill of the Titan. Simply check *Aviation Week & Space Technology*, 124 (17), Apr. 28, 1986, p. 18, where a picture (the one taken from longer range) of the Titan explosion is printed. Look about an inch above that explosion, which is already well developed. There above the Titan explosion sits the KGB ball of light registration point, just as it was sitting over the night shuttle launch in Cape Canaveral in latter Nov. 1985 when videotaped by a private photographer.

I persuaded NBC engineer Ron Cole and his colleagues to analyze a copy of that video tape frame by frame. In 17 frames, that little ball of energy above the explosion moved off on its own course, independent of the Titan explosion. Since the launch area for such missile launches is controlled and there were no aircraft over the explosion, then one again has a very clear signature. The KGB killed the Titan, with 100% certainty.

That of course was a test of the interferometry weapons in the role of Launch Phase ABM system. Tested against the Arrow, the KGB operators were emulating test of the system in a Launch Phase Antibomber role. These were vital *strategic* weapon tests. I published details of the use of the weapons in many other roles.

Dead-Man Fuzing and Outside Assistance Deterred a Full Strategic Attack in 1986

We have previously documented and published why the U.S. was not fully attacked and destroyed by the Soviets in 1986. It was because of our nuclear facilities, warheads, etc. which would have exploded, creating great fallout hazards worldwide, and because of nuclear dead-man fuzing weapons clandestinely placed in Russia by one or more other nations.

A friendly small nation possessing energetics weapons also intervened directly in 1986, and blew up several Russian missile ammunition storage sites, some five or so in six months. In one such explosion, about one third of all the missiles in the Russian Northern Fleet were destroyed. As we stated, the so-called "Cold War" was not nearly so cold as has been represented.

In short, the friendly little nation served notice on the Soviets that, if they moved against the West, the Soviet Union itself would suffer terribly. They put it in language clearly understood by the KGB. So any full-up strategic attack for that period was stalemated by that combination of factors.

A major concern for the Soviets was their inability to counter the dead-man fuzing problem posed by nuclear weapons clandestinely hidden inside Russia and by the nuclear warheads and reactors inside the targeted nation(s). They already had the quantum potential (QP) answer *theoretically*, and had conducted a demonstration test of a laboratory QP device, but they had not yet completed the *QP* weapon systems and deployed them.

Nonetheless, a very powerful strike of peculiar nature—induction of a giant earthquake in the San Andreas Fault zone, including in both Los Angeles and San Francisco—was scheduled. This strike would have caused billions of dollars worth of damage and would have killed perhaps 200,000 Americans. The initiation of the strike was actually begun in April 1986—as the reader can begin to see, there was to be one helluva May Day report in 1986! Incredibly, a private group here in the U.S. then made a unique and unprecedented contribution that **saved** the day for Los Angeles and San Francisco.

What Really Happened in the Chernobyl Disaster

Using ~~the~~ "inside" of the Woodpecker beams as superhighways for their longitudinal waves and interferometry, in April 1986 the KGB interferometers had started their build-up of substantial induced EM energy in the sides of the San Andreas Fault that runs through Los Angeles and up through San Francisco. Two beams were being used by the Soviets: One was coming down on the target from the North—coming over the North Pole regions and the ice caps—and one was coming around from the East and upon the target area. Completely (100%) certain signatures were present, including some ELF "chugger" waves symptomatic of the Soviet method of inducing very large quakes. The time-

energy is being used, hence very low frequency ELF is employed to maximize the amount of time-energy available for transduction in the rocks on the side of the fault. The Soviets were building up a very large earthquake—indeed, to spawn a whole series of such quakes all along the San Andreas fault—with severe aftershocks following after the main quake had done terrible damage. In short, they were preparing to hit California with the "big one" that everybody had been anticipating and dreading for so long.

A private group contacted me. They stated they could take out one of the transmitters by producing a powerful (giant) phase conjugate replica signal pulse upon it that would backtrack right into the transmitter and catastrophically burn it out—a surface application of the "phase conjugate shooting" once considered for armed satellites that could shoot down rising hostile ICBMs at 10,000 miles distance. As I understood it, they had a new kind of essentially noise-free regenerative amplifier, used in a transmitter. This meant that *extreme amplification* could be achieved in a pulse response to a received Woodpecker signal, before the transmitter burned out.⁴³ Since the group had no knowledge of the exact KGB transmitter locations or the possible consequences of such an action, they asked my opinion as to the risks associated. This placed me in a real quandary.

At the time, the U.S. was literally under siege. We have mentioned some of the

⁴³ A very subtle but important point is this: An energy flow of any amount—say, 10^{20} joules per second—has absolutely *zero power* if none of that energy flow is diverted or changed in form. So if one has a truly perfect noise-free amplifier, and a pure noise-free energy signal input, the signal energy input can be directly and freely amplified without limit, so long as those noise-free conditions can be upheld. In short, that rigorously constitutes *regauging*, and the widely used **and** well-known axiom of gauge freedom—the ability to change the local energy density of a system or spacetime freely and at will—applies. Relativistically, such re-gauging is merely rotating the frame of the system away from the laboratory frame. This group indeed had such an amplifier, which I physically saw, and apparently has it today. Our present texts have not yet realized the real implications of gauge freedom: It means that one can freely amplify energy without limit, once certain conditions (no divergence of the energy or change of its form) are met. This does not violate energy conservation; the "potential energy of a system" is not a fixed number at all, but depends on the frame of the observer vis a vis the frame of the system. We point out that there really are no true conservation laws in general relativity unless introduced by arbitrary measured. The great Hilbert already knew this in 1917, two years after the advent of Einstein's general relativity. Hilbert stated: *"I assert... that for the general theory of relativity, i.e., in the case of general invariance of the Hamiltonian function, energy equations... corresponding to the energy equations in orthogonally invariant theories do not exist at all. I could even take this circumstance as the characteristic feature of the general theory of relativity."* [D. Hilbert, *Gottingen Nachrichten*, Vol. 4, 1917, p. 21]. Loskutov and Logunov commented as follows: *"In formulating the equivalence principle, Einstein actually abandoned the idea of the gravitational field as a Faraday-Maxwell field, and this is reflected in the pseudotensorial characterization of the gravitational field that he introduced. Hilbert was the first to draw attention to the consequences of this. ... Unfortunately, ... Hilbert was evidently not understood by his contemporaries, since neither Einstein himself nor other physicists recognized the fact that in general relativity conservation laws for energy, momentum, and angular momentum are in principle impossible."* ["Nonuniqueness of (the predictions of the general theory of relativity," *Sov. J. Part. Nucl*, 18(3), May-June 1987, p. 179).

"target year" activities, such as kill of the Arrow DC-8, flameout of jet engines early in 1985, target practice against shuttle launches at Cape Canaveral in November 1985, etc. Actually kill of targets had continued in 1986. A huge earthquake followed by several large aftershocks had been used against Mexico City on 19 September 1985, causing great damage and demonstrating a little of what might be expected when they chose to hit Los Angeles and San Francisco much harder. The Mexico City quake had been preceded by an induced, giant hailstorm weeks earlier, and on the evening of 18 September 1985 by giant **radial** cloud signatures accompanying the generation of excess energy in the underlying rocks as the KGB prepared next day's giant Mexico City quake. The **reader** should recall that, working with Sweet during this period, I knew with certainty which earthquakes were natural and which were manmade.

U.S. missiles and aircraft had been hit, the Challenger had been destroyed, and the Titan 34-D had been destroyed at Vandenberg AFB on 18 April 1986, accompanied by a 100% indicator (the substantiated presence of the marker beacon for registration and shift firing). In addition, a little Richter 5.3 quake in the San Francisco Bay area had been induced by the Soviets on 31 March 1986, a quake which was correlated with preparatory activity on the Woodpecker transmitter signals the day before, showing Soviet induction of the energy to **create** the quake. Again, we had instrumental evidence that it was manmade.

That quake on 31 March had been a "warm-up" and practice for the big one now **about** to be induced in both Los Angeles and San Francisco, and along the San Andreas Fault. In fact, it appeared that the entire fault zone would be stimulated by deposit of excess energy all along its length. In that case, induction of a distributed California quake of unprecedented extent and great magnitude was now in process, though just beginning. If that event or those events occurred, the loss of American lives and property would be staggering.

The High Side Risk Factor

The group's query to me presented a very difficult decision situation. Such huge Soviet interferometer beams, once built up, contain *enormous* longitudinal EM wave energy. If a Soviet transmitter were near large nuclear facilities, and were instantly blown and shorted, all that potential energy might flash directly into the ground.

In case of such a catastrophic transmitter failure, an enormously powerful longitudinal wave pulse would spread out in all directions in the surrounding earth. The first nuclear material the pulse encountered would be fissioned abruptly and very violently. If the transmitter were within a few kilometers of one or more of the large "monster" Soviet ICBM sites, the full-up explosion of **several 30** or 40 megaton warheads might result—in the dirt and dirty. The resulting fallout and contamination would be massive, would spread round the world, and would eventually kill millions for years to come. Nuclear reactor stations were a similar risk; instant fission of all the fissionable material in one

of them would constitute an unprecedented and giant nuclear explosion, in the dirt and dirty. That was the high side risk.

The Low Side Risk Factor

The low side risk would be that little or nothing at all would happen; perhaps a tremor induced in a nearby fault zone, etc. I knew that the Soviets—after an early Kyshtym transmitter failure—had produced such a flashover on a much smaller scale and that flashover had caused the nuclear explosion of nearby stored nuclear wastes. The resulting fallout contaminated some 1200 square kilometers, which is still contaminated to this day. I also knew that, after Kyshtym, the Soviets had installed safety devices on all their scalar interferometer transmitters in case of just such failures.

So if the safety devices held when the transmitter suddenly shorted out, they could hold the longitudinal EM wave beams and potentials long enough to drain the energy slowly and harmlessly into the earth over an extended period. That was the low side risk.

The *most likely* consequence, of course, would be somewhere in the middle, between the extreme upper risk and lower risk limits. In other words, we could expect some bad repercussions in the Soviet Union almost certainly, but hopefully it would mostly be confined to that spot.

Consequences of Not Taking Counterfire Action

If no action were taken, the risk to the U.S. was appalling. If the transmitters continued, then perhaps 200,000 Americans were going to die in Los Angeles and San Francisco and along the San Andreas Fault. Perhaps 300,000 more Americans would be injured, and many of them would also die. Enormous physical damage would also be done, and those basins would be disaster areas for some years to come. It would be interpreted by our inadequate scientific community as a great "natural" disaster caused by a giant earthquake, and the ghost of Khrushchev would have had one more laugh at us, with his words "We will bury you!" silently ringing in the ether.

My Recommendation to the Counterfire Group

To save those American lives, some reasonable element of risk had to be accepted. In other words, it became a classic "risk-to-benefit" military analysis, but one that was deadly serious. To me, as a military person the medium risk had to be accepted in such case.

I gave the group my reasoning. They then asked what I would personally do if my own finger were on the fire switch. I answered that I would take out the transmitter or transmitters and save those American lives, accept the medium risk, trust in God, and pray **for** the best. Military decisions often have to be made

in just such uncertain conditions. If one's military could not make such tough decisions, then one's military forces would inevitably lose their wars.

The Group Fired and Took Out a Transmitter

The group thanked me, stated that they would fire, and hung up the phone. See Figure 57. They did fire on April 25, just as they promised, and they did destroy one of the KGB transmitters—apparently located some kilometers (perhaps 30?) from the Soviet nuclear reactors at Chernobyl.

At the moment the transmitter was hit and destroyed, engineer Bill Bise—out in the field with magnetic field detectors and measuring the Woodpecker beams—observed the abrupt failure of the Woodpecker transmitter beam coming around **the Earth** from the East. Thus, he actually detected the successful destruction of that distant interferometer transmitter. Unknowingly he had detected the results of a great counterstrike in a very dangerous strategic battle.

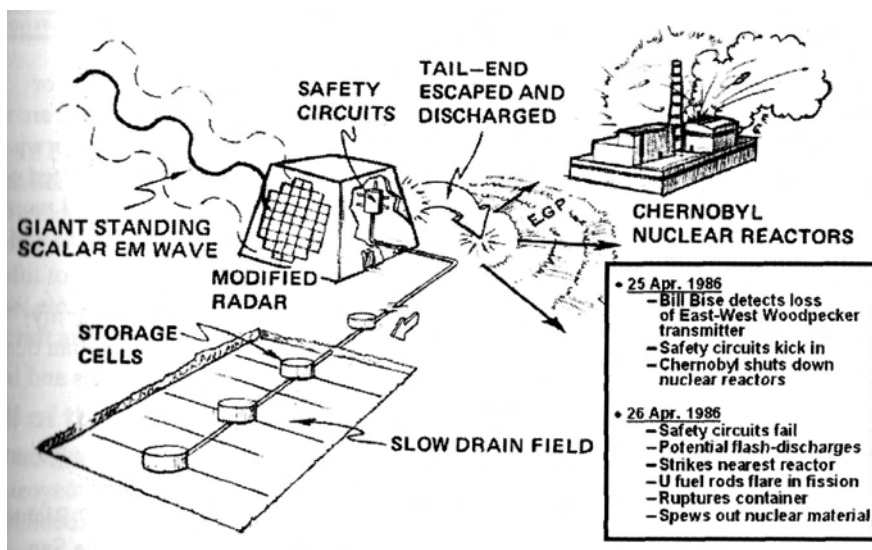


Figure 57 Chernobyl disaster 25-26 April 1986.

Results at the Transmitter and at Chernobyl

We were very, very lucky. At the destroyed transmitter site, the safety circuits kicked in and caught the huge beam potential and held it for about 24 hours, gradually draining down the intense beam energy into the earth in a slow manner all the while.

A **frantic** Russian message to the Chernobyl reactors galvanized the operators to immediately shut down those reactors (put in the cadmium control rods).

However, the uranium in the fuel rods was of course still sitting there. Chernobyl then waited with bated breath to see if the safety circuits would hold.

Then on 26 April, the safety circuits at the transmitter site finally crumbled, and a far weaker LW flashover occurred than would have occurred earlier without the safety. The spreading LWs in the earth struck the nearest reactor core at Chernobyl, preceded seconds before by a tremor induced in the earth at Chernobyl as the LWs arrived. Part of the struck uranium in the core fissioned immediately, venting the containment structure and spewing out radioactive material. Nuclear fallout spread over much of Europe. The rest of the disaster is well known.

That unknown group, in my estimation, saved a large number of American lives—at least 200,000 or more and perhaps as many as 300,000. They also prevented enormous physical damage to California, both to Los Angeles and San Francisco and to points in between. The members of that group are the unsung heroes of this bizarre episode. It is my hope that I may live to turn the names of those persons in for the award of a very high Presidential medal. Until then I will not reveal those names under any circumstance.

Whether or not the U.S. scientific and intelligence communities know it or believe it is of no concern. What matters is that a great many Americans are still alive, and their children born since then are alive. Those Americans otherwise would have been very, very dead or never born. I personally have reflected on those desperate circumstances many times. If I had it to do over again, I would unhesitatingly urge the same action: Fire and save those American lives, and accept the medium risk. And pray.

And I did pray after recommending the strike. In my opinion, this time my fervent prayers were answered. I am extraordinarily sorry for the civilian deaths that occurred; all one can say is that it was under severe circumstances and in a very peculiar—and very desperate—war.

The Soviets had many other interferometers on line. They induced a substantial earthquake in Mexico at the end of April. Thus they did complete their "earthquake footsteps" of the milestone. On 7 May they induced a 7.7 Richter quake in the Aleutian Islands. If 7.7 to 9.5 quakes had hit all along the San Andreas Fault in Los Angeles and San Francisco and in between, then the destructive scenario I had envisioned for the West Coast would have occurred.

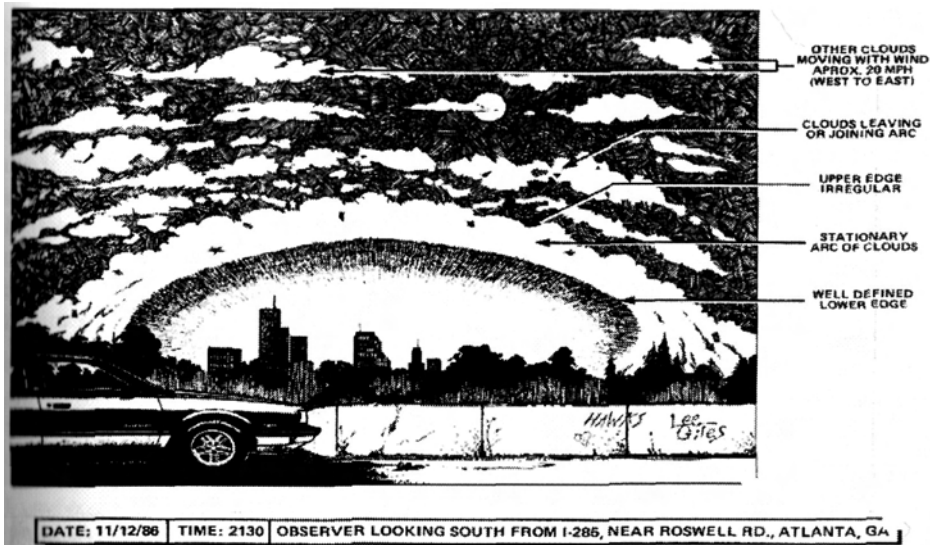


Figure 58 "Bottling up" shield practice over Atlanta 12 Nov. 1986. With a real shield, aircraft or missiles flying into it (from inside or from outside) explode and are destroyed.

On 12 November 1986 the Soviets even placed a giant "dummy shield" (practice) over Atlanta, Georgia (Figure 58). If the shield had been real and not just practice, any aircraft and missiles flying into it would have been instantly exploded and destroyed. That mode—"bottling up" a strategic weapons area—is useful to nullify an entire strategic ICBM launch complex or a large bomber base, etc. It can also "bottle up" a large carrier task force at sea, including the aircraft and the Tomahawk missiles, the shells from the naval guns, etc.

Kill of the Challenger Included Use of Metal-Softening

As we mentioned, during that 1986 preparation period the Russians also destroyed the Challenger spacecraft (January 28, 1986). Numerous signatures abounded, all of which we have already published.

A few weeks before the kill of the Challenger, a close colleague had experimentally proven that a metal-softening signal was indeed placed on the Russian "woodpecker" signals (Figure 7). He did this quite simply: he wired himself into a receiver, through an intervening amplifier, and tuned the receiver to the Woodpecker signals.⁴⁴ Then he took nails from a can of nails he was

⁴⁴ Here he was taking advantage of the fact that the infolded LW signals inside the Woodpecker carrier wave, comprising the "engines" for metal-softening, also constitute "perfect" divergence-free EM energy, so to speak, at least overall. Amplifying the signal also amplifies the "engine" inside it. When connected to his body, "potentials superpose" is the rule, and that transferred the amplified engines to his body and into the EM field immediately surrounding his body. Hence he softened the hammer metal a tiny bit, and softened the much less tempered nails quite a bit more.

using, and hit them with a hammer to drive them into planks. The nails all folded up instantly like totally wet noodles. A couple dozen, one right after the other. Simultaneously, his son—who was not connected to the Soviet signal—was pounding nails from the same box, normally and without difficulty. None of the nails picked up and pounded by his son experienced any difficulty or softness.

Then my friend disconnected himself from the signal, and waited a bit. Whereupon when he then used nails from that same box, he drove them in without difficulty. There were no more "wet noodle" nails.

We reach a very simple conclusion: When he connected to an amplified Woodpecker signal, his body was time-excitation charged (quick charge and quick decay) with a specific signal so that the nails he picked up were charged. Then when hit with the hammer, the nails acted as if made of very limp rubber without a rebound. When he disconnected from the amplified Woodpecker signal, and waited a moment for the induced charge in his body to dissipate, the nails also discharged their engines and quit acting like limp rubber bands when hit, and became normal nails with normal behavior. That would seem to be quite sufficient to prove the thesis.

The Challenger was then destroyed, as we previously printed, with numerous signatures of the hit, including even a KGB party in Moscow to celebrate the success of killing the vehicle (and getting away with it).

Cold Molding: An Epilog to the Metal-Softening Donnybrook

I was called a total lunatic for pointing out a metal-softening capability on the Russian signals. So be it. Metal softening is achieved by an engine which serves as a pumped phase conjugate mirror for the vibrations and signals in the lattice bonds of metals. Build up that engine in the metal until the precisely reversed and overlaid signals negate the normal signals, and one has "dissolved" the lattice bonds, converting the solid to a liquid. Lattice bond cancellation is not heating.

But that was not to be the end of the "metal softening" story.

A few years later, working informally with a large UK aerospace firm "for free", I furnished them an address in Moscow of some Russian scientists associated on the perimeter of the KGB energetics weapon program. The address had been taken from their cautious advertisement for business on the Internet and furnished to me by a correspondent. A UK engineer fluent in Russian was sent to meet with those scientists in Russia. They nervously showed him several novel things, one of which was "cold-molding" of metal. The liquefied the **metal**

The result was that a hammer blow onto a nail head resulted in the nail acting as a limp noodle upon impact.

without heating, poured it in a mold, and waited for the "effect" to wear off and the liquid to turn back into a solid again.

Briefly, an energetics charge (using LWs) was induced on the metal lattice vibrations, adding their phase conjugate replicas to the interior LWs comprising the lattice bond signals. The metal's atoms were time-density charged to an excited state (presently not recognized in Western science). Thereupon the metal lattice EM forces "dissolved" and the metal became liquid at room temperatures and without heating. The cool liquid metal was then poured into a mold. Then after awhile, the time-density charge and slowly drained away, and the metal resumed its normal solid state—all without any heating whatsoever.

On a subsequent trip the engineer brought that Russian team itself out of Russia and to the UK. The Russian scientists demonstrated cold molding to assembled UK scientists, and to some U.S. visitors. The phenomenon was physically demonstrated and proven.

I was correct about the metal softening then. We were also correct back there in 1986 about the metal-softening signal employed against the Challenger (together with several other things).

There are numerous other signatures on the death of the Challenger. Again, *the death of the Challenger was not an accident*. It was due to a deliberate act of war by the KGB. The KGB knew in advance—after substantial probing incidents—that they would get away with it. And they did so.

Additional Update from Year 1998 to Year 2,000 Has Been Given

In the action package we sent to the DoD in 1998, we told the rest of the KGB energetics weapons story up to that date. We gave the attack plans as we saw them and the most useful types of attacks to be expected.

I hope the reader is interested in this special energetics weapons information. High power microwave weapons, high energy lasers, and nuclear weapons are useful but no longer decisive weapons either strategically or on the battlefield against a foe equipped with such energetics weapons, and particularly against a foe equipped with quantum potential weapons and negative energy EMP weapons.

At present, we are intensely watching to see if we can pick up indicators for the next scheduled strategic attack, its probable timing, and the "new twists" included in it.

Presently, we have perhaps an 80% chance that the little nation can once again counter any new threat and cause the KGB to abort the impending attack. On the other hand, with Putin apparently limiting at least some of the action of the KGB, we have moved into our present asymmetrical warfare against terrorism—

and ultimately against the extensive terrorist teams and assets already infiltrated into our homeland.

As a single example, before the collapse of the former Soviet empire, the Russians long ago slipped in nuclear weapons (from 20 to 40 KT) and hid them in all our large cities and population centers, along with the Spetznaz teams to detonate them on command.⁴⁵ Several nations have introduced teams with normal sabotage assets and also with weapons of mass destruction such as radioactive nuclear materials (for a dirty bomb), anthrax, smallpox, bubonic plague, etc. Behind the scenes, the die-hard remnant of the old KGB crew are using QP weapons to "spread" the immune systems (Figure 53) of our populace and materially enhance any BW strikes that the terrorists unleash. The rogue Japanese team (Yakuza and Aum Shinrikyo) on site in Russia are using their LWIs in a giant weather war and the occasional kill of an aircraft, etc. Over the decades Castro infiltrated some 10,000 guerrilla/special forces types trained in camps in Southern Mexico for decades. Probably at least half are still loyal and dedicated—and waiting to blow up bridges, power substations, high voltage power distribution system towers, dams, harbor facilities, refineries, pipelines (both oil and gas), etc. The first phase of WW III—delivery of the weapons of destruction and mass destruction to the targets along with means to unleash them—has already been accomplished.

We are particularly struggling against the rise of asymmetrical warfare—the superpower's paradox (Figure 59)—and our present involvement in that "new" kind of warfare is still quite foreign to us. Only time will tell how well we fare in this new type of war, which we will be engaged in for many years to come. Vice President Cheney rightly regards it as almost a state of perpetual warfare we shall have to learn to live with, as shown by his words on Oct. 21, 2001:

"The war on terrorism will not be over in our lifetime. It is different than the Gulf War was in the sense that it may never end. At least not in our lifetime. The way I think of it, it's a new normalcy."

⁴⁵ See Stanislav Lunev (with Ira Winkler), *Through the Eyes of the Enemy*, Regnery, Washington, 1998. Lunev is a high-ranking GRU defector. He is a former Colonel in the GRU, the military counterpart of the KGB. In p. 22-33, he summarizes the Spetznaz capabilities. On p. 22-27, he summarizes Spetznaz use of nuclear weapons already on American soil. On p. 26, he gives some of the ways in which the Soviets easily brought nuclear weapons into the U.S. On p. 30 he confirms Russian seismic weapons. Use of EMP weapons is on p. 30-31. Use of very, very low frequency weapons to destroy the human brain, put people into a zombie-like state, and aid in brainwashing is confirmed on p. 31. And this is **information** Okayed by the CIA for release!

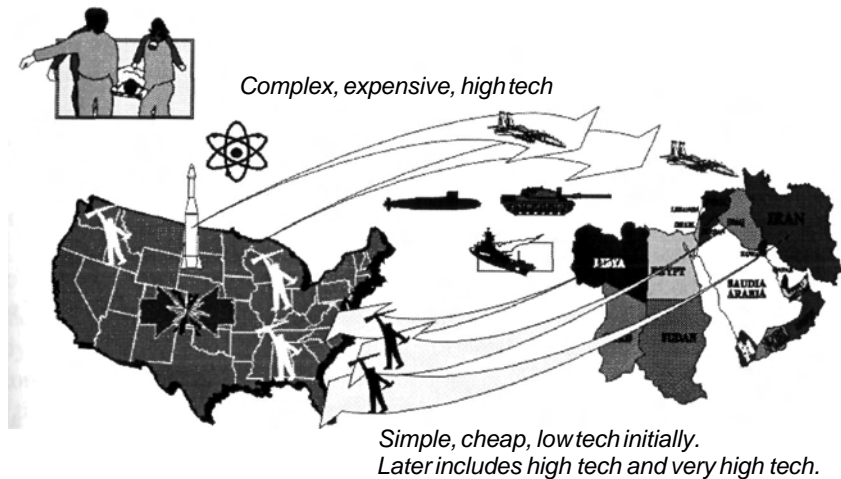


Figure 59 The superpower paradox: Asymmetric cheap WMD strategic strikes and destruction, later becoming extremely high tech and extreme yield.

There is Also a Severe Bioenergetics (EM Biological Warfare) Threat

The threat from bioenergetics is equally vivid. That old die-hard section of the KGB can now attack an entire population, e.g., with electrodynamically (energetics) induced diseases of any kind whatsoever, particularly when using QP weapons. Such attacks are totally immune to inoculations and antibiotic treatment. Any kind of strain or variation of a disease can also be induced in the pathogen pool for that disease. Against a foe who has such capabilities, our entire medical establishment—including all our emergency treatment procedures and agents—is *obsolete right now*. A vaccination and the presence of antibodies, e.g., does absolutely nothing against the EM induction of the exact physical effects and form of a disease, as shown in the decades-long "microwave radiation" of the U.S. Embassy in Moscow (Figure 11).

To the Assistant to the SecDef in such matters, in 1998 we furnished a 200+ page briefing package and loosely proposed a crash development of the new type of medical therapeutic treatment devices pioneered and proven by the Priore group in France in the 1960s and early 1970s. Later, Congressman Cramer queried that office for an answer.

Unfortunately the Assistant SecDef's office erroneously responded to

Congressman Cramer that nothing in the literature supported the mechanisms proposed. Indeed, the package we furnished contained a *detailed list* citing the hard French scientific papers in the literature, reporting the exact experiments

and the astounding results obtained. Some 2,000 highly successful animal experiments for more than a decade of experiments in fact supported the thesis, and higher group symmetry electrodynamics fully supports the ability to use EM means to make spacetime curvature engines, so that these engines then interact back upon the targeted matter to perform the actions desired. That it does not appear in conventional electrical engineering is of no consequence; it appears in physics and it is good physics, just on the cutting edge.

We also reported, explained, and cited Becker's epochal work (Figures 27 and 28), which is copiously published in the hard literature and which was an example of the fundamental mechanism also. Becker was twice nominated for a Nobel Prize for his outstanding work. Unfortunately, the Assistant SecDef's office responded with a non sequitur.

Packages were sent also to NIH, NSF, CDC, and several other government agencies. Not a single one of those agencies was interested enough to have a competent scientist contact me and discuss the area. I strongly doubt that a single scientist anywhere in the Government bothered to *seriously* read and ponder the material so painfully and expensively compiled and furnished. Lieutenant Colonel (Retired) Ken Moore and I worked our fingers to the bone for weeks, preparing that briefing, and we spent all the spare money doing it that we could rake up and obtain.

The near-total lack of response itself seems astounding, but it clearly shows the state of U.S. science with respect to novel energetics innovations, even long after those innovations have been experimentally proven and documented in the hard literature, and even after they have been weaponized against us. It is a direct indication of why the U.S. never deciphered what was going on in some four decades of Soviet weak microwave radiation of the U.S. Embassy in Moscow, including the kill (eventual deaths) of three U.S. Ambassadors.

For decades there have been manipulations, to say the least, in the hotly contested field of the biological effects of EM radiation. We refer the interested reader to an excellent expose of that situation: The expose is by Dr. Andrew A. Marino, Ph.D., J.D., *Powerline Electromagnetic Fields and Human Health*, which is current. I believe it can be freely downloaded from: <http://www.ortho.lsumc.edu/Faculty/Marino/PowerlineTOC.html>. Dr. Marino has been personally and deeply involved in the investigation of EM bioeffects, in court cases, and in Blue Ribbon Panel investigations and proceedings. The book is an eye-opener, and it gives one a good view of the machinations in the EM bioeffects field. We quote directly from Dr. Marino, Chap. 6, p. 1:

"Oversimplistic as it may sound, whoever pays for EMF bioeffects research and analysis determines what data is produced and the way it is interpreted. Soon after the possibility that powerline EMFs were health risks was raised in a legal dispute involving the New York Public Service

Commission, power companies and their trade associations, particularly the Electric Power Research Institute (EPRI), became massively involved in EM bioeffects research. Subsequently, the power industry dominated funding of the effects of powerline EMFs, both in terms of absolute dollars and compared with dollars from non-industry sources...the power companies and their trade associations were deeply deceitful regarding the information they provided to scientists and to the public regarding the potential health hazards of powerline EMFs."

In the entire EM bioeffects field, there does not appear to be any mention of, study of, or recognition of EM bioeffects induced by the most powerful EM factors: longitudinal EM wave irradiation, time-polarized EM wave irradiation, and time-excitation charging of particles throughout the body and its cells, with resulting emission of transduced longitudinal and transverse EM radiation from-within-to-without.

National Institute of Health Reaction

NIH replied to my letter and action package from their *Policy*—read: *spin control*—Section. They noted that the package mentioned the Gulf War Syndrome, which was not in their mission area. So they just sent it off packing to DoD (simplest way to get rid of it, apparently no one seriously read it or even cared to read it). I queried them back by separate response letter about their lack of interest in a revolutionary proven new medical methodology well-documented to cure cancer and other dread diseases, in many hundreds of experiments by leading French medical scientists. This was certainly within their mission area.

They hastily replied from the *Policy* Section that, yes of course NIH was interested in all such things, and told me where to "submit a proposal." We never got out of their *Policy* department. Again, not a single competent scientist in the U.S.'s supposed master medical agency apparently even read the package or cared to call and discuss the matter. This was an indicator of their total lack of any grasp of the energetics threat, its testing, and its use to induce the Gulf War Disease.

Now perhaps one can see why we are so far behind the KGB energetics weapons scientists and weapons program.

Marino, *ibid.*, is particularly enlightening on the adamant opposition by appropriate sections of NIH vis a vis the harmful effect of nonionizing EM radiation.

No responses at all were received from the NSF and the CDC, or the other U.S. government agencies to which the package was furnished.

The CDC of course comes under NIH, and thus its responses or lack thereof would be dictated by the parent NIH policies. As for the NSF, Marino, *ibid.*, again is enlightening on the qualifications or lack thereof of its membership.

So as the reader can see, the top of the medical establishment in this nation is flatly not interested in any "controversial" or "out of the box" proven method for curing cancer, dread diseases, and mass treatment of those millions of American casualties that are coming in our cities and population centers. Again, they directly ignore scientific method's very premise: *If the experiment is replicated and contradicts the theory, accept the experiment and change the theory.* I personally concluded that the U.S. Medical establishment largely does not follow scientific method, but follows dogma and the already approved methodologies.

How the New Revolution in Medical Healing Works

For the reader who is a medical scientist and trained in physiology and biology, one might be interested in that revolutionary French therapeutic methodology and how it worked (before it was ruthlessly suppressed in the early 1970s).

Priore's apparatuses (Figures 12, 49, and 60) simply pumped the cells of the entire body with longitudinal EM waves (each accompanied of course by its time-polarized twin, in a Whittaker pairing). The cells and every part of them are very nonlinear, so they act as pumped phase conjugate mirrors for Whittaker wave-pair engines resident in the cells and acting as "input signal complexes".

Once the cells are pumped by these now-established time-density waves, the damaged or diseased cellular masses slowly "charge up" with excess time-excitation. The irradiation took several hours, and this was the "activation" or "time-excitation charging" stage. Thereafter, the time-charge decayed slowly, all the while constituting pumping of every cell and every part of it, in the time domain.

The resident engine in the cell contains two components: (1) the normal or healthy component, and (2) the abnormal component representing disease or debility. Pumping these two components time-reverses both of them and amplifies that reversal. This creates amplified and incredibly precise antiengines in each cell and in each part of each cell. These antiengines override the weaker cellular engines resident. In turn, this "reversing" action of the antiengines causes the pumped cellular masses (actually the mass-energy, in its exact structure and dynamics)—at any and all levels, including the genetics—to be time-reversed back to normal. In biological instead of physics terms, it "dedifferentiated" the diseased or altered cells back to a previous healthy state by simply eliminating the diseased engine component. This is a dramatic extension of nonlinear optical phase conjugation from the 3-space pumping domain to pumping in the complex (time) plane, and it is effective for time-reversing mass-energy at any and all frequencies. We accent that the cellular

time reversal back to a previous state includes all the cell's genetics and every part of the cell no matter how small.

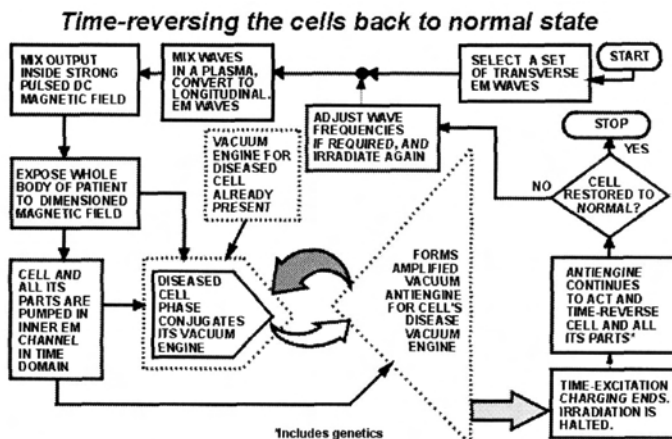


Figure 60 Block diagram of Priore's healing (regenerative and time-reversing) process.

Normal cells are just backed up to a slightly younger condition. Diseased cells **have** their abnormal engine component overridden and reversed back to zero (its earlier state), so that only a slightly younger normal engine remains resident in the cell. This simultaneously reverses the cellular masses back to their previous healthy condition.

Contrast this direct healing mechanism to the action of the immune system.

The immune system itself does not *heal* anything. It contains the killers, the scavengers, the locators, the markers, the attackers, and the troops manning the **ramparts**. Usually after a fierce battle with invading hostile pathogens, it wins. Lots of cells still living are damaged in the melee. The immune system scavenger cells then scavenge up the residue littering the battlefield. But *the immune system itself cannot heal and restore a single damaged cell, including one of its own.*

That healing and restoration of damaged cells is the job of the *regenerative system*, still little known and inadequately studied today. Perhaps the most fundamental studies were mostly by Becker *et al.* some decades ago. The

regenerative system (Figure 29) is an EM system in its operation, as clearly shown by Becker (Figures 27 and 28), yet it is able to physically differentiate and dedifferentiate cells from one form to another at will, and in highly selective fashion. The regenerative system acts within its limitations (only weak pumping can be done for the time-reversal of diseased or damaged cells) to eliminate the delta (the deviation from normal of the resident engines in the pumped cell). That restores the normal (healthy) engine and slightly amplifies it as well.

It is obviously of the utmost medical importance to understand and apply (and amplify) this little-known technical mechanism by which the regenerative system is able to restore damaged cells back to normal.

It turns out that the regenerative system in its novel EM functioning uses precisely LW and TDW pumping of those damaged cells and gradually time-reverses their entire masses back to a normal healthy state, within its limitations.

This is the secret of the mechanism of the cellular regenerative system—which is an electrodynamic system of very unusual nature. The exact mechanism has not previously appeared in the literature. It took me 14 years to uncover that fundamental mechanism, and another 4 or 5 to refine it a bit, even though both Priore and Becker (as well as others) applied it decades before without being able to fully decipher it.

The experimental proof is already in the literature, once one understands the higher topology EM unwittingly used by both Becker and the Priore team. The proper types of higher group symmetry electrodynamics required to understand the action of the cellular regenerative system are available. There exist scientists skilled in their application and use. These scientists and that higher group symmetry electrodynamics are little used, and are never used at all in the medical field. There exists no funding anywhere for higher EM examination and modeling of the functioning of the cellular regenerative system—i.e., for the fundamental healing process.

Just imagine what this could mean to medicine: One can now develop a new medical science to amplify and apply nature's own proven method of restoration and healing of damaged cells, including all their damaged genetic material. It matters not what caused the damage, whether pathogen or gamma radiation, whatever. This new therapeutic method is a totally new general relativistic process where powerful spacetime engines are created which work directly upon the damaged cell and every part of it, physically reversing the cell and all its parts precisely back to normal condition.

General relativity rigorously tells us that a precise spacetime curvature engine (set of precise spacetime curvatures) is present and active for every specific disease condition and every nuance in it. It also tells us this flawed (disease or damage carrying engine) continuously operates on the cellular mass at every level, maintaining the exact physical condition of the cell and its dynamics. By creating a precise "anti-engine" and amplifying and applying it, general relativity assures us that we are physically acting upon the cell and all its parts at every level, down to the smallest—to precisely return every part in perfect proportion back to a previous normal healthy condition. *Pautrizel directly proved the time-reversal to an actual earlier state of the cells and the organism* (Figure 61). Amplification by time-domain EM pumping, means that we can cause this time-reversal of the cells back to normal to happen much more

quickly than can the body itself, which can only pump very weakly.

- Pautrizel compared identical treatment of immature rats with immature immune systems, and mature rats with mature immune systems.
- Treatment restored the damaged mature system back to full mature functioning, and it promptly recognized and dispatched the pathogens.
- Treatment restored the damaged immature system back to full immature functioning, unable to cope, and the pathogens promptly reinfected and killed the immature rat.
- The lesson: The body is indeed returned to a previous physical state. The pathogens themselves are not killed by the treatment, but by restoring the ability of the immune system to recognize and destroy them.
- Only *the previous ability* of the immune system is restored by the process.



PROF RAYMOND PAUTRIZEL
(Renowned Parasitologist)

Figure 61 Pautrizel's proof of time reversal of the stricken cells back to a previous state.

General relativity also assures us that any and every disease is subject to this novel treatment approach, even diseases which have resisted every other known therapy. The Sachs unified general relativity and electrodynamics, and GR/EM unification applications in $O(3)$ electrodynamics produced by Evans, for the first time provide a solid theoretical basis for Priore's methodology and his evolutionary results. They also offer direct engineering of startling physical cures, once the technology is developed.

The profound implications of that treatment can be seen. Apparently, however, **our** leading governmental agencies and health agencies do not see it, do not wish to see it, have no appreciation for general relativistic effects in healing, and do not intend to have any appreciation for general relativistic effects in healing. Indeed, they seem totally uninterested in even trying to comprehend and research *the fundamental healing mechanism* demonstrated by nature herself.

What the French Researchers Showed

Among other things, the Priore team produced revolutionary cures of *terminal tumors*, *infectious trypanosomiasis*, *suppressed immune systems*, and *atheriosclerosis* in several thousand laboratory animals in rigid laboratory tests under rigorous protocols. Eminent scientists such as Robert Courier and Raymond Pautrizel worked with the Priore team. Courier was head of the Biology Section of the French Academy of Sciences at the time, also *Secrétaire Perpetuel* of the Academy, and a noted scientist of high stature. Courier personally presented the astounding Priore results to the entire assembled French Academy. He also sent his own most able scientist assistant to personally

prepare the terminal tumor grafts on the lab animals before their treatment.

A world-renowned parasitologist who did enormously important work with Priore was Raymond Pautrizel, who is still alive at this writing though quite aged. Pautrizel was greatly persecuted for his years of determination and effort. Courtesy of Pautrizel via the late Christopher Bird, I personally have the very Ph.D. thesis that Priore himself submitted to the University of Bordeaux on his revolutionary work. That thesis was maliciously rejected in the suppression that was applied to the project. When the French Government changed to a Leftist government in the mid-70s, Government support was immediately withdrawn and the project was ruthlessly suppressed. Priore later sickened and died and that was the end of that. More than a decade later a brave and determined Pautrizel finally was able to get a doctoral thesis approved in the Priore work area, at the same university, by another doctoral candidate, Eric Perisse {40}.

There are two U.S. patents on the Priore device itself, and of course several French patents also.

All the above was rigorously documented in the 1998 package prepared and submitted by Ken Moore and I.

While Priore was still alive, a team with which I was connected attempted to mount a well-funded effort to restore the Priore methodology while Priore was still alive. We also were viciously suppressed. The lives of our financial backers and their families were threatened. The head of our project was viciously attacked financially and destroyed, fleeing the country for his very life. Whoever thinks that dramatically innovative medical science in this country is just sweet reason and scientific method, should have a strong enema to remove the serious blockages interfering with his perceptions.

This vicious outside suppression of our project so infuriated me that I made a solemn promise that, were it humanly possible, I would decipher the Priore process before I died. It took 14 years, but we made good on that promise. During the 20 years or so since our project was suppressed, it is heartbreaking to consider the millions of children and sickened and suffering people who could have been saved had the project continued and succeeded. It is heartbreaking now to consider the coming millions of casualties in our civilian populace in our cities, most of who are going to die from mass destruction weapons. And most of those would not have to die, would the scientific community waken from its long sleep and discover some modern physics and higher group symmetry electrodynamics—and their application to solve nature's mechanism for **healing**.

When one time-reverses the body's cells and all their parts, one forces the diseased cells to dedifferentiate back to healthy state. We strongly accent that this is accomplished by unified GR/EM processes involving precisely **organized** spacetime curvatures and their local actions in the cells and all their inner components, down to the finest level. It can be rigorously expressed in good unified physics, as expressed in an electrodynamics such as O(3).

The nondamaged or nondiseased cells just get a little younger. That is also highly beneficial; it reverses the ravages of aging, just a little. Indeed, one of the implications of the Priore mechanism is that aging can indeed be reversed by the process and treatment. Again, one must keep one's sense of humor. In order to get this technology and therapeutic method born, what seems to be needed is an extremely wealthy person, strongly desiring to live longer than the expected life span and do it in a vigorous, healthy body—and who is willing to fund the project with the necessary \$60 million required so to redevelop and extend the Priore technology so it can be readily applied. A byproduct will be the saving of millions of American lives when those coming mass casualties from weapons of mass destruction occur in our cities.

How the Regeneration Mechanism Was Finally Deciphered

What took so long in deciphering the mechanism was the problem of how to make such precisely tailored and exact ST curvature engines, specifically so that they are *exact* antiengines for a specific disease and even a specific pathogen, and even for different versions of the engines for different cells in a single body having different strains of the same pathogen, having different body DNA, etc. For years, the solution of that task seemed hopeless. How on earth could one possibly work all that out in a hundred lifetimes, so that it could be precisely calculated even by an array of the most powerful computers on Earth?

After years of struggling with the problem, in one stroke of enlightenment it was revealed to be the simplest thing in all the world. Absolutely no calculation was necessary, and the exact amplified antiengine effect was a fairly simple and straightforward thing to obtain. General relativity tells us that every cellular mass and each part of it, has its own unique spacetime curvature engine, to the finest detail and an exact fit. As Wheeler put it so nicely {130}, "*Space acts on matter, telling it how to move. In turn, matter reacts back on space, telling it how to curve.*" The mass and its dynamics and the engine and its dynamics constantly interact upon each other, and "keep attuned and in perfect adjustment," so to speak.

That means that a "normal" cell already has just such a precise "normal" ST engine residing in it, and acting upon every component at every level—even in the atomic nuclei. Well, a diseased cell has an absolutely specific structuring, and therefore it also has an absolutely specific ST engine structuring. *A priori* that resident structuring for the diseased or damaged state in the individual cell differs (by some delta) from the structuring of the normal healthy cellular state for that individual cell.

Voila! That means that the ST engine for the damaged cell can be decomposed into two parts (two engines): (1) the normal "healthy cell" state engine, and (2) a delta ST engine that has been added to it so that together the two comprise the full ST engine for the exact individual condition of the cell.

What is now needed is a way to produce an exact antiengine of two parts: (1) one for the normal engine and (2) a second one for the delta (disease) engine. Applying this amplified and combined "antiengine" would overpower the resident combined engine, precisely reversing the cellular condition by reducing the delta to zero. Rigorously, the cellular mass and every part of it must then also revert to a previous physical state, or else we must completely discard general relativity itself.

Well, if we were to just time-reverse the resident engine and its two components, that would give us the perfect antiengine with its two components. Amplifying this antiengine would then produce one that was more powerful than the resident engine in the cell. Applying that amplified antiengine to the cell, that would not really change the "normal" engine component, but it would precisely reduce the delta engine component back to zero (its previous state, before it was there!) Voila! A specific healing signal of perfect structure, for the specific deviant condition of the individual cell and its every part.

Since we have a combined GR/EM to use, we can think electrodynamically about this general relativity problem. Immediately we see that phase conjugate optics is a candidate, since the "resident composite engine" can correspond to the "signal" or input wave, and the pumping of the nonlinear mass of the cell and its parts (where they act as nonlinear phase conjugate mirror materials) produces an exact phase conjugate replica (the exact amplified antiengine). The presence of that antiengine overrides the magnitude of the resident engine, and it moves the cell precisely back along the temporal path previously taken. In short, it applies a specific kind of dedifferentiation of the cell back to its previous healthy condition.

Since we extend phase conjugate pumping to the time-energy domain, then the resident composite engine and its time-stream component are the "input." The amplified antiengine and its time domain component will then forcibly propagate that pumped mass energy back over the time trajectory previously taken by it. In short, it will time-reverse the cell and all its parts back to a previous condition, completely eliminating the delta (disease or disorder). The beauty is that it will also reverse damaged or altered genetics, such as in the AIDS disease. It can do this prior to the appearance of health symptoms—it can be done as soon as the patient tests positive for HIV.

Since the antiengine is amplified, it moves the cell back to normal fairly rapidly (in a few hours, for example). At least the time charge for the reversal process is delivered in that period; one may allow (as Priore did) a full week for the time-charge and its transduction to continue reversing the cells. But it is much faster than the normal speed of the human regeneration system using the same process, because now we have greatly amplified the time-reversal rate.

It is therefore ideal for a method of quickly treating mass casualties, particularly since it can be developed and used in a portable unit about the size of a large

suitcase (Figure 13).

Interestingly, during the radiation with LW EM radiation, one also pumps the pathogen and time-reverses it as well. Its "normal state" towards the beginning was a condition whereby it could move with relative immunity past the immune system's opposition, having deceived the immune system. In the treatment, a small amount of the pathogen is therefore converted back into this condition just shy of the beginning, where that part of the pathogens is resistant to the immune system. However, a very small, short "post treatment" irradiation with LW radiation for a much shorter interval and at weaker power, will clean up this altered pathogen residue by allowing the immune system to recognize it and destroy it. Pautrizel clearly demonstrated this significant fact.

Cellular and Body Rejuvenation are Possible, Once the Technology is Developed

One can in fact really accomplish *rejuvenation* of the aged and infirm, as the technology is developed. One could certainly solve the major problems of Medicare, and cut the patient load at least in half, relatively quickly and inexpensively. Of course lots of big U.S. drug companies will be rather violently opposed to any such idea, because much of their empire would be threatened. Much of the organized medical community depends largely on the Big Drug Approach. So the organized medical community will also vehemently oppose it, just as the formal medical science community in France viciously opposed it.

One could also produce cheap, portable LW treatment units *en masse*, which is what we were suggesting to the Assistant. SecDef. That way one could flood the emergency response system (response teams, hospitals, fire stations, police precinct stations, schools, etc.) with quick and effective treatment devices. They could be used to rapidly { 131 } treat those millions of American casualties that are going to occur when one or more of our cities are attacked in the near future by terrorist WMD attacks. This would save the lives of most of those stricken millions of Americans.

How Many Americans Could Be Saved?

For an anthrax attack on Washington, D.C., first generation equipment could save perhaps 70% of those sickened Americans, almost all of who are going to die with *present* capabilities. With second-generation equipment, one could save perhaps 90%.

For an anthrax attack without spreading via QP clandestine preparation of the populace, one would save 0.7 to 2.1 million Americans. With clandestine KGB QP spreading and a 5:1 increase in the yield of the anthrax strike, one would save 3.5 to 10.5 million Americans.

For a truly nightmare attack (as a worst case scenario) perhaps 5 major cities

might be attacked in such manner and to such degree. In that case, one is talking about saving 3.5 to 10.5 million Americans for the unspread attack case, and up to 17.5 to 52.5 million Americans for the spread case.

Further, the development of the necessary portable treatment units is doable and affordable, for mass treatment capability. Training on a portable machine could be done for a high school student in 30 minutes or less, and that student could then give emergency treatment effectively.

Absolutely nothing else out there can presently warrant such projections. Yet this is the very technology our own medical science community is eminently uninterested in, has no knowledge of, does not wish to obtain any knowledge of, and does not wish to scientifically discuss.

There Are No Resistant Strains to the New Technology, and There Cannot Be Any

A most interesting thing is that there cannot be a "resistant strain" of a pathogen for the new treatment methodology, *a priori*. No mass can shield against spacetime curvature effects. Slight adjustments of the controls will adjust the spacetime engines being utilized. Two or three hour's work with a developed unit and a lab team on a new strain would suffice to completely determine the required adjustments, once the technology is developed. The new information could then be quickly relayed to all stations treating patients. On each treatment device, adjusting a few dials and controls for the laptop computer controlling the unit will do the trick. The use of the final device would be so simple that a teenager could be trained to use it in less than 30 minutes.

Such new capabilities are urgently needed not only for the millions of civilian casualties we expect in the future, but also for support of our armed forces in the field. Frankly, the anthrax shots are not going to do them much good, once one realizes that the "spreading" of their immune and regenerative systems is already occurring via KGB quantum potential means. Camel pox is available to any terrorist foe, and has almost the identical actions and constitution as smallpox. Indeed, it is almost identical to smallpox.

The Gulf War Disease and Syndrome were just small preludes of what is to come and what is already being used against the entire U.S., though as yet very clandestinely. Look again at the Kaznacheyev work. *He clearly proved in thousands of successful experiments that any kind of cellular disease or damage or death whatsoever, can be induced at a distance by novel EM means.* Replication experiments were successfully accomplished at the University of Marburg and also at the University of Sydney.

Results of the Priore' Treatments Are Well-Documented and Independently Supported

The Priore team's results are well documented in the hard French scientific literature. At least one French doctoral thesis was eventually accepted upon the work. The astounding results really occurred. They were scientifically substantiated under rigorous protocols and even police-guarded labs for tests by a team of outside scientists. To then deny those results simply because no one **has** understood the active mechanism until now, is to deny the scientific method itself: *Believe the experiment when it refutes the prevailing theory.*

There is also independent work by other scientists that strongly supports the Priore results, once the mechanism is finally understood.

Robert Becker *et al.* in the U.S. conclusively showed that living cells *in situ* can be dedifferentiated, redifferentiated, etc. by laughably weak currents (picoamperes) and DC potentials (which are comprised of those famous Whittaker pairs). Becker was unaware that his potentials included time density waves and longitudinal waves, as predicted by quantum field theory and as shown by Whittaker in 1903 (once one understands that a bidirectional phase conjugate longitudinal EM wavepair is a time-density EM wave coupled to a longitudinal EM wave). Application of such EM potentials by Becker transformed red blood cells into pre-cartilage cells, then further into pre-bone cells. That latter cell type was then deposited in bone fractures, healing them when nothing else would. Becker and others have demonstrated partial regeneration of limbs in small test mammals, using the technique. The bone-healing techniques were finally approved by the FDA and are often used in some hospitals for treating otherwise intractable bone fractures.

Since then, other scientists have shown the directed formation of other types of body cells from cells from distant parts of the body (i.e., muscle-type cells from cells produced in the bone marrow, etc.). Such things are now well documented in the U.S. literature, in at least several hundred papers and in the leading journals including *Nature*, *Science*, etc.

The Present Threat Is Urgent, and Our Strategic Destruction is Still at Issue

Our own medical community, our science community, and our intelligence community are at least 20 years or more behind the KGB right now. We are also behind the Chinese. In many respects our scientists have simply missed the biggest scientific breakthrough of the century.

It is urgent that we find some way to counter and avoid future strategic energetics attacks sure to be scheduled. The eventual attack actually launched—if the little nation's QP weapons can be countered first—would destroy the U.S. in about 2 hours. It only takes about 10 minutes, it seems, for the QP weapons

already deployed to negate almost all our strategic nuclear arsenal. Thereafter, the KGB and Yakuza/Aum Shinrikyo can simply attack us at will and utterly destroy the U.S. To any loyal American, that is an entirely unacceptable solution.

The most urgent requirement would seem to be immediate and strong contact at the highest level between the U.S. government and the leaders of the little foreign nation (and the other friendly nation) that presently is guarding the ramparts and saving our necks. A cooperative crash program to develop our own QP weapons would seem to be the order of the day, if it can in any fashion be negotiated. But to have any chance of success, the President and the Congress will have to use the utmost care in selecting the U.S. negotiators and scientists to explore this possibility.

Immediate transfer of the requisite capabilities to the U.S. would be desirable, at least from our own view. From their view, of course, we do not necessarily resemble a trustworthy scientific partner at all, based on our past scientific performance, and it is up to the U.S. scientific community to prove to them that the leopard really has changed its spots. That would all have to be negotiated and worked out.

If that is not possible, then it is of extreme urgency that our own country embarks upon a new Manhattan Project to develop strategic quantum potential weapons and defenses. It would be a great relief to discover that such had already been started, but I fear not.

Desperately Needed Defensive Capabilities Can be Provided by a QP Solution

We pose one more very, very useful QP capability prior to closing. As we stated, if a large U.S. city is hit with—say—an anthrax attack done in professional manner, we would expect 1-3 million casualties, according to a well-known major U.S. government study. With immune/regenerative spreading presently already ongoing here in our populace by KGB QP weapons, that figure may actually increase by about 5-fold. So the casualties (prompt and delayed) might well reach 5-15 million, in a single *professional* anthrax spray attack by two persons from one light plane on a calm night dispensing 100 kilograms of anthrax spores sprayed over the city with a simple agricultural sprayer. With the indicated Priore technology and treatment units in all emergency response hands, at least 70% or so of those casualties could be saved. Otherwise, *presently almost all of them will die*. That dramatic saving of lives is one desperately needed capability that could be met.

But there is a further capability of LW technology that nothing else presently known can do without serious impact upon the populace.

After the prompt and shortly delayed casualties are mostly cured and the

remaining fraction dies, a terrible problem of BW contamination still remains. No one anywhere really knows how to clean up an entire city from anthrax spores. But unless harshly decontaminated, that contaminated city is going to be effectively uninhabitable for decades to come, if only the present technology and methods are available. Islands of the coast of Scotland, where anthrax was tested decades ago, are still "hot" and contaminated—and off limits.

The indications are that our nation has developed chemical sprays that can kill and neutralize the anthrax, including in the lungs of the populace breathing the spray. On the other hands, it is indicated that the spray is a high physical stress factor, and some of the more debilitated citizens will be injured or even killed by the spray itself. This includes babies and small children, the aged, those with lung and breathing difficulties, etc. As a matter of national survival, desperate diseases do deserve desperate remedies. So while spraying the zone might itself sicken and kill some thousands of our weaker citizens, at least—so the thinking would go—it saves millions. This of course is similar to the use of triage—reserving treatment and scarce medical capabilities and supplies for treating those most likely to live and recover with treatment, rather than treating those more seriously affected and less likely to survive. Sadly, presently triage will almost certainly be necessary because of very short supplies and treatment teams, etc. So most of those 1 to 3 million casualties will simply be dragged aside and left to die, and just made as comfortable as possible.

However, the QP technology can be adapted to produce systems that can indeed do complete decontamination, very quickly, and without harm to the citizens in zone. The anthrax can simply be modified by specialized spacetime curvature engines—specialized EM fields and waves carrying hidden inner "information content of the field" engines that are designed specifically to change and destroy anthrax and nothing else. Eventually one could develop the capability to do it similarly for *any other* major contaminant, including nuclear radioactive materials contamination of a major city.

Any strategic and tactical analyst can immediately see the tremendous value of such capabilities.

In Conclusion

I hope the above admittedly lengthy overview is of interest to the reader and useful. If we are to survive the debacle that now looms before us in this new asymmetrical war we shall be in for decades, it will require the efforts of leading and dedicated Lawmakers and Overwatch persons. Without firm prodding, the military, scientific, and intelligence communities are likely to just continue their present pace until many or most of us all die suddenly.

The KGB energetics threat is still real and imminent; Russia is not a monolith and Putin still does not have complete control over the KGB. Another full strategic attack is sure to be scheduled before very long by either that die-hard

faction of the KGB, the Yakuza/Aum Shinrikyo, the Chinese (particularly if they move against Taiwan and we defend), or someone. And so our possible deaths also to be taken into account, if we just continue to do business as usual.

Along with other Americans, I love my country and served it to the best of my ability for 20 years of active duty. It is the survival of America itself that is now at stake, both in the asymmetrical war against terrorists and in the continuing war against energetics weapons. Our scientific, military, and intelligence communities simply must be jolted awake and into massive efforts in energetics.

We have the scientists with the required capability. We have the facilities. We have the leadership, and we can do it if we can put this thing under a Presidential Decision Directive, under an Executive Order and a Declaration of National Emergency (along with the several already in effect).

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1986

Fer De Lance

Briefing on Soviet Scalar Electromagnetic Weapons

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1986

Note: This is the original Fer De Lance briefing paper which includes some minor text and artwork editing.

1986 FER DE LANCE INTRODUCTION & BRIEFING ON SOVIET SCALAR ELECTROMAGNETIC WEAPONS

This briefing presents the basic concepts of Soviet scalar electromagnetic weapons, some of the major types available, and evidence of their widespread testing.

Scalar Electromagnetics is Electrogravitation

Scalar electromagnetics is an extension of present electromagnetics (EM) to include gravitation. That is, it is a unified, and, what is more important, it is a unified engineering theory. Nikola Tesla initially discovered its basis.

In the scalar EM extension, EM field energy can be turned into gravitational field energy and vice versa. This exchange can be patterned and localized, in specific areas or objects. Such a controlled change of electromagnetics to gravitation is not possible in the normal EM or physics presently taught in Western textbooks. However, the bits and pieces of the theory have been scattered through the physics literature for some time, but no orthodox Western scientist seems to have realized that these anomalous portions could be integrated into a startling new physics. Unorthodox experimenters, inventors, and scientists have made discoveries in this arena for several decades, but again have not realized the exact implications or the precise manner in which their results could be combined with present electrical physics.

Fer-de-Lance

Such sluggishness is certainly not present in the Soviet Union. For over three decades, the Soviet Union has been developing electrogravitation and applying it to develop strange new secret weapons of incredible power and capability.

They have sustained the largest weapons development program ever launched by any nation, and they have kept it effectively hidden from prying Western eyes. I have called this program "Fer-de-Lance," after the deadly South American pit viper of that name.

The dreaded fer-de-lance is a snake of great agility and lethal effect. It often ambushes its hapless prey, and strikes unexpectedly and without warning. Its first sudden strike is usually lethal to its victim, which promptly expires in writhing agony. Since the Soviet development of scalar EM weapons has been designed for the same purpose, the name seems appropriate.

The equivalent effort of about seven Manhattan projects has been poured into Fer-de-Lance by the Soviets, and the program has been successful almost beyond imagination. The eery weapons are now developed, deployed, and

tested. The ambush has been completed; Fer-de-Lance is coiled and ready to strike.

Energetics and Directed-Energy Weapons (DEWs)

The ordinary Soviet name for this type of weapons science is energetics. In the West, that term is believed to be associated with conventional directed-energy weapons (DEWs) such as particle beam weapons, lasers, radio frequency (RF) directed-energy devices, etc. The Soviets do not limit the term in this way.

Western scientists are familiar only with directed-energy weapons where fragments, masses, photons, or particles travel through space and contact the target to deliver their effects. Hence in their thinking they limit the Soviet term "energetics" to the type of weapons they themselves understand - exotic but normal weapons using energy or mass traveling through space to impact a target.

However, it is possible to focus the potential for the effects of a weapon through spacetime itself, in a manner so that mass and energy do not "travel through space" from the transmitter to the target at all. Instead, ripples and patterns in the fabric of spacetime itself are manipulated to meet and interfere in and at the local spacetime of some distant target. There interference of these ripple patterns creates the desired energetic effect (hence the term energetics) directly in and through the target itself, emerging from the very spacetime (vacuum) in which the target is imbedded at its distant location. As used by the Soviets, energetics refers to these eerie new superweapons, as well as to the more mundane DEWs known to the West.

As a consequence of the Soviet breakthrough and decades of feverish development, monstrous strategic weapons undreamed of in the West are already in Soviet hands. A noose is slowly and steadily being tightened about our throats, and it is already the 11th hour.

The Soviets Use a Deception Plan

Concomitant with this supersecret development program, the Soviets developed and implemented an elaborate deception plan to conceal these startling weapons and their nature from Western eyes until it is too late. Soviet deception has been so successful that even when Western scientists are confronted with the actual Soviet tests of these weapons directly over their heads, they do not recognize the weaponry nor the nature of the effects produced.

As early as January 1960, Nikita Khrushchev announced the Soviet development of a new, fantastic weapon. On May 1, 1960 Soviet defensive radars - rigged as prototype weapons of this new kind - probably downed Francis Gary Powers's high-flying U-2 reconnaissance plane over the Soviet Union, precipitating a major diplomatic incident.

On April 10, 1963 one of the first new superweapons operationally deployed was used to destroy the U.S.S. Thresher atomic submarine underwater, off the east coast of the U.S. The next day, April 11, 1963 the same deployed superweapon was utilized in a different mode to produce a giant underwater explosion in the ocean over the Puerto Rican Trench, 100 miles north of Puerto Rico.

Over the years, various aircraft were interfered with or downed as tests of these Soviet weapons. A particular case involved the mysterious loss of F-111s in the Vietnam conflict. At least one downed F-111 crew was recovered in the subsequent prisoner-of-war exchange. On that aircraft, all electrical systems suddenly were in difficulty simultaneously. All emergency indicator lamps were lit up, "like a Christmas tree." This was probably due to special Soviet teams converting some North Vietnamese SA-2 missile system radars to the scalar EM mode, and employing "scalar beam" interference to produce spurious EM noise throughout the electrical and electronic systems of the aircraft.

In late April/early May of 1985, the entire armada of Soviet strategic scalar EM superweapons was activated as a special celebration of the 40th anniversary of the end of WWII. Activation of this armada (which probably contained over 100 giant weapons), together with 27 giant power systems and a large number of command and control transmissions, was monitored on an advanced, proprietary detection system by Frank Golden. After the giant strategic exercise, which lasted several days, most of the weapons and power sources were once again stooddown to "standby."

The NASA shuttle launches provided a convenient opportunity for Soviet testing of these superweapons in a Launch Phase ABM mode, where a launched missile can be detected and destroyed shortly after liftoff. At first, electromagnetic pulse (EMP) bursts on the early shuttle trajectory were deliberately delayed in time, to prevent actual destruction of the target and avoid alerting the U.S. that somethingunusual was happening.

The shuttle launch of November 26, 1985 saw a particularly significant-test of this kind. In this case, a very loud "sonic boom" or explosion occurred over the launch site 12 minutes after shuttle liftoff, when the shuttle was already away and downrange. At least two previous shuttle launches had also been used as pseudotargets, with delayed booms occurring over the launch site well behind the vehicles.

After the lack of U.S. reaction to these three tests showed that the U.S. still had no knowledge of the new technology and did not even recognize its employment, the Soviets apparently decided to proceed with tests where the targetvehicleswouldactuallybedestroyed.

On December 12, 1985 the same Soviet weapon tested against the NASA shuttle launches may have deliberately interfered with the controls of an Arrow DC-8 taking off from Gander Air Force Base, Newfoundland. At an altitude of 100

feet, the aircraft - carrying over 250 U.S. soldiers and civilian crew members - lost power and sank into the ground tail-low, killing everyone on board. Three Canadian witnesses to the crash were interviewed over the Canadian Broadcast Corporation's television news on April 8, 1986 at 10 p.m. No flame or smoke issued from the plane before its descent and crash. However, the aircraft was seen to be mysteriously glowing with a yellow glow. That is a signature of the use of a scalar howitzer in the "continuous EM emergence" mode, similar to the manner in which the F-111s were downed in Vietnam. In short, the DC-8's electrical systems were interfered with by electromagnetic noise created throughout each increment of spacetime occupied by the aircraft. The powerful charge created in and on the aircraft also apparently caused the loss of two engines, one after the other. With its controls ineffective and power drastically reduced, the aircraft sank to earth, still in its "tail down" configuration from takeoff, and crashed and burned. The "yellow glow" was a corona due to the acquisition of a high electrical charge by the skin of the aircraft.

Other factors contributing to the crash may have been reduced lift due to poor engine maintenance, increased weight of the aircraft due to icing, and heavy loading. Still, no one has recognized the significance of the "yellow glow" or what it implies, or the possible connection between loss of the aircraft and previous Soviet testing of a Launch Phase ABM system against U.S. shuttle launches.

As this book goes to press, the last two U.S. Air Force Titan 34-D missiles fired from Vandenberg Air Force Base in California have blown up shortly after launch. The first one blew up on Aug. 28, 1985 just after lift-off. That loss has been attributed to failure of a high-powered fuel pump, causing a massive oxidizer leak and a smaller fuel leak. The second Titan loss occurred on April 18, 1986 when the missile blew up 5 seconds after lift-off. Its loss is still under investigation and no determination of cause has been made. Apparently the shuttle and the Titan presently provide the only viable launch vehicles for launching U.S. "spy" satellites. The loss of these sensitive satellites - if indeed they constituted the payloads - cannot help but be damaging to our strategic surveillance capability. According to the Los Angeles Times, the single remaining KH-11 satellite was launched in December 1984 and, with an expected life of two to three years, it could stop functioning later this year.

Whether or not significant Woodpecker grid activity existed in the vicinity of the Titan launch of August 1985 is unknown at this time. However, significant activity in the grid definitely occurred before the April 18 Titan disaster and on the same day.

On Easter Sunday, Mar. 30, 1986 engineer Ron Cole observed significant **cloud** signatures of grid pattern activity, correlated with Soviet Woodpecker measurements. On April 18, the present author observed traces of a cloud **radial** over Huntsville, Alabama and took photographs of it. Preliminary reports from

Thousand Oaks, California indicate extensive grid activity again on April 18, the day the second Titan exploded.

At least the second of these two missile destructions shortly after launch is suspicious, since the grid positively was active during that time. Also, a clear trail of Launch Phase A8M system indicators exists back to the massive scalar exercise of April/May 1985. The first Titan explosion in Aug. 1985 thus falls within the Soviets' "now let's test them against U.S. launch vehicles" period. The second Titan loss follows highly suspicious losses of the Arrow DC-8 on Dec -T7 1985 and the Challenger on Jan. 28, 1986. The same Soviet weapon system that destroyed those targets may also have destroyed one or both of the critical Titans.

The Soviets have also been able to significantly engineer the weather over North America for more than a decade without being found out. They have tested a fantastic range of anti-ballistic missile (ABM) defense weapons for over two decades, and no one is the wiser in the West.

As previously stated, prior to the end of November, 1985, at least three "wet-run" tests of a Soviet "launch phase ABM system" against actual U.S. shuttle launches were made directly over Cape Canaveral itself, and still no one recognized what was happening or what sort of weapon was being tested. On December 12, destruction of the Arrow DC-8 in Newfoundland produced no indications that the Americans and Canadians knew anything about the nature of the weapon possibly used.

Accordingly, after a sufficient wait to test our reactions (if any), the Soviets prepared to actually destroy a shuttle after its launch.

Destruction of the Challenger in January 1986

As the whole world knows, on January 28, 1986 the shuttle Challenger was launched from Cape Canaveral, Florida after exposure to undesirable weather conditions, and disastrously exploded shortly after launch. The evidence seems to indicate that, as the rising vehicle was stressed, one end of its right booster broke loose, twisting away and into the main fuel tank, causing rupture, spillage of the fuel and catastrophic explosion. Several other anomalies still exist, however, and it is clear that a problem existed with at least one of the booster seals. All seven astronauts aboard the flight were killed in the fiery destruction of the vehicle.

Of course no one had recognized that the Soviets had already tested a launch-phase anti-ballistic missile (LPABM) system against three of our previous shuttle launches. These "wet-runs" used a deliberate "time offset" to delay the explosive emergence of electromagnetic energy in a launched shuttle's location along its trajectory. The delayed test shots resulted in very large "booms" above the launch site after the shuttle was safely out of the area, but did not destroy the

shuttle vehicles themselves. For example, the delayed-shot boom occurred 12 minutes after the evening launch of Nov. 26, 1985. Even a marker beacon (large light in the sky) was utilized on that launch shortly after lift-off. The marker beacon was photographed. In addition, another photograph taken in a time sequence shows another sudden streak of light coming down and ending in a burst of light. This was probably a spatially-offset test of the "pulse" mode for destroying the shuttle. The "light burst" would have been detected in the Soviet Union and scored against its intended offset position. However, another mechanism may have been used to cause destruction of the shuttle itself.

On Jan. 1, 1986 the presence of a metal-softening signal added on to the Soviet LPABM system's scalar EM transmissions was detected by a surprised Frank Golden. The metal-softening ability of the detected signal was experimentally verified by him. Golden also locally nullified the action of the scalar EM signal in a test, rather conclusively establishing (1) that it existed and (2) what it was. The signal was apparently being prepared for use against an upcoming U.S. shuttle launch.

Just prior to the launch of the shuttle in late January, 1986, the Soviets accomplished significant weather engineering over the U.S. The jet stream was severely bent southward in the middle of the U.S., bending rightward again to move across the Florida panhandle. Icy cold air from Canada was drawn far down, into Florida and onto the Challenger sitting on its launch pad. This exposure to cold outside its tested range was probably an additional factor contributing to the Challenger's failure. Positive signatures of the Soviet weather engineering and jet stream manipulation were observed and photographed by several persons, particularly in Alabama and California.

On January 28, 1986, the Soviet scalar EM weapon system effects were sharply localized in the launch zone. Localization involved higher frequencies being present; these are quite painful to small brains - whose hemispheres act as a scalar interferometer and detector - such as in birds. As commented upon by national news commentators, strangely the birds were not flying that morning. Indeed, they were staying down on the ground or avoiding the area, since the sky over the area was painful to them.

As the Challenger rose, the metal-softening signal would have been experienced in and around the boosters shortly after ignition, since the booster flame acts as a special "ion-plasma" turner/detector for the scalar signal. (Certain plasmas have a unique characteristic: they transform an input transverse wave to a longitudinal wave, or an input longitudinal wave to a transverse wave.) The effect of such a local signal is to "change mass in the immediate vicinity" with the particular scalar resonance signal. (Mass acts as a capacitance or accumulator for scalar resonance).

The ill-fated Challenger was doomed. After ignition, the booster flame acted as a ionic plasma detector/amplifier for the scalar metal-softening signal on the

Soviet Woodpecker grid. The metal in and around the booster flame was slowly and steadily weakening due to charge-up with the metal-softening pattern. This attributed to booster leakage from the already cold-damaged seal. The leaking booster poured out smoke and later flame, contributing to the impending disaster.

Substantial winds and air turbulence over the site increased the stress on the Challenger as it rose through this region. This also contributed to the impending disaster and may have been deliberately created there by Soviet weather engineering.

As the Challenger stressed, eventually one or more weakened metal mounts gave way, partially freeing the end of the right booster. The booster oscillated, rotating into the tank and rupturing it. Contact of the escaping liquid fuel and the flame resulted in a fiery explosion, destroying the vehicle.

Even so another anomalous flame or light was observed on the vehicle, and may have represented a very small additional "pulse mode energy form" produced by the Soviet weapon that was attacking the Challenger. The shock of the explosion probably killed the astronauts instantly, although the cabin appears to have remained essentially intact while it plunged several miles to the ocean below.

By treating excess cold exposure to the shuttle, inducing metal-softening in and around the ignited booster, and possibly adding a deliberate "intensely hot spot", the Soviets caused the Challenger to weaken and destroy itself shortly after launch, in so subtle a fashion that NASA scientists would not suspect what had actually caused the mishap. The Soviets also had previously withdrawn all their trawlers and ships which normally shadow a shuttle launch, to prevent any suggestion of Soviet presence near or involvement in the catastrophic accident.

A few days later, sporadically intense "high frequency localization signals" were still present on the grid, at least at one hinge-point at Birmingham, Alabama. From 1-4 February 1986, many birds inadvertently flew into the zone when an intense breakout of these components occurred, and dead birds fell from the sky in substantial numbers.

* According to an Urgentgram sent out by General D. Graham, on the evening of the Challenger's loss, KGB headquarters held a party to celebrate "success of their active measure against the shuttle." Note that all Soviet scalar EM weapons - development, testing, deployment, and usage - is under command and control of the KGB.

Among other things, this briefing details the bizarre series of indicators that showed the Soviet intention to destroy the vehicle, and documents the accidental discovery of the signal with which they intended to cause the shuttle to fail and destroy itself.

Technological Surprise and a New Hiroshima

Sadly, the bureaucratic smugness of orthodox Western scientists has materially assisted the Soviet deception process. Most Western managerial scientists - particularly in weapons development activities — have continued to view the Soviets as ignorant peasants, still trying to clean the mud off their boots. This view, of course, is totally untrue and unwarranted.

It takes only a few examples to refute this attitude. In nonlinear mathematics, engineering and science, the Soviets have led their Western counterparts since the beginning. The electromagnetic pulse (EMP) effect of a nuclear explosion appeared in the ordinary Soviet scientific literature before Western scientists were even aware that the effect existed. The Soviets continue to lead the world in explosive welding, titanium forming and welding, etc. While the Soviet scientists exhibit little inclination to build good washing machines, they certainly do produce state-of-the-art technology — and beyond — in any area in which they focus their main efforts. (We do lead the Soviets in some areas such as computers, computer software, miniaturization, etc.)

Once before, a modern nation - the United States - developed a mighty weapon in secrecy and used it to force a powerful foe - Japan — to its knees. The mindbending atomic blows to Hiroshima, and shortly after to Nagasaki, showed once and for all that in the modern age technological surprise can prove instantly disastrous. Yet in our scientific arrogance, we have assumed that no one else will ever do such a thing. We have assumed that it certainly could never happen to us, and that the "secret weapon" scenario will never be repeated. On the contrary, it has happened again, someone else has done it, and it has happened to us.

It has also become fashionable in the West to believe that all the laws of physics are already discovered. We assume we already know all of them. While we have been pridefully crowing this tune, the Soviets have been steadily discovering new laws in secret, as well as new ways to circumvent the old laws.

We Have Given Up Defense in the Larger Sense

Meanwhile, to defend ourselves strategically, we have chosen to forego "defense" and rely almost totally on building a powerful strategic offense that is capable (we think!) of destroying our would-be enemies anywhere in the world. Our offensive striking power is based mostly on a triad of deterrent forces - land-based ballistic missiles, submarine-launched ballistic missiles, and strategic bombers. The cruise missile is presently being added to the triad. If this 4-part offense were nullified or destroyed by Soviet secret weapons, we would be powerless to prevent our own destruction and Soviet domination of the world.

We have been viewing ourselves as Samson, confident in the strength of our locks.

Yet literally our locks have been secretly shorn and the Philistines are already upon us. Indeed, Soviet energetics weapons are now capable of destroying our triad shield, our homeland, our armed forces in the field, and our population, quickly and efficiently. We have a new "gap" of monumental proportions: not a missile gap, not a submarine or bomber gap, and not even a particle beam or laser gap. We have a scalar electromagnetics or electrogravitation gap.

In this briefing, it is my purpose to show a portion of the Soviet weapons developments that have lead me to such dire conclusions. The Fer-de-Lance briefing is also an attempt to galvanize our leaders and scientists into action, for our present total vulnerability to the Soviet Fer-de-Lance weapons is intolerable and unacceptable.

Unless we achieve defenses — and quickly — our own demise in a fashion similar to the Hiroshima-Nagasaki scenario is inevitable and imminent.

CHARACTERIZATION

- **SINGLE ANALYST**
- **PERSONAL INTERPRETATION**
- **UNOFFICIAL**
- **NO APPROVAL/DISAPPROVAL BY ANY**
 - **CORPORATION**
 - **GOVERNMENT AGENCY**
- **PREPARED**
 - **ON OFF-DUTY TIME**
 - **AT PERSONAL EXPENSE**

Slide 001 : Characterization

We point out at the beginning that this briefing and its interpretation are the result of 22 years of analysis and effort by a single analyst. It is entirely unofficial. It is not approved or disapproved by any corporation, company, or government agency. It has been prepared by this analyst at nights, on weekends, on holidays, and during off-duty time.

It has been prepared mostly at personal expense, though several grants and support have been received from R. J. Reynolds III, Peter Kelly, Mike Bearden, Interdimensional Sciences, Association of Distinguished American Scientists, and others. Very valuable assistance has been received from the U.S.

Psychotronics Association and the Planetary Association for Clean Energy. These contributions are deeply appreciated and most gratefully acknowledged.

Graphics and artwork support by Hal Crawford, Margaret Wilson, Tommy Neumann, Ron Cole, and Lee Giles has been invaluable. My sincere thanks go to these artists who have made the presentation vivid and imaginative. A great deal of background support was given by Joe Gambill, Frank Golden, Tom Herold, Ken Moore, Pete Kelly, Eike Mueller and Mel Bartlett and is deeply appreciated.

Finally, the help of many other persons and colleagues too numerous to enumerate is also gratefully acknowledged.

If the U.S. bureaucracy ever moves and develops defenses against scalar EM weapons, it will largely be due to the support of the persons and organizations who have freely given of their talents and resources to further this effort.

OUTLINE

- **THREE VIEWS OF ELECTROMAGNETICS**
- **EXTENDED AHARONOV-BOHM EFFECT**
- **SCALAR ELECTROMAGNETICS**
- **KILL/DAMAGE MECHANISMS**
- **VULNERABILITY**
 - ▣ **ELECTRONICS**
 - ▣ **PERSONNEL**
 - ▣ **EQUIPMENT**
 - ▣ **MATERIAL**
- **SUMMARY**

Slide 002: Outline

This presentation does not attempt to cover the complete field of energetics weapons developed by the Soviet Union. Instead, it concentrates on the major **areas** necessary to understand the type of weapons likely to be unleashed on our strategic and tactical installations and our troops and their equipment. It does not **attempt** to present the frightful bio-electromagnetic weapons the Soviets have developed to be unleashed on our populace at large and on our troops in the field. Also, the briefing does not dwell on the historical progression, but on the types of weapons themselves.

Of necessity, it presents several shortcomings in classical EM, and presents three differing views of electromagnetics and what can be done with them. The briefing particularly stresses the Aharonov-Bohm (AB) effect. This mesoscopic effect, which produces action at a distance by pure EM flux and not EM force fields, has been extended by the Soviet weapons developers into the macroscopic world around us.

In addition, we develop the basic concepts of scalar electromagnetics and how electrogravitation is achieved. The basic concepts of scalar interferometry and scalar resonance are briefly advanced, and a few of the major kill and damage mechanisms are presented. The nearly total vulnerability of our present electronic equipment, personnel, communications, vehicles, aircraft, ships, missiles, submarines, nuclear weapons, and materiel is stressed.

Finally, a short summary is given to highlight the main points of the briefing.

ELEMENTS OF THE EMERGING THEORY

- FLAWS IN VECTOR THEORY
- ZERO-VECTOR SYSTEM
- KALUZA-KLEIN ASPECTS
- VACUUM/MASS EFFECTS
- SCALAR RESONANCE
- ELECTROGRAVITATION
- LOCAL GENERAL RELATIVITY
- IMPLICATIONS

Slide 003: Elements of the Emerging Theory

Specifically, we will point out some flaws in vector mathematics itself, particularly with the concept of the zero force vector. The zero force vector is a system of forces that sum to a zero resultant. Hence the components of the summation represent a patterned stress in the medium to which they are applied, or in which they are imbedded. This includes the vacuum (spacetime) medium. In classical electromagnetics, this vacuum stress due to a zero-vector summation of EM force fields has been totally omitted and ignored.

As such, the EM "zero" force-vector summation produces a "trapped internal EM flux and flux pattern, without resultant (external) force field" condition - precisely as does the Aharonov-Bohm effect. The components of the artificially zeroed system, however, can be transmitted and still maintain their special relationship and coherence. While the AB effect has been shown to hold for the mesoscale (a few thousands of angstroms), the zero-vector scalar EM effect can hold for hundreds of thousands of kilometers.

To provide a unified electrogravitation, we adapt Kaluza-Klein 5-dimensional gravitational concepts to the idea of the zero-vector stress system in vacuum-spacetime. We also point out how simultaneously varying the magnitudes of **the** force components of a stress, all in phase, produces a stress wave or scalar EM wave. Scalar waves are almost always absorbed and emitted by the nucleus of the atom, not by the electrons in orbit.

The relationship of mass and vacuum, and the constitution of the vacuum, are pointed out from the viewpoint of modern quantum mechanics.

How a scalar wave resonance differs from conventional EM resonance is developed briefly. Mass and inertia are the direct result of - and are - trapped scalar resonance. The trapping mechanism is the spin of the particle.

Severely limiting assumptions in ordinary general relativity (OGR) are pointed out. In OGR, it is assumed that the local frame is always a Lorentz frame, and never curved. In other words, local spacetime is always assumed to be flat. This **saves** the conservation laws, simplifies relativity, and reduces "general" relativity to special relativity with distant perturbations and curvatures.

By removing this ad hoc assumption, a much richer local general relativity results. This local general relativity is readily engineered. Note that, in OGR, the physicist has actually assumed that he can never "engineer" local general relativity! Indeed, with the scalar EM approach, he can easily do so, in contradiction to what is taught in all Western universities.

By engineering a local general relativity (LGR), the individual conservation laws can be violated locally. This includes the conservation of energy/momentum, and the conservation of charge, for example.

The major implication of this startling new engineering physics is that one can engineer physical reality itself. For example, elements can be transmuted with minuscule energy input, free energy devices are possible, action at a distance is possible, communication faster than light speed is possible, etc.

By using the zero-vector approach, the virtual state can be organized and made **largely** deterministic, rather than statistical. This means that the probabilities of the states propagated forward by the Schroedinger equation can be engineered and changed. Whether or not a certain quantum change shall emerge or not can be determined or substantially influenced in advance. Bohm's hidden variable **theory** now becomes directly engineerable. This is a drastic change to quantum mechanics and physics in general.

Another implication is that this is the final engineering, for it allows the direct engineering of physical reality itself. Humans must now find a way to resolve their differences peacefully, or shortly Man will destroy himself and his biosphere by his own hand.

3 KINDS OF ELECTROMAGNETICS

- **CLASSICAL**
 - ▣ POTENTIALS JUST MATHEMATICAL CONVENIENCES
 - ▣ ACTIONS CAUSED BY NONZERO FORCE FIELDS
 - ▣ NO ACTION WHEN FORCE FIELDS ZERO
- **QUANTUM MECHANICS**
 - ▣ POTENTIALS REAL
 - ▣ STATISTICAL SUBSTRUCTURE
 - ▣ FORCE FIELDS BY DIFFERENTIATIONS
 - ▣ ACTION WHEN FORCE FIELDS ZERO
- **ARTIFICIAL POTENTIALS (ELECTRO-GRAVITATION)**
 - ▣ POTENTIALS REAL
 - ▣ FORCE FIELDS EXTERNALLY ZEROED, INTERNALLY ACTIVE
 - ▣ ZEROS INDIVIDUALLY DIFFER
 - ▣ SCALAR INTERFEROMETRY
 - ▣ SCALAR RESONANCE

Slide 004: Three Kinds of Electromagnetics

There are actually three kinds - or three views - of EM. These are (1) the classical view, (2) the quantum mechanical view, and (3) the scalar EM or electrogravitational view.

In the classical view, the potentials are just mathematical conveniences and do not physically exist. The real causative agents are the force fields, and there is no longer any electromagnetics going on if the force fields reduce to zero. Further, the ideas of "charge" and "charged mass" have been made erroneously synonymous.

Of course the classical view was formed from the idea of a thin material ether, with electricity as a thin fluid, long before the discovery of the electron. Since most earlier scientists studied string waves and these are transverse, the EM wave was modeled as a transverse wave. Also, detection equipment actually detected transverse waves. The role of electron spin and drift velocity, which would have shown that force-field-causing EM waves in the vacuum could only be longitudinal, was not yet discovered. Maxwell's equations and the classical approach became so engrained that the basic derivations were never corrected for more modern discoveries.

The quantum mechanical view, on the other hand, regards the potentials as the real physical actants, and the force fields are just effects derived from the potentials by differentiating operators. Classically oriented physicists have adamantly opposed this foundations requirement of QM because it would require nearly a complete redo of EM theory. It would also rather drastically

change our ideas of physical reality. For years a controversy has raged around the Aharonov-Bohm effect (which demonstrates the reality of the potentials, among other things). Only this year - 1986 - have most physicists finally accepted the AB effect with its implications (see Physics Today, Jan. 86). However, no changes have yet been made to EM theory and the basic classical approach to electrical physics and engineering.

Yet even the QM view is flawed, since it has not examined the structure of EM forces which sum to a vector zero. Such a system produces stress, and if the summation is in the vacuum itself, it produces stress of vacuum/spacetime. Rigorously, this is a gravitational effect, and the energies of the various EM components in the local region are locked into an artificial potential. From general relativity, this type of potential where the energy density of vacuum is altered is a gravitational potential. From Kaluza-Klein unified theory, it is at least a 5-dimensional gravitational potential.

If the individual force vector components of the vector zero are varying in magnitude - say, all in phase - then they produce a gravitational wave. The energy density of the local vacuum is being rhythmically varied. Call such an EM wave a scalar EM wave, where, by "scalar" we imply that, to an external observer, the EM force vector resultants are identically zero, but the local gravitational potential of the wave is varying. Thus this is an electrogravitational wave, and vector zeroing of EM force fields constitutes a means of changing EM field energy into G-field energy. On the other hand, by breaking up the coherence of the zero-vector summation of the EM forces, nonzero EM resultants are recovered, constituting the change of gravitational energy into EM energy.

A simple means to break zero-summed coherence is by interference of two or more such zero-vector waves.

In this, third view of EM, action at a distance is easily possible, and is the norm rather than the exception. In addition, a new kind of resonance - scalar resonance - exists. The scalar EM wave does not interact with orbital electrons, but rather with the interior of the nuclei of atoms. Thus the new scalar EM resonance is between nuclei and within nuclei.

BOHM-AHARONOV EFFECT

- IN FIELD-FREE REGIONS
 - ▣ E-FIELD IS ZERO
 - ▣ B-FIELD IS ZERO
- POTENTIALS STILL EXIST
 - ▣ CAUSE REAL EFFECTS
 - ▣ INTERFERENCE IS KEY
 - ▣ CONTAIN SUM-ZEROED SUBSTRUCTURE
- DOES NOT FOLLOW FROM
 - ▣ MECHANICS
 - ▣ CLASSICAL ELECTROMAGNETICS
- REQUIRED BY QUANTUM ELECTRODYNAMICS

Slide 005: Bohm-Aharonov Effect

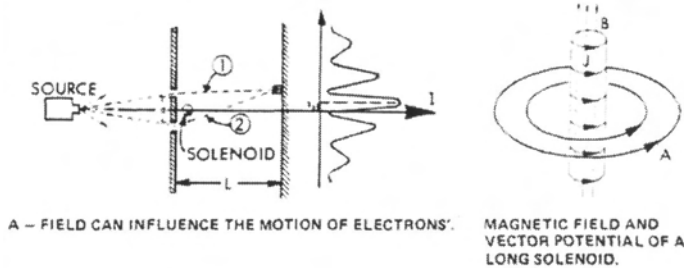
In 1959, Aharonov and Bohm published a fundamental paper in Physical Review, which pointed out the QM implications of potentials as the real entities, while force fields were derived effects. They showed that, even in the presence of zero EM force fields, the potentials may still exist and produce real effects in physical systems. They also suggested experiments to prove these predictions.

Interference of the potentials is the key mechanism producing real effects in charged particle systems, even in the presence of zero E-field and zero B-field. Unfortunately the AB paper did not address the issue of zero-summed systems of EM force fields as one way of producing artificial potentials having unique characteristics

At any rate, the "AB effect," as it came to be called, was rather hotly resisted and debated over the years, until finally it has generally been accepted as proven in 1986. The principle represents a violation of both classical mechanics and classical electromagnetics. It is required, however, by quantum mechanics and quantum electrodynamics. And experiment has proved it.

(See Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," Physical Review, Second Series, 115(3), Aug. 1, 1959, p 485-491.).

A-FIELD IS REAL



THE FEYNMAN LECTURES ON PHYSICS, VOLUME II

Slide 006: A-Field is Real

In classical EM, the vector magnetic potential (the A-field) had been defined as a mathematical convenience by the equation

$$\nabla \times \mathbf{A} = \mathbf{B} \quad [1]$$

But if the potentials are real, then conceivably the A field can be loosed from its enchainment to the $\nabla \times$ operator. In that case, it becomes a free, new, and independent field of nature with potentially unique characteristics. For example, its defining equation shows that magnetic force field can be made from it, and the rightmost term of the equation

$$\mathbf{E} = -\nabla \phi - d\mathbf{A}/dt \quad [2]$$

shows that its time rate of change makes an electric field.

Let us explain this in more simple terms, and somewhat more precisely than conventional theory. We will use the Kaluza unified G-EM interpretation and electron flow in our explanation.

In the A-field, we have a certain kind of 5-dimensional G-potential which can bleed-off as EM force fields in two ways: (1) in a swirl fashion, where the vortex producing the swirl moves parallel to electron movement, and the swirling is a torque or spin, and (2) in a linear fashion, where the time rate of change of the A-potential produces a linear E-field on the electrons.

The first bleed-off as given by equation [1] constitutes the magnetic B-field, and the second bleed-off as given by the rightmost term of equation [2] creates a component of the overall electrical E-field. (Bleed-off of the electrostatic scalar potential produces the other component of the E-field).

Now in general relativity (GR) theory, "the" G-potential is just a conglomerate of many things, each of which has the characteristic of curving spacetime. "The" gravitational field is not a single thing at all, but is composed of a collection of many things.

Thus if we realize that both the electrostatic scalar potential (\emptyset -field) and the magnetic vector potential (A-field) are components of the 5-d G-potential, then we see immediately that bleed-off of these two components of the 5-d G-potential creates all normal EM force fields.

It follows that, if we produce a zero-vector summation of the two or more EM bleed-offs, we are actually "putting as much back in" to the 5-d G-potential through its A and \emptyset components as we are taking out electromagnetically. In that case, the 5-potential is in a state of equilibrium with respect to EM bleed-off. It is now forced to bleed-off in the only other way it can: as ordinary 4-dimensional gravitational field. Thus by vector-zeroing EM force fields, we turn EM field energy into G-field energy and vice versa, via the intermediary of the 5-potential.

At any rate, soon after publication of the Aharonov-Bohm paper, experiments showed that, if the magnetic field is trapped inside a long solenoid, a phase shift still is induced in the two-slit electron experiment, even though - classically - no contact of the enclosed magnetic field and the moving electrons occurs. This phase shift is explained by the fact that the freed A-field exists outside the trapping solenoid, even though the B-field does not. Consequently, interaction of this free A-field with the electrons produces a phase shift of the QM interference detection pattern.

This proves that A-field is real and causes physical effects.

It also proves that a form of action at a distance is real, just as required by quantum mechanics.

Years ago, Frank Golden and this author - together with Dr. William Tiller - experimented with "free A-field" devices. Golden went on to develop prototype transmitters and receivers and a prototype underwater communication system.

Since that time, Gelinas has patented several curl-free magnetic vector **potential** (free A-field) devices: see U.S. patent no. 4,447,779, May 8, 1984; 4,429,288, Jan. 31, 1984; 4,429,280, Jan. 31, 1984; and 4,432,098, Feb. 14, 1984. These patents are assigned to Honeywell.

(See also Theodor Kaluza, Sitz. Berlin Preuss. Adad. Wiss. 966, 1921.).

QUANTUM NON-LOCALITY

"The non-local aspect of quantum systems is ... a general property of nature, and not just a freak situation manufactured in the laboratory."

PAUL DAVIES, SUPERFORCE
1984 (PAGE 48)

Slide 007: Quantum Non-Locality

Indeed, quantum systems exhibit nonlocal effects that are general properties of nature. These effects are not just freak situations manufactured in subtle laboratory experiments.

However, if spatial coherence in such microscopic effects can be induced and sustained, then action-at-a-distance can be obtained in large macroscopic systems. This is the engineering aspect of the scalar EM approach.

It is also the aspect that the Soviets have secretly weaponized for over three decades.

The zero-vector EM force-field summation of multiple EM waves is used to transport specific time-phased patterns of EM polarization of vacuum to a distance. There interference of two or more such patterns results in the interference of the internal patterns, breaking of the phase relations, and appearance of positive (added) or negative (extracted) EM energy in the intersection region.

VECTOR MATHEMATICS HAS A FUNDAMENTAL PROBLEM

IN ITS AXIOM FOR THE ZERO VECTOR,
VECTOR ANALYSIS DISCARDS ZERO VECTOR
SUMMATIONS OF ACTIVE SYSTEMS
OF VECTORS.

VECTOR ZERO IS MADE THE ABSENCE
OF ALL VECTORS

(IT CAN ALSO BE THE PRESENCE OF REAL
VECTORS WHOSE VECTOR SUM IS 0i.)

Slide 008: Vector Mathematics has a Fundamental Problem

In its concept of the zero vector, vector mathematics discards zero-vector summations of active systems of vectors. It replaces such a summation with a zero vector. This is fine for mathematics as an abstract system, but it is in error when applied to real electromagnetic force fields of nature.

In the abstract mathematics, a vector zero summation is made the "absence of all finite vectors". Further, all vector zeros are made equal. No concept of the "internal stress" of the zero vector exists in abstract vector mathematics.

However, physically the zero summation or "balancing" of vector forces in a medium represents stress in that medium. In the physical case, a vector zero summation system of non-zero vectors has a dynamic substructure, and this substructure is an individual.

Obviously, in the physical case vector zero summations may materially differ, both in the pattern of stress and the magnitude of stress. They cannot all be equated. Further, they are not the absence of vectors, but represent the presence of vectors in a special manner. Such a zero summation of EM vector forces directly stresses the "medium" - which may be the vacuum itself.

In the physical case, several changes to the axioms of abstract vector mathematics are required. (1) the "potential" of a vector zero must be taken into account, such as is represented by the sum of the squares of the magnitudes of its vector components. (2) the specific deterministic pattern of the vector components comprising the zero must be taken into account. (3) The dynamic

variation in both the deterministic directions and deterministic magnitudes of the components and of the overall pattern must be taken into account. (4) Frequencies of the changes in the direction, magnitude, and actual makeup of the vector zero must now be accounted for. That is, time and wavelengths are rigorously aspects of the vector zero, and these may be deterministic variables. Since time itself is now a variable aspect of the vector, the vector zero system can affect its "rate of time flow" in the observer's system. (5) Since a "reference vector zero" can be established at any point of a vector magnitude, then individual vectors themselves may have dynamic substructures inside a special "zero reference" in and on the vector. The patterned potential of a vector is a reality.

This leads to a system of "vectors nested inside vectors" ad infinitum. In other words, it leads to an infinite-dimensional system, and the "opening" of every finite closed vector system through its vector zeroes.

For application to physical electrogravitational systems, at least 5 dimensions are required, four of space and one of time.

Here we still are considering only a special case where all vector zero summations represent EM force field energy locked in a gravitational potential, or gravitational force field energy locked inside the EM potentials. That is, we are prescribing a system where the only intertranslation of energy is among mass, EM field, gravitational field, and vacuum virtual energy (anenergy).

(See T. E. Bearden Toward a New Electromagnetics: Part III: Clarifying the Vector Concept, Cheniere Press, Santa Barbara, Ca. www.cheniere.org, 1983; Part 4: Vectors and Mechanisms Clarified, 1983. See also E. T. Whittaker, Proc. Lond. Math. Soc. 1, 367, 1903; Robert Bruce Lindsay and Henry Margenau, Foundations of Physics, Dover, New York, 1963, p. 283-287; Richard P. Feynman et al, The Feynman Lectures on Physics, Addison-Wesley, New York, Vol. I, p.2-4.).

THE ZERO-VECTOR AXIOM

- "THERE IS A UNIQUE VECTOR, $\vec{0}$, IN V
(THE VECTOR SPACE)
SUCH THAT

$$\vec{V} + \vec{0} = \vec{0} + \vec{V}$$
$$0_i = 0_j$$

- THIS MAKES ALL 0_i EQUAL BY ASSUMPTION,
SINCE THERE IS ASSUMED TO BE ONLY
A SINGLE TYPE 0 WITHOUT REAL
COMPONENTS

Slide 009: The Zero-Vector Axiom

This slide shows a standard mathematical statement of the zero-vector axiom, used in many texts.

As can be seen, all zero-vectors are made identical, and no substructure is considered.

Such an abstract system of vector mathematics does not fit physical reality. However, when all one's EM foundations concepts are strongly conditioned in this fashion, the gravitational aspects of EM are discarded.

Further, EM theory, experiments, and equipments will be developed along these limiting lines. In that case, EM engineering of gravitational effects will not be developed. One will assume that it is impossible to have a locally curved spacetime, and hence all local frames will be Lorentz frames. Therefore the conservation laws will rigorously apply.

Further, the nonlocal quantum effects will stay firmly in the microscopic world where they belong. Physical macro-reality will stay stable and predictable in a classical manner.

General relativity (in curved spacetimes) will be restricted to the special case of the local special relativistic (uncurved) spacetime, with only distant perturbations (spacetime curvatures).

The world will stay sane and "normal", and the totally variable insanity of physical reality will remain bottled up in the minute microworld or the distant maelstrom of suns, stars, black holes, etc.

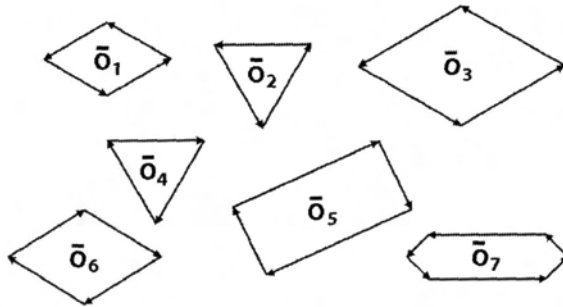
The Aharonov-Bohm heresy will stay kaput in the real world and will not be unleashed beyond mesoscopic reality — a few thousand angstroms or so.

With such an error in the application of vector mathematics to physical science, we become "flatland physicists," so to speak. We become like skimmer bugs on the surface of a pond; we have no appreciation of the dynamics of the depths below or of the heavens above.

Worse, we condition our development of instruments according to the fixed notions in our heads. Then we use these "biased" instruments to do experiments that reaffirm our notions. Any deviation suggested to this is considered heresy and nonsense.

And as Max Planck once pointed out, you will get a new physics only when the old physicists — who so adamantly oppose it — die off.

ARE THESE SYSTEMS EQUAL?



Slide 010: Are These Systems Equal?

Shown here are some representations of various very simple zero-vector systems. As can be seen, the stress magnitudes and the spin and dynamics of all of these systems are very different.

Further, their "stress potential" substructures are not composed of a huge collection of little random force vectors. Instead, their substructures are deterministic. If the components being put into the zeros are varied in direction and magnitude, but always sum to a zero resultant, then highly complex substructure dynamics may be created and utilized, infolded (Bohm's term) inside the zero vector.

In theory one can establish "channels" of communication and power (magnitude) transmission without ever surfacing a nonzero EM force field. In practice one can do this with very little EM spillout. Thus one can establish electrogravitational channels and energy transmission inside normal EM potentials and/or ordinary EM carrier waves.

One can use a conventional system of EM potentials, force fields, and waves as a special kind of "wiring circuit" in and through which to transmit and produce electrogravitational effects. By distant interference, EM effects at a great distance can be accomplished, yet no "ordinary EM energy" has passed between the transmitters and the distant interference zone.

INFOLDED SYSTEMS ARE EXCLUDED BY PHYSICS

DYNAMIC ZERO-VECTOR SYSTEMS ARE
NOT CONSIDERED IN ORDINARY GENERAL
RELATIVITY, CLASSICAL ELECTROMAGNETICS,
OR QUANTUM MECHANICS.

Slide 011: Infolded Systems are Excluded by Physics

Unfortunately, these infolded dynamic zero-vector systems have been eliminated from physics.

They are omitted in classical EM, ordinary general relativity (OGR), and **quantum** mechanics.

That is, they have been omitted in Western physics.

They have not been omitted in secret Soviet weapons labs and weapons development programs.

KALUZA GEOMETRY

- THEODOR KALUZA, POLISH PHYSICIST

- UNIFIED THEORY OF ELECTROMAGNETICS
AND GRAVITY (1921)

- ▣ 5- DIMENSIONAL SPACETIME
- ▣ 5-DIMENSIONAL GRAVITY FIELD
- ▣ ELECTROMAGNETISM IS THAT PART THAT
OPERATES IN THE FIFTH DIMENSION

Slide 012: Kaluza Geometry

In 1921, Theodor Kaluza, a Polish physicist, published a unified theory of electromagnetics and gravitation. Albert Einstein, who had had the paper for two years, recommended his paper for publication. In that theory, five dimensions - four space and one time - are utilized in the basic model. This gives a 5-dimensional spacetime.

In the model, electromagnetics and ordinary gravity are two aspects of a single more fundamental field: the 5-space gravity field. Electromagnetism is that part of the 5-field that operates (bleeds-off) in the fifth dimension.

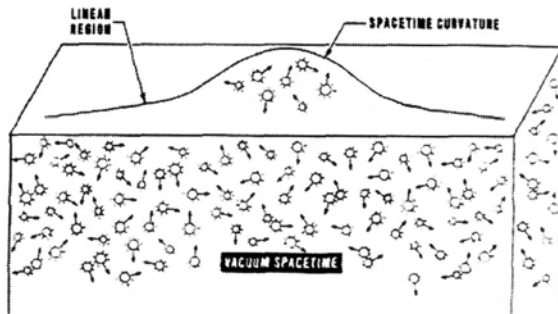
The ordinary 4-space G-field is the small residue that spills over into our ordinary 4-space, and doesn't slide around into the fifth dimension and bleed-off there as electromagnetics.

Implicit in the theory, but not explicitly stated, is the fact that the 5-space G-potential bleeds-off in two fashions: (1) in the 5th dimension nearly unopposed, to produce what we see as EM force fields, and (2) in the ordinary 4-space we live in, which we see as ordinary gravitational field.

Normally almost all the force field bleed-off is in the fifth dimension as EM; only a minuscule bit bleeds off as 4-gravity.

Just as one example, between two electrons the 5-space G-potential bleeds-off into electric force field about 10^{42} times as much as it bleeds-off into 4-space G-field.

A POTENTIAL IS A CHANGE IN THE STRESS OF VACUUM



Slide 013: A Potential is a Change in the Stress of Vacuum

In physics, the idea of a "potential" is very poorly defined, if at all. The normal "definition" for the electrostatic scalar potential, for example, is not a definition at all. Instead, it's an abstract operation that tells how to mathematically calculate the magnitude of the potential, by pushing a unit charge in from infinity, against the potential field.

Now ultimately a definition must be an identity statement, not an operational statement about something.

Since I could find hardly anyone who actually understood what a potential was, and how or of what it was composed, I simply took quantum mechanics at face value and constructed this model.

First, the modern view of the vacuum is that it is not an emptiness, but a plenum. It's teeming with an incredible amount of raw energy, existing totally as the temporary bits of energy of virtual particles. That is, the vacuum "energy" exists as the nonintegrated energies of little particles which appear from nothing (are spontaneously created) and disappear into nothing (are spontaneously annihilated) almost instantly. This happens so fast that the little particle and its energy cannot individually be detected; it doesn't hang around long enough.

Hence the fleeting little booger is called a "virtual" particle. Like, "We had 'im there man, for just a moment, but he was gone before we could grab 'im!"

This kind of ghostly particle, however, is very real in modern physics. All observable forces are theorized to be due to the integration or collection of a large number of virtual forces created by exchange of these little particles.

However, this implies a peculiar thing about the vacuum "energy." Actually it's vacuum energies, for each little bit of energy only exists momentarily, then returns to the nothingness from which it came. That is, vacuum virtual energies are totally unintegrated. Each "bit" of virtual energy exists individually. These virtual energies cannot be "added up" to compute the "available energy" unless some collector or integrating mechanism puts them together.

That is, unless some kind of "zipper" is there to "zip them together" into macroscopic, observable energy. The usual "zipper" is a spinning, observable particle of mass. We say that the vacuum energy is unzipped and hence unobservable in that state. We say that "observable energy" is just zipped-together vacuum energies - integrated by and on a spinning, observable particle of mass.

So the vacuum can be visualized as a special sort of violent, unzipped plasma, where the particles of the plasma are fleeting and do not last. We can speak of it also as a sort of special unzipped gas, in the same manner.

The "pressure" of the vacuum gas we refer to as "stress." Due to its violent boiling activity, the vacuum gas is always under very high stress.

This "stressed virtual plasma" identically IS the vacuum and identically IS spacetime. Length, time, frame, mass, etc. - all arise by zipping operations (or understood zipping operations) in and of this raw vacuum/spacetime. When one uses the vacuum notion in this manner, one now uses the term "ether" again. However, this is not the old "thin material ether that hangs around"; this is an entirely new kind. It's a virtual flux and a virtual plasma.

The ether is also what we call "spacetime" in relativity. As can be seen, spacetime is stressed. Further, spacetime has a substructure.

By an uncurved spacetime, we mean one in which the stress of these virtual particles (the "pressure in the ethereal gas," so to speak) is constant from one place to another and from one time to another. Indeed, we also should mean **that** the stresses of the individual components of the entire plasma are constant from one place to another and from one time to another.

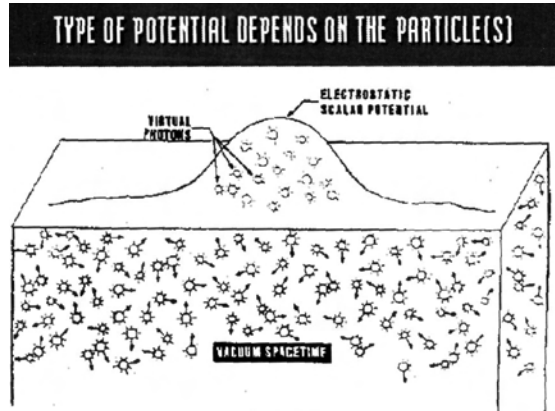
By definition, when we determine the lengths between every two points, we determine a frame. (Actually, we have prescribed a universal "length zipping" operation/mechanism as well as its characteristics.). A "linear frame" or "Lorentz frame" is one in which the pressure or stress remains constant. It may be higher than ambient vacuum, however, due to a particle's or an object's motion through the observer's ether. In the case of constant velocity, the particle/object encounters a higher level of virtual particle flux in the observer's ether, like a vehicle moving through raindrops. It encounters a constant rate of

flux, however. In such constant velocity case, the moving object's frame is said to be "rotated," but not curved, with respect to the laboratory frame of the observer.

In a "curved" spacetime, we mean one in which the stress of vacuum increases or decreases from one place to another, or from one time to another, or both. At one fixed location, if spacetime is curved, then the stress is increasing or decreasing as a function of time. That is, the flux density of that area is changing. We may visualize the local frame as undergoing angular acceleration, rotating more or rotating less. This is a non-Lorentz frame, or curved spacetime. It is also a nonlinear vacuum.

In such a vacuum, local gradients exist in the flux of virtual particles. If affected by (coupled to) one or more of these gradients by a nonzero coefficient, a local object experiences effects (forces and actions) "without observable cause." Observably, conservation laws may be locally violated by these "virtual rivers" of vacuum by coupling, just as a paddlewheel dipped in a river violates its own local "conservation of energy" due to the river providing an energy source to it.

One must be very careful with the "pressure" analogy, however, when one utilizes unified theory (Kaluza theory). We now have a virtual plasma vacuum in five dimensions, not four. But the basic notions to enable our visualization and understanding still apply.



Slide 014: Type of Potential Depends on the Particle(s)

Now one can see that, by choosing the type or class of virtual particle, and looking at its potential or stress in the vacuum, one can have many kinds of "potentials" existing in the overall "gravitational potential" of vacuum spacetime.

For example, the stress of the virtual photon flux (which is what causes electrical charge) is called "electrostatic scalar potential."*

We can choose any other class of virtual particle we wish, and there exists a potential (and "change") for it. There are quark potentials, neutrino potentials, etc.

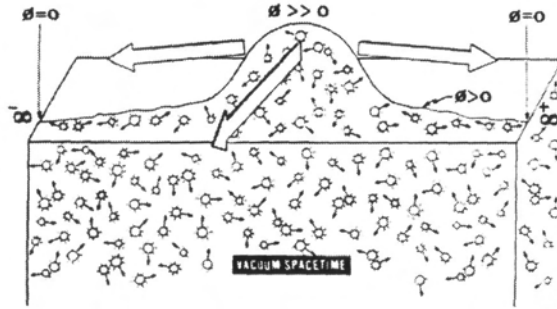
Indeed, one of the reasons for ignoring Kaluza unified theory for so long was that it predicts a great many types of potentials and fields which have never been observed and which are unknown. Approximations, which neglected all these mysterious, and unknown fields, gave erroneous results. Perplexed physicists, seeking to simplify matters, simply turned away from it in frustration. They returned to it in the mid-70's when it appeared that 11-dimensional Kaluza-Klein theory possibly offered a complete unified theory.

Actually, the diversity of new fields in Kaluza theory was its strength not its weakness. That they are presently unobservable and undetectable is beside **the** point. Neither is time directly observable; however, we have worked out handy procedures and measurements of spatial quantities, which allow us to infer time. We have not just tried to drop it from physics!

And indeed the Kaluza theory is consistent with experiment when the higher fields are included. The message is, we must work out "clocks" for these new potentials and fields, so that they can be inferred with at least some degree of precision

- The character of movement also determines the type of potential. The longitudinal (radial) movement of the virtual photon flux is implied in electrostatic scalar potential. The swirl (tangential) component of this flux might be taken as the magnetostatic scalar potential - a magnetic pole - when the cw and ccw components of the swirl balance, but the sum of their absolute values differs from the sum of the absolute values of the corresponding tangential components in the swirl flux of the local ambient vacuum. If this swirl stress is higher than the vacuum swirl stress, this constitutes a north magnetic pole. If lower, it constitutes a south magnetic pole. If there is a prevalence of direction (cw or ccw) in the swirl (i.e., one component exceeds the other), this corresponds to the magnetic vector potential (the A-field) when the A-field is freed from the magnetic force field (B-field) — i.e., when A-field is freed from its $\nabla \times$ operator in the equation $\nabla \times \mathbf{A} = \mathbf{B}$. The bleed-off of the excess swirl stress from the north magnetic pole to the deficient swirl stress of the south magnetic pole constitutes the magnetic force field, \mathbf{B} — usually referred to simply as the "magnetic field."

A POTENTIAL EXTENDS TO INFINITY & INVOLVES THE ENTIRE UNIVERSE



Slide 015: A Potential Extends to Infinity & Involves the Entire Universe

As shown on this slide, the change in the stress of vacuum due to a potential tapers off to infinity. Its magnitude normally does not reduce to zero until infinity.

Some types of potentials reduce much faster or slower than others, however, and so - at some distance away from a common origin of the potentials, one or more may be neglected in its (their) overall effects on an experiment or system.

Also, the speed of propagation of potential is highly dependent upon (1) what type of virtual particle or particles produce its stress, (2) its magnitude, (3) its composition, and (4) the presence or absence of coupling objects and other interacting potentials.

Fundamental observable particles are like little spray pumps and little vacuum cleaners at the same time.

Each is emitting virtual particles into the vacuum in a spray or flux, and at the same time it is absorbing virtual particles from the vacuum spray or flux. It's a little dynamo, and nature furnishes its driving energy unceasingly.

However, each little virtual particle it emits is itself such a little simultaneous pump and vacuum cleaner. That is, it's also emitting an even finer (and faster) flux of smaller virtual particles, and at the same time it's also absorbing flux at this time finer level.

"Bigger fleas have smaller fleas to bite em;

And so on ad infinitum".

We may consider the vacuum to be made of an infinite number of virtual state layers or levels.

It is not too difficult to show that each of these successively deeper, nested "layers" of virtual state corresponds to a successively higher dimension being added to our 4-space basic spacetime. So hyperdimensions and deeper levels of virtual state are one and the same thing.

The basic "speed" of the first layer is c , the speed of light.

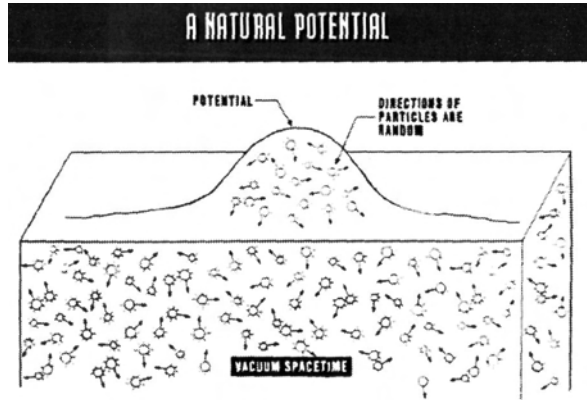
The basic "speed" of the second layer is c^2 .

And so on.

This is interesting. We may directly engineer the virtual state by means of the vector zero (scalar electromagnetics) approach. By nesting vector zeros inside other vector zeros, we may directly engineer the deeper layers of virtual state, **and** consequently hyperdimensions.

Scalar electromagnetics thus is virtual state engineering and hyperspatial engineering at one and the same time.

Superluminal communications systems, hyperspace drive, and materialization **and** dematerialization are all hypothetically possible, using scalar electromagnetics. As the technology develops, we should see the development of many of the systems long thought impossible except in science fiction.



Slide 016: A Natural Potential

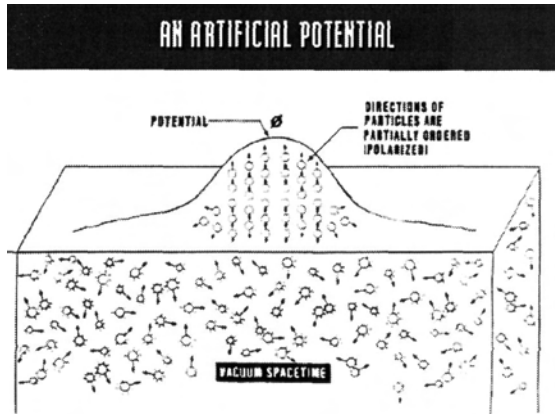
There are two broad categories of EM potentials, depending upon the way in which they are formed.

The two categories of potential formation are: (1) natural, and (2) artificial.

The difference is in the virtual particle flux substructure that comprises the potential.

If the substructure of emerging and vanishing virtual particles is random and without deliberate order (polarization) except in one broad, overall sense, then that is a natural potential. As such, there is no deterministic functioning going on inside the substructure of the potential itself. The potential can only act "as a whole" on a charged particle system.

Natural potentials have substructures of random virtual vector components. Any small amount of coherence as a function of distance vanishes quickly (on the order of a few thousand angstroms at most, according to present Aharonov-Bohm experiments).



Slide 017: An Artificial Potential

An artificial potential by definition has a substructure composed of deterministic observable vector components, summed to an overall zero vector. Coherence as a function of distance can be maintained over enormous macroscopic distances - even hundreds of thousand of kilometers - by simultaneous transmission of the entire cluster of substructure components as a coherent "zero" group.

To the conventional linear EM detector, at any point along its transmission path, this substructure is detected as a zero-E vector and a zero-H vector. Hence the conventional detector does not see the artificial potential, even if its "stress magnitude" (a function of the magnitudes of all summed components) changes.

Action at a great distance is possible with this artificial potential, however, if a highly nonlinear situation is met so that the phasing of the components is broken or significantly altered. In that case, the components do not sum to zero after their dephasing, and real EM force fields emerge. This "dephasing" can be made to occur at the distant nonlinearity.

Action at a great distance is not possible with the natural potential, but is possible with the artificial potential.

Further, with the transmitted artificial potential, VO must be applied from the transmitter to the distant interruption zone, as if there were no intervening space between.

Note that VO may be positive or negative. Thus energy may emerge at the distant disruption, or be extracted from there. In the first case, energy is input to the transmitter, to re-emerge at the distant dephasing zone. In the latter case, energy is extracted (disappears) from the distant dephasing zone and is received (reappears) back at the transmitter

PRODUCING AN ARTIFICIAL POTENTIAL

- **MAKE AN ARTIFICIAL SPACETIME STRESS**
 - ▣ OPPOSING E-FIELDS
 - ▣ OPPOSING B-FIELDS
- **FORCE FIELDS SUM-ZEROED**
 - ▣ SCALAR FIELD
 - ▣ ZERO VECTOR FIELD
 - ▣ E AND B FIELD COMPONENTS STILL EXIST AND ACT
 - ▣ ENVELOPE IS ZERO VECTOR
 - ▣ ENVELOPE IS SCALAR
 - ▣ DYNAMIC SUBSTRUCTURE EXISTS
- **ENGINEERS BOHM'S "HIDDEN VARIABLES"**
- **BENDS SPACETIME**

Slide 018: Producing an Artificial Potential

An artificial potential is deterministically patterned spacetime stress, made by opposing E-fields and/or B-fields so that they sum to vector zeros in a special pattern.

The resulting zero-summed envelope has no EM force field, to an external observer/detector.

However, the infolded E-field and B-field vector components still exist and act. They may dynamically vary, so long as their summation is always kept to zero.

The simplest variation is to vary all their magnitudes at once, by the same degree. In that case, each one comprises an "EM wave." However, the summations of this cluster or "locked group" of waves still exhibit a zero-E and zero-B field to any external observer/detector. In other-words, to an external observer, one now has a varying wave of pure spatiotemporal stress, but one that has a deterministic structure. This is a scalar EM wave, or electrogravitational wave. It is also an alternating current of specific scalar pattern.

Varying the stress of spacetime locally, curves it locally. This violates the conventional assumption of restricted general relativity that local spacetime is uncurved (is a Lorentz frame).

By use of scalar EM waves with deliberate substructures, one can engineer Bohm's "hidden variables" so that quantum mechanics becomes deterministic

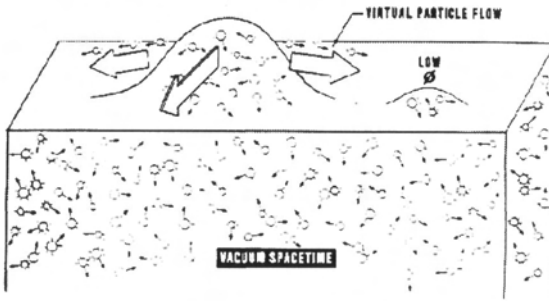
rather than statistical. This is a drastic change to the common (Bohr) interpretation of quantum mechanics.

And Einstein's intuition that God does not play dice with the universe turns out to be correct after all.

Since physicists haven't seen where the real game was being played, it has all seemed bewilderingly statistical to them.

IF NO OBSERVABLE MASS FLOWS:

**EM POTENTIALS PRODUCE SUSTAINED G-FIELD
FLOWS OF VIRTUAL PARTICLES**



Slide 019: If No Observable Mass Flows:

Since there are no observable mass particles flowing in vacuum, there are no observable force fields produced. Only virtual force fields can be produced in the virtual particle medium that is vacuum itself.

Thus (here is no observable E-field in the vacuum surrounding a charged point. There is, however, a virtual E-field there. When an observable charged particle such as an electron is introduced in the surrounding vacuum and "couples to" (integrates, zips together) the virtual E-field, an observable E-vector force is produced on and of the observable charged particle.

(For the classically trained electrical engineer or electrical physicist, the statement that no E or B fields as such exist in vacuum, is usually bewildering. Let me point out that any so-called "vector field" (such as the assumed E and B vacuum fields) can mathematically be replaced with two scalar fields. See E. T. Whittaker, Proc. Lond. Math. Soc.1, 366, 1903. What we are saying here is that the definition of an E field is in terms of force per unit charged mass. The scalar fields - which are actually what exist in vacuum - provide only a virtual or unzipped E field, until an observable spinning particle couples to both of them by virtue of its "dynamo flux pump" action. The ensemble, then, of two electrostatic scalar potentials coupled to a spinning observable particle, constitutes and is the so-called "E-field.")

When detecting these "vacuum E-fields," it is the free electrons in the electron gas in our probe or antenna which couple to the two "Whittaker scalar fields". These electrons produce ensembles that interact with each other collectively.

Charges in this electron-gas coupled medium is what we actually detect - not "what is in the vacuum."

To repeat this again for emphasis: The usual detector is an "electron-wiggle" detector. It detects changes in its own conduction electron gas, not in the vacuum itself. That is, the disturbance in the virtual-particle vacuum interacts with the observable particles of the electron gas, if (and only if) the spins of these observable particles couple the vacuum disturbance to the electrons and integrate their virtual components. After integration, an observable disturbance of the integrating object - say, the electron - results. It is this electron gas disturbance that is "detected" by almost all orthodox EM detectors.

If the spin of the observable conduction electrons cannot couple the electron to the vacuum flux disturbance, then the normal "simple" detector will not detect the disturbance. (By a "simple" detector we mean one in which the electrons are able to couple to the vacuum disturbance! Little circular definition here!)

Now most potentials reach to infinity before reducing to zero. The change in the virtual particle flux intensity of vacuum - which comprises the potential - decreases with distance from the potential. The magnitude of the change tails off toward zero as one approaches infinity.

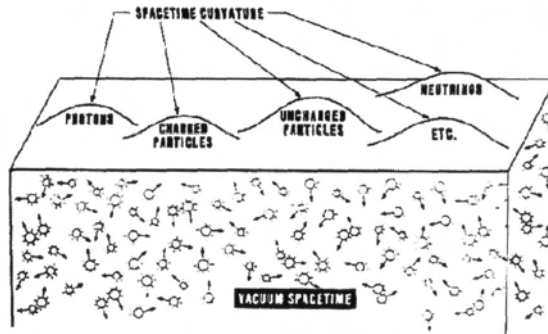
To any finite distance, then, there exists a decreased gradient in the change of the virtual flux intensity of vacuum, from a potential. Therefore virtual particles are flowing in the direction of the decrease of this gradient, just as gas molecules flow from a region of high pressure toward a region of lower pressure.

So there is a virtual particle "river" in the vacuum between any two separated points of different potential magnitude. The type of potential determines the type of virtual particle(s) in the river.

If the potential is natural, the gradient river does not carry any coherent substructure.

If the potential is artificial, the gradient river carries the coherent substructure everywhere within it. In this case, there is a flow or "river" of the virtual structure of this coherent pattern in the vacuum between two separated points of different "potential" in that pattern.

GRAVITATIONAL POTENTIAL: A CONGLOMERATE OF STRESS TYPES



Slide 020: Gravitational Potential: A Conglomerate of Stress Types

Rigorously, all EM potentials are actually part of the overall 5-dimensional gravitational potential.

There is no such thing as "the" singular gravitational potential: instead, it is a conglomerate of different stress types and patterns, each of which is named for the type of action that produces it.

The movement of charged particles, for example, creates electromagnetic potentials. At any point in vacuum, the potential consists of a flux of virtual particles.

The vacuum contains a great variety of particle fluxes. There are virtual photons, virtual electrons, virtual positrons, virtual protons, virtual pions, virtual neutrinos, etc.

The conglomerate stress from all these virtual particle stresses constitutes the overall gravitational potential

WHAT GRAVITATIONAL FIELD IS

- ▣ NO SUCH THING AS "THE" G-FIELD
- ▣ G-FIELD IS A CONGLOMERATE OF:
 - MANY COMPONENT POTENTIALS
 - MANY OTHER ENTITIES
- ▣ "G-FIELD" IS CURVATURE OF SPACETIME
- ▣ ANY COMPONENT(S) OF THE CONGLOMERATE CAN BE USED TO CURVE SPACETIME
- ▣ FLOWS CAN EXIST BETWEEN PAIRS, TRIADS, ETC. WITHOUT APPRECIABLE CHANGE OF THE OVERALL CONGLOMERATE POTENTIAL
- ▣ ALL FORCE FIELDS REPRESENT BLEED-OFFS OF ONE OR MORE COMPONENTS OF G-FIELD

Slide 021 : What Gravitational Field Is

As previously stated, there is no such single thing as "the" gravitational field, as is assumed in the Newtonian sense.

G-field is a conglomerate of many component potentials and other entities.

Rigorously, anything that "curves spacetime" is a gravitational field.

In the modern view, all forces ultimately arise, by some means, from the curving of spacetime. Thus all forces and force fields are related to - and caused by, so to speak - gravitational field.

If the vacuum stress is uniform from one place to another in an observer's **frame** then the observer's spacetime is uncurved. The observer's frame, is said to be linear or uncurved; or a Lorentz, frame. In such a situation the conservation laws rigorously apply for macroscopic, closed systems.

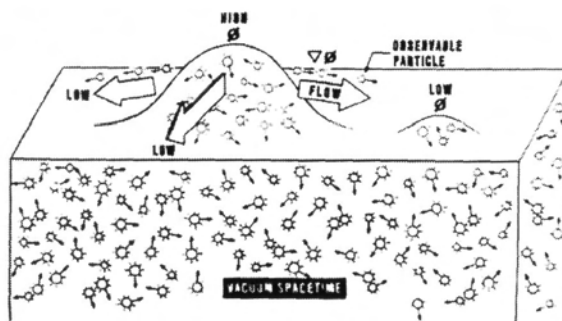
If the vacuum stress is not uniform from one place to another, then the spacetime is curved. In such a situation the conservation laws may be violated for macroscopic systems, since they are "opened" to the vacuum stress, and vacuum virtual particle flux gradients exist across the system or portions of it.

Note that the overall stress magnitude may be constant across a region, but its composition may change. That is, two or more components may vary canonically. In that case, the spacetime is uncurved in the gross external sense, but contains specialized "internal" curvature patterns locally. Depending upon

reaction to the canonical infolded curvature patterns, some macroscopic systems will still exhibit conservation, but certain other macroscopic systems may not.

An example is symmetry breaking. Here charge, parity, and time symmetry may be violated individually or in pairs, but not all three simultaneously. An overall conservation law is obeyed, but any two of the three conservation laws can be (und are) violated.

EM FORCE FIELDS ARE RELEASES OF GRAVITATIONAL POTENTIAL VIA OBSERVABLE MASS FLOWS



Slide 022: EM Force Fields are Releases of Gravitational Potential via Observable Mass Flows

In Kaluza theory, we may take EM force fields to be the 5th dimensional "bleeding-off" of a 5-G potential. However, in vacuum alone this bleeding-off is totally within the virtual state. That is, only virtual EM force fields exist in vacuum.

By the ordinary term "EM force fields," physics has chosen to imply measureable or observable E and B force fields.

That implies that the 5-G potential gradient flows of virtual particle flux must be coupled to observable charged particles - such as electrons, protons, ions, etc. - before observable E and B force fields exist.

Rigorously, E and B force fields consist of the virtual E and B force fields coupled to observable charged particles. They do not "cause" a particle to accelerate; they are the product of the particle and its acceleration.

As these observable particles are themselves "spray pumps" producing virtual particle flux, then a collection of them represents an increased or decreased **flux** (for negative or positive charge) vis-a-vis the ambient background flux of vacuum. Nature furnishes the continuous power to drive these "virtual flux" pumps.

Normally, EM potentials are formed in natural and manmade electrical circuits by collections of these observable particle "spray pumps." Such collections of

increased or decreased "spray flux" density, of course, represent 5-potentials, gravitationally.

Release of these pumps in conductors or in the vacuum itself results in creating E-fields and B-fields on and of the moving observable charged particles. But release of the observable-particle spray-pumps from the collection (the potential "pressure head" or "source") reduces the potential or "pressure" at the source.

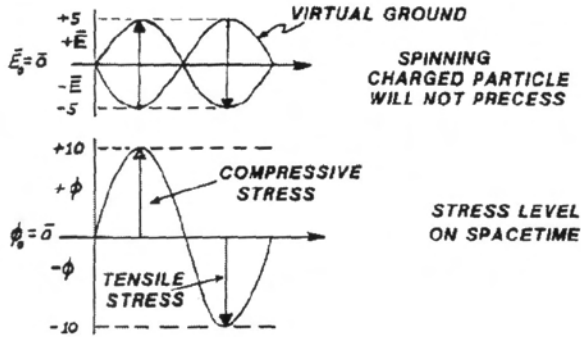
Thus the formation of E and B fields represents the release of the 5-potentials. **Hence** EM force fields are the bleed-off of 5-dimensional G-potential via observable mass flow.

Since classical EM always seeks to create the force fields, it always bleeds-off **and** discards the gravitational effects that could be otherwise achieved.

To allow orthodox EM flow is to dissipate the gravitational effects.

Strangle the orthodox EM flows, and you can keep and use the amplified gravitational effects.

SCALAR \bar{O} -WAVE PRODUCTION



Slide 023: Scalar O-Wave Production

We now visualize the formation of waves of pure stress in the spacetime medium (in the vacuum). These we call scalar EM waves, Tesla waves, electrogravitational waves, longitudinal EM waves, waves of pure potential, electrostatic/magnetostatic waves, and zero-vector EM waves. All these terms are synonymous. Each sheds its own particular light upon the nature of these waves or of their original discoverer, Nikola Tesla.

We use a gedanken experiment, or thought experiment, in which we can be "perfect."

Thus we have two single-frequency EM sine waves whose E-field components are shown on the slide. The two waves are of the same frequency, traveling together in the same direction, and superposed 180 degrees out of phase with each other.

In this case, at any spatial point, the summation E and B fields are vector zeros.

However, if we plot the spatiotemporal (vacuum) stress induced by the wave, we see that it constitutes a sine wave, with compressive stress in one half cycle **and** tensile stress in the second half cycle.

Rigorously this defines a "longitudinal" EM wave - or what Tesla called a "sound wave in the nonmaterial ether."

Also, rigorously it is a gravitational wave, for it is a wave of the curvature of spacetime (nonlinearity of vacuum) itself. That is, what is changing in the wave

is the vacuum stress, or intensity of the virtual particle flux of vacuum. That is identical to changing the curvature of spacetime. In one half-cycle, spacetime is curved positively. In the second half-cycle, spacetime is curved negatively.

Since the increase or decrease of the intensity of virtual particle flux (vis-a-vis the ambient vacuum's virtual flux intensity) represents electrical charge, then in one half-cycle negative charge is represented, and in the other half-cycle positive charge is represented. This directly explains the "positron-electron pair" representation of an electromagnetic photon - the "photon" being one wavelength.

In one half-cycle, time moves slower. In the second half-cycle, time moves faster. Thus scalar waves can also be considered to be "tempic" waves (to use Wilbur Smith's term), or oscillations of the rate of flow of time itself, about the ambient rate of time flow. Since these oscillations are variations in the curvature of spacetime, then they represent gravitational or force-generating waves, when coupled to a mass.

Variations in the rate of flow of time produce force, just as any other type of curvature in space-time does.

SCALAR ELECTROMAGNETICS

- ZERO-VECTOR ENVELOPE
- DELIBERATE, ORDERED SUBSTRUCTURE
 - ❑ SPECIFIC PATTERN
 - ❑ DETERMINISTIC
 - ❑ CONSTITUTES "HIDDEN VARIABLES"
 - ❑ PHASING IS KEY
- TO MAKE A SCALAR BEAM
 - ❑ USE PHASE-LOCKED FORCE-FIELD BEAMS
 - ❑ TWO OR MORE
 - ❑ STANDARD BEAMING ANTENNA
 - ❑ CONVENTIONAL BASIC CIRCUITS
 - ❑ SLIGHT CIRCUIT MODIFICATIONS

Slide 024: Scalar Electromagnetics

To rehash: scalar waves are zero-vector waves. Patterned E and B fields exist in a relationship where their summation equals vector zero. Electromagnetically, the zero EM "envelope" of a scalar EM wave is composed of a zero-summation of infolded finite EM force-vectors.

However, the internal (infolded) substructure is deliberate, macroscopic, and ordered. Vacuum is polarized deterministically by the wave, and macroscopic spacetime is locally curved by it.

These substructure components constitute Bohm's "hidden variables." They can be manipulated and varied at will. Phasing, beaming, frequency, superposition, interference, resonance, and Fourier expansion are the keys to scalar EM engineering.

To make a scalar beam, special modifications are made to the EM wave transmitter so that, effectively, the transmitter transmits multiple transmissions simultaneously, and these vectorially sum to zero. This is the same thing as transmitting multiple phase-locked EM force-field beams simultaneously, in the sum-zeroed fashion.

Standard beaming antennas and conventional circuits can readily be utilized with slight modifications.

Any radar can be converted to a scalar EM radar quite simply. Indeed, a modification kit to accomplish that can be developed and held until the **scalar**

mode is desired. The modification kit can be quickly installed to provide the scalar capability.

Scalar radars, for example, cannot track "corner reflector" targets. However, they can magnificently track smoothly filleted corners; rounded, smoothly curved surfaces; and curved or flat metalized dielectrics. Against aerial targets using special construction to lower their cross-section to normal radars, the application of the scalar radar mode is immediately obvious.

Scalar waves pass through the electron shells of an atom and interact with the nucleus. They are continually absorbed and emitted by all nuclei in the universe.

BACKGROUND FOR THE BRIEFER.

Any large collection of nuclei - such as a star or a planet - is a strong absorber and radiator of scalar wave radiation.

The Sun is a particularly strong source of scalar radiation. This radiation penetrates the Earth deeply, interacting more and more with the deeper layers which, under greater mechanical stress, are more nonlinear. Most of the heat in the molten core of the Earth comes from the dephasing of a portion of this absorbed scalar radiation from the Sun, liberating ordinary EM energy as heat.

The Earth also re-radiates scalar wave radiation back to the Sun. The Sun and Earth are thus coupled into a "scalar" system in equilibrium or near-equilibrium. Each body in the couplet possesses both a feed-forward and a feedback loop.

The Earth also radiates scalar wave radiation to the Moon, and the Moon reradiates scalar radiation back to the Earth. The Earth and Moon also are coupled into a "scalar" system in equilibrium or near-equilibrium. Again, each body in the couplet possesses both a feed-forward and a feedback loop.

The Sun and Moon are correspondingly coupled into a scalar system in equilibrium or near-equilibrium, each with both a feed-forward and a feedback loop.

The Earth, Sun, and Moon thus form a triad-coupled system of special importance to the stability of our existence here on Earth, and the stability of our biosphere.

And so on with all the other planets in the solar system, and combinations thereof.

The solar system is thus a very sensitive scalar-coupled system, with strong subsystems within it.

ADDED FOR THE BRIEFER:

Actually this scalar coupling of the solar system provides a major check on unresricted use of the large Soviet strategic scalar EM weapon systems. If significant scalar effects are produced on earth in a "pulse" mode, pulsed

disturbance of the earth-sun and earth-moon systems results. Here a danger exists that one or more natural resonances of the coupled system may be excited. If the feedback stimulation of the Sun is not insignificant, for example, large sunspot activity may result sometime thereafter, say in a day or two. If too much or too sharp stimulation occurs on earth, the coupled resonant response from the sun could be disastrous. Indeed, a solar response could be stimulated so that the Sun would violently belch and destroy our biosphere, among other effects. The simplest doomsday stimulation would be for a violent expulsion of Solar EM energy and particles to occur. If this were due to resonance, the expulsion of Solar EM energy and particles would continue during some decay time. In that case, fiery destruction of the earth, strongly indicative of Biblical prophecy, would result. Particularly sensitive are the resonances of the sun-earth, sun-moon, and earth-moon systems.

Note the abnormal influence of the moon on tides - tides of both the tectonic plates and the oceans. One cannot help but point out that, if the earth-moon resonant system were overstimulated, one might expect violent earthquakes of extraordinary magnitude, and tremendous tidal waves hundreds of feet in height. (The potential connection to legends of earth-destroying floods, evidences of extreme water levels in mountains, and legends of ancient cataclysmic destruction of supposedly advanced technological oceanic cultures is obvious.)

Accordingly, use of huge scalar EM weapons is a double-edged sword. Unless carefully employed, use of the weapons could cause a terrible backlash to the user as well as the victim, and even accidentally cause the destruction of the earth itself. It is not accidental that in 1960 Khrushchev stated that his new fantastic weapon could - if unrestrainedly used - destroy all life on earth.

This appalling backlash potential is apparently what prompted Brezhnev in 1975 to make so strong an effort to get agreement to outlaw the development of "new weapons of mass destruction" more frightful than the mind of man had even dreamed of. Gromyko even introduced such a draft agreement into the proceedings of the United Nations. The first article of the draft agreement indicated that the nature of the weapons referred to would be negotiated. Sadly, the entire Western world did not even know what the Russians were talking about.

ROGERS' UNDERSEA & UNDERGROUND COMMUNICATIONS SYSTEMS

- SECRETLY USED BY U.S. IN WWI
- COMMUNICATED TO SUBS UNDERWATER
 - ▣ ANY DEPTH, UP TO 30 KHZ
 - ▣ REDUCED DEPTH, ~ 30 KHZ
- COMMUNICATED TO EXPEDITIONARY HQ OVERSEAS
 - ▣ 5000 TIMES STRONGER THAN AERIAL
 - ▣ STATIC-FREE
- DECLASSIFIED IN 1919
 - ▣ TO REVOLUTIONIZE COMMUNICATIONS
 - ▣ TO END ALL SURFACE ANTENNAS
- MYSTERIOUSLY "LOST"
- REDISCOVERED AND "LOST" 3 TIMES AFTER WWII

Slide 025: Rogers' Undersea & Underground Communications Systems

In an article in the March 1919 issue of the Electrical Experimenter, a real bombshell was released on an unsuspecting world.

In that issue, details of the Rogers' undersea and underground communication systems were released. These systems had been classified SECRET during WWI, and used to communicate with (1) U.S. submarines underwater around the world, and (2) U.S. Expeditionary Forces Headquarters overseas.

Subs at any submerged depth could be reached with transmitters of frequencies up to 30 kiloHertz. At reduced depths, frequencies above 30 kHz could be used.

At the headquarters of U.S. overseas forces, the signals were received through the earth. They were 5,000 times stronger than aerial signals through the atmosphere, and static-free.

The Rogers' systems were covered by a series of patents. They used special antennas implanted in the ground.

While the patents are somewhat confused, several of the diagrams in the Electrical Experimenter reveal that the antennas were producing scalar waves. Scalar waves can indeed travel through the earth and through the ocean. Indeed, if good quality scalar waves are made, then frequencies well above 30 kHz can be sent through the ocean. Multi-megahertz frequencies, for example, are easily achievable. (The problem, of course, is that these waves are pure zero-vector

artificial potentials that do not move electrons in the conduction gas of a conventional antenna/receiver combination. Normal receivers and detectors do not see them. Special underwater detectors - such as those developed by Frank Golden - are required.).

With the startling declassification and revelation of the Rogers' systems, it was expected that all communications would be revolutionized, and that all surface antennas would be removed.

Strangely, this entire technology faded away quickly, as if it had never been. Certain powerful interests did not wish the extended electromagnetics to be discovered or taught. That, after all, would lead to free energy and loss of economic control of the citizens. That was precisely why Nikola Tesla had already been suppressed.

According to the important research of Dr. Robert Beck, the same scalar technology has been rediscovered and mysteriously "lost" at least three times after World War II!

Today the orthodox establishment is still suppressing it.

One wonders why no orthodox physicist - with the single exception of Dr. Hooper (see U.S. patents 3,610,971, Oct. 5, 1971 and 3,656,013, Apr. 11, 1972) - seems to have experimented with deliberately constructed zero-vector EM waves and devices, and published his results in the literature.

One would think that any university physics department would wish to explore such a gaping void with at least a few graduate student experiments, if for no other reason than scientific curiosity, particularly when the experiment is easily performed, it is totally different from anything else in the theory or literature, and the implications may be formidable. A true scientist in that related field ought to try it!

HOW DOES THE ROGERS SYSTEM WORK?

"WE DO NOT KNOW AS YET HOW THE
ROGERS SYSTEM WORK.

... ROGERS HIMSELF TAKES THE VIEW—
AND HE IS SECONDED BY TESLA—THAT THE
TRANSOCEANIC MESSAGES WHICH HE RECEIVES
... ARE NOT HERZIAN WAVES ..."

H. GERNSBACK
ELECTRICAL EXPERIMENTER
6(11), MARCH 1919, PAGE 52

Slide 026: How does the Rogers System Work?

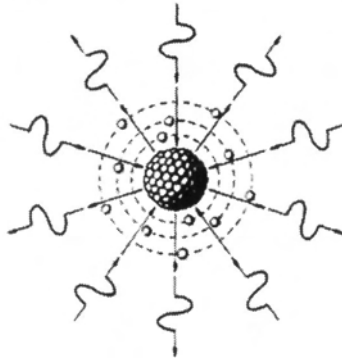
In the same March 1919 issue of Electrical Experimenter, Hugo Gernsback pointed out that no one as yet knew how the Rogers' system actually worked.

Rogers himself believed he was not using conventional Hertzian waves.

Nikola Tesla himself confirmed that the underground and undersea waves were not Hertzian waves.

If so, they could only have been scalar waves.

SCALAR EM WAVES ARE EMITTED & ABSORBED BY THE NUCLEUS



Slide 027: Scalar EM Waves are Emitted & Absorbed by the Nucleus

Normally scalar EM waves do not couple to orbital electrons. Entering into the atom, incoming scalar EM waves penetrate the electron shells without interaction. They continue, penetrating into the interior of the closely packed nucleus, where the extreme nonlinearity of the charged virtual particle flux that binds the nucleons together distorts the scalar wave, dephasing its summed EM vector components. This produces a nonzero EM resultant and polarized pattern directly inside the virtual particle charge flux of the nucleus.

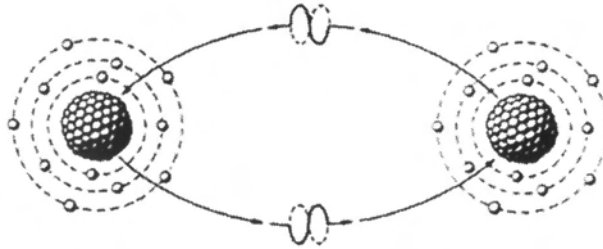
The new EM resultant immediately couples the distorted scalar wave to the nucleus, resulting in absorption of the wave and incorporation of its polarization pattern into the nucleus' virtual flux. This in turn results in a slightly excited nucleus. Normally the excited nucleus will promptly decay by emitting another scalar wave, which passes through the orbital electron shells and radiates out into the universe.

However, as can be seen, if the same strong scalar pattern is constantly radiated into the nucleus and absorbed by it, the excitation of the nucleus "charges up," leading to decay by other modes. In this manner the nucleus can be engineered even transmuted - by rather minuscule power of the engineering radiation signal.

This is how living biological systems are able to transmute elements, as discovered by Louis Kervran. (Kervran was nominated for the 1977 Nobel Prize

for this work.). The biosystem produces scalar EM waves. If the appropriate signal is employed into and on the appropriate nucleus, a changed element emerges. In this fashion chickens denied sufficient calcium in their diet, but allowed a surplus of potassium, are able to transmute some of the potassium into calcium. Note that one of the isotopes of potassium is an isomer of normal calcium. Transmutation of this potassium isomer to calcium is easiest.

NUCLEI OF THE UNIVERSE CONTINUALLY EXCHANGE SCALAR EM WAVES



Slide 028: Nuclei of the Universe Continually Exchange Scalar EM Waves

Thus scalar EM waves are continually exchanged by all nuclei of the universe, and the vacuum is - among other things - a seething cauldron of scalar radiation.

In fact, it is this seething scalar wave cauldron that creates the virtual particles and the virtual particle flux of vacuum itself. (Since the scalar EM wave represents an oscillation of the curvature of spacetime, and since everything - virtual or observable - is a curvature of spacetime, then scalar waves can be taken as the universal generatrix.

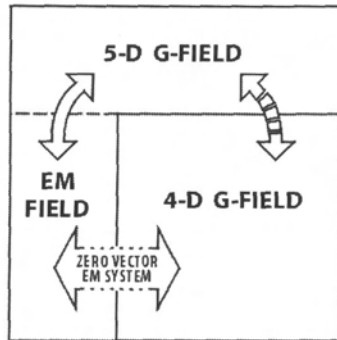
The intensity of the trapped scalar flux in the nucleus of an atom is responsible for the mass and inertia of the nucleus.

Mass is localized trapped scalar resonance.

The trapping agent is the spin of a particle.

The mass and inertia of the particle are due to the scalar resonance that is trapped. Increasing the amplitude of the trapped scalar resonance increases the mass and inertia; decreasing the amplitude decreases the mass and inertia.

CONVERTING EM FIELD ENERGY TO G-FIELD ENERGY & VICE-VERSA



Slide 029: Converting EM Field Energy to G-Field Energy & Vice-Versa

According to Kaluza theory, there are no such things as a separate EM field and a separate gravity field. Instead, in five dimensions there is only one field: the 5-d gravitational field. The EM field is the 5th dimensional aspect, while our **normal** 4-dimensional G-field is the other aspect of the 5-field, in our normal 4-space.

Thus we may say that the 5-field is composed of two components: the 5th dimensional component (our normal EM field) and the component occupying **our** normal 4 dimensions (our normal G-field).

The 5-d "force" field, of course - or the 5-space analogy to a force field - would be due to a gradient or "bleed-off of the 5-d gravitational potential. This gradient in turn is composed of two components: the 5th dimensional "bleed-off" outside our normal 4-space (this outer bleed-off is our normal EM force **field**) and the bleed-off inside our normal 4-space (this inner bleed-off is our normal G-field).

Normally the 5-potential bleeds-off outside our 4-space as EM field, far greater than it bleeds-off inside our world as G-field. Between two electrons, for example, the electric field is about 10^{42} times as strong as the G-field. Since in the Kaluza view there is only one 5-d G-potential that is causing both force fields, this shows that there is an incredibly greater EM bleed-off of the 5-

potential between the two electrons than there is a G-field bleed-off between them.

As shown on the diagram, the 5-d G-field is normally comprised almost entirely of the 5th dimensional EM field. Only a small 4-space G-field component exists.

However, suppose we were to "block" the bleed-off of the 5-potential in the EM mode. Then none of the 5-potential could bleed-off in the 5th dimensional EM field. Instead, it would be forced to bleed-off into the 4-space G-field. In our two-electron example, this "perfect case" would result in the disappearance of the E-field between the two electrons, and the G-field between them would increase to about 10^{42} times its normal strength.

The end result would be that, by blocking the EM force field bleed-off, EM field is converted to G-field. In addition, EM field energy is converted to G-field energy. With the extremely amplified gravitational and inertial effects that result, one can now accomplish direct engineering of gravitation, mass, and inertial effects.

We can effectively accomplish this "blocking the EM bleed-off by opposing EM force fields so that they sum to vector zero. This is the same as summing various 5th dimensional gradients of the 5-potential to a zero vector resultant. In that case, as much "EM bleed-back to 5-potential" occurs as there is "EM bleed-off from 5-potential." This places the 5-potential in equilibrium with respect to EM bleed-off.

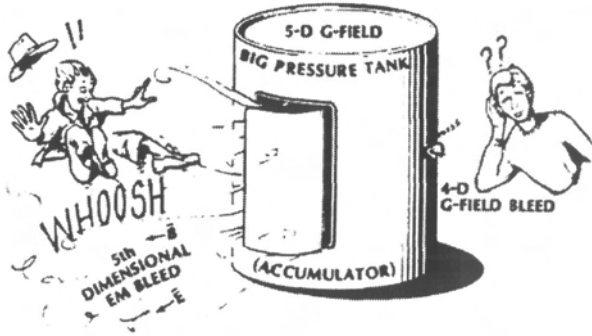
Also, another nice thing results: Since we can readily vary the magnitudes of the EM force field components of the vector zero summation, we can actually form phased "zero vector waves" by increasing and decreasing the magnitudes of all the component EM vectors in phase, but retaining their vector summation always equal to zero.

In that case we have produced a very simple 5-space G-potential wave, which concomitantly forces phase-locked variations in the 4-space G-potential. In short, we have produced an electrogravitational (EG) wave, or scalar EM wave for short. This wave described is the simplest EG scalar wave we can produce; much more complex EG waves can be produced and used for highly **specialized** purposes.

The scalar EG wave changes EG potential energy into 4-gravity potential energy in one half-cycle, and changes 4-G potential energy into EG potential energy in the other half-cycle. However, the EG potential energy in the first half-cycle does not react electromagnetically in linear circumstances, since it is electromagnetically a linear vector zero.

So our scalar EG wave actually oscillates energy back and forth between a locked-in 5th dimensional EM potential and a 4-space G-potential. As can be seen, to the linear 4-space observer this scalar EG wave appears as a purely gravitational wave, with G-potential magnitude varying in a wavelike manner.

NORMAL EM BLEEDS-OFF G-FIELD

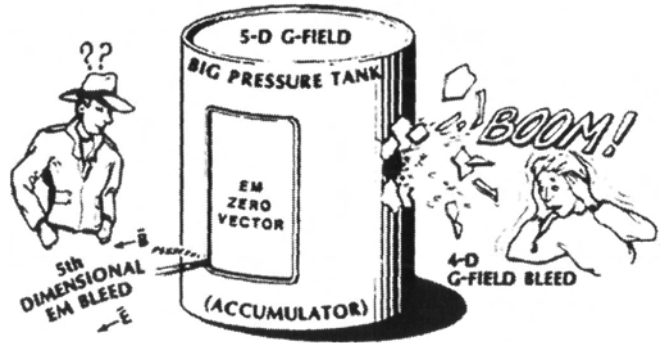


Slide 030: Normal EM Bleeds-Off G-Field

For easy visualization, we may regard the situation in the analogy shown on the slide.

The 5-potential of 5-space vacuum is like a high pressure in a big tank. The tank has a huge open door in the 5th dimension, leading to rapid bleed-off of the 5-pressure through the big door; that is, as EM field. Only a very small hole in the tank normally exists in our own 4-space world, so only a very small amount of the pressure bleeds off as our G-field.

SCALAR EM FORCES 4-D G-FIELD



Slide 031 : Scalar EM Forces 4-D G-Field

As can be seen however, if we shut the big door so that we have only a little bleed-off through the seals, then most of the pressure is forced to bleed-off through the small opening, greatly enlarging it. In that case, most of the 5-potential bleeds-off as 4-G force field.

The mass exposed to such increased 4-G bleed-off exhibits a much greater mass and inertia.

In fact, mass itself can act as an accumulator for the effect, and it can increase its ability to store trapped scalar resonance. This increases its inertia.

By the use of scalar EM (blocking the EM bleed-off), we can input normal EM energy and obtain powerful gravitational and inertial effects. Many other powerful effects can also be obtained.

DETECTION OF ELECTRO-GRAVITATION

- WHEN ORDINARY EM FORCE FIELDS ARE INTERFERED/SUMMED TO PRODUCE ZERO, AND ARE ALSO LOCKED TOGETHER, THEY PRODUCE STRESS OF VACUUM (GRAVITATIONAL POTENTIAL OF FIELD).
THIS IS ELECTRO-GRAVITY.
- WHEN ELECTRO-GRAVITATIONAL FIELDS ARE INTERFERED/SUMMED TO PRODUCE ZERO, AND ARE LOCKED TOGETHER, THEY PRODUCE ORDINARY ELECTRO-MAGNETIC FORCE.

Slide 032: Detection of Electro-Gravitation

Here are two magic rules in the scalar electrogravitational business:

(1) When ordinary EM force fields are interfered or summed so that they produce vector zero, and the fields are locked together, they produce stress of vacuum (5-potential). One component of this 5-potential is the 4-space G-potential. Since bleed-off as a gradient of this 4-space G-potential is all that is allowed, then the EM destructive interference/zero summation bleeds-off to produce gravitational force field. This is because opposing equal forces, which sum to a vector zero force field resultant, actually produce a stress potential having stress energy of spacetime. And that is a curvature of spacetime, hence gravitational.

In short, total destructive interference of EM waves or force fields produces excess stresspotentialenergy in spacetime, and therefore gravitational force field on detecting/coupled particles.

(2) When electrogravitational fields are interfered/summed to produce vector zero, this destructive interference/zero summation bleeds-off to produce ordinary electromagnetic force field.

In short, destructive interference of scalar EM waves or fields (electrogravitational waves or fields) produces electromagnetic force fields on detecting/coupled particles.

BACKGROUND FOR THE BRIEFER:

Mathematically we can summarize this as follows;

$$G_{(1-4)} = G_{(1-4)}(m) + G_{(1-4)}(EM) \quad [3]$$

$$G_{(1-5)} = G_5 + G_{(1-4)} \quad [4]$$

$$\text{If } \mathbf{E} = \Sigma \hat{\mathbf{a}}_i E_i = \mathbf{0}, E_i \neq 0; \mathbf{B} = \Sigma \hat{\mathbf{a}}_i B_i = \mathbf{0}, B_i \neq 0 \quad [5]$$

$$\text{then } G_{(1-4)}(m) = G_{(1-4)}(EM) = G_5 = G_{(1-5)} \quad [6]$$

$$\text{and } G_5 = G_{(1-4)} = f[\Sigma(\hat{\mathbf{a}}_i |\mathbf{E}_i|^2)] + g[\Sigma(\hat{\mathbf{a}}_i |\mathbf{B}_i|^2)] \quad [7]$$

$$\text{and } G_{(1-5)} = G_5 = G_{(1-4)}(m) = G_{(1-4)}(EM) = f(\phi) + g(\mathbf{A}) \quad [8]$$

Where:

$G_{(1-5)}$ is the 5-d G potential, or total G-stress on dimensions 1-5.

G_5 is the combined EM potential, or G-stress on dimension 5 only.

$G_{(1-4)}(m)$ is the normal 4-d G-potential of mass alone, or the G-stress due to mass-gravity.

$G_{(1-4)}(EM)$ is any extra 4-d G-potential of mass due to conversion from G_5 stress (normally zero).

E and B are the electric and magnetic force fields.

ϕ is the electrostatic scalar potential.

A is the magnetic vector potential.

Thus the age-old scientific dream of direct engineering of gravitational field — and of spacetime itself — can now become reality. To start, one simply makes an intense EM vector zero and varies its stress intensity and internal pattern of summed components. One also varies the reference potential at which the patterned EM stress zero is created, and the frequency of internal component variation.

BACKGROUND FOR THE BRIEFER.

He that has ears, let him hear.

Here is the secret of antigravity

The "electrical charge" of a charged particle — such as one of the orbital electrons of an atom or one of the protons of its nucleus — represents a difference in flux intensity (potential) between the local particle and its ambient vacuum.

It's the continual bleed-off of gravitational charge as electrical charge.

If that bleed-off is reversed or stopped, a drastic effect on the gravitational potential and charge ensues. The 5-potential and 5-charge have become 4-G-potential and 4-d-charge respectively.

Thus "charging" an object with its scalar EM pattern charges it gravitationally.

Now the only "bleed-off channel" is through the 4-G force field.

Further, in a nucleus the nucleons continually change back and forth between proton and neutron, so the electrical charge is "spread" throughout the nucleus and shared by all the nucleons.

Further, each element (actually each isotope) has its own unique "ensemble pattern" of Fourier expansion scalar frequencies, amplitudes, etc. This pattern, of course, can be reproduced artificially and transmitted by modified EM transmitters (i.e., by scalar EM transmitters). There is, however, a sort of "master key" scalar EM (EG) pattern for nucleons (protons and neutrons which are changing back and forth into each other by exchange of virtual charge currents).

If one "reverses the charge" by inverting this pattern, and then "charges up a mass with the inverted charge," to the external observer the charging mass just gets lighter and lighter, and its inertia gets less and less. Eventually it seems (to him) to acquire negative mass and negative inertia, and just accelerate away from the earth. The object "falls upward" instead of "falling downwards."

There are also some weird time effects. The object can be moving slower through time than the laboratory observer, or even be moving backwards through time with respect to the laboratory observer. (Don't believe everything they taught you in relativity; none of those professors had ever engineered a single general relativistic situation. Little that they teach in GR is based on direct experiment. Most of what they teach is already experimentally proven to be incomplete or in need of further extension.)

But back to our slide.

Inside the pattern itself, it's just a quite normal pattern. No change in or on the object seems to have occurred, to it, if the charge is evenly accomplished throughout the object. Indeed, to an internal observer it's the external environment that seems to have suddenly gotten very strange! This is what occasionally happens to a hapless aircraft or ship that experiences an anomalous spatiotemporal difficulty in an *occasionally scalar-active* area such as the Bermuda triangle. Under the right conditions, the vehicle's gravitational charge is affected by anomalous changes in the scalar radiation from the earth in that area. To the passengers and crew, it is the external environment that suddenly seems weird. In addition, on-board EM and inertial instruments may be affected, and other electrogravitational effects may also occur, due to differing rates of charge in different parts of the vehicle.).

"Reversing or lowering the EG-charge" is controlled by means of biasing the ground potential on the ensemble pattern transmitters. These transmitters can even be on-board the vehicle itself. (Remember, in scalar EM to transmit is also to receive. A vehicle can change its own bias potential (with respect to local vacuum G-potential) by properly transmitting, which translates to "receiving potential charge." The charge current can either be negative or positive (its potential can be lowered or increased vis-a-vis that of the vacuum.) Think of this as handling positive and negative energy, which means positive and negative gravity.

By "fiddling" with this, you can float metal. Or a human body. Or a battleship. Or a high-speed vehicle containing a crew.

You can even "dematerialize it" or "teleport it."

The Philadelphia Experiment may have been real after all. If so, the test ship and its personnel were "blasted" into this strange realm, instead of making a gentle, controlled entry.

Suppose you materially lower or reverse (adjust) the gravitational charge (gravitation 5-potential with zero-summed EM to throttle EM bleed-off). At zero gravitational charge, to the external observer, such an assumed vehicle would seem to have no mass and no inertia. It is capable of extreme accelerations, right angle turns at full speed, etc. It is also right on the point of dematerialization, and may appear to be glowing or just a vehicle of light.

If the pilot wishes to "land," of course he must adjust the charge on the vehicle.

If the pilot wishes to "dematerialize" or "teleport," again he must adjust the charge on the vehicle.

If he wishes to go "hyperspatial," again he must adjust the charge on the vehicle and allow the proper bleed-off to produce a hyperspatial force. That's done with nested zero summations and nested patterns of scalar EM transmission.

That is, he can charge and bias the vehicle in multiple, nested zero-summations simultaneously.

That is necessary for hyperspatial control and travel.

Note that in lower hyperspace such a vehicle could do some very strange things. Such as "penetrate" solid matter (actually, it goes "around" the 3-space matter in a 4th Kaluza-Klein space).

We might expect to see such vehicles glowing. Their various surface features and mechanisms might appear to be glowing or revolving lights, etc.

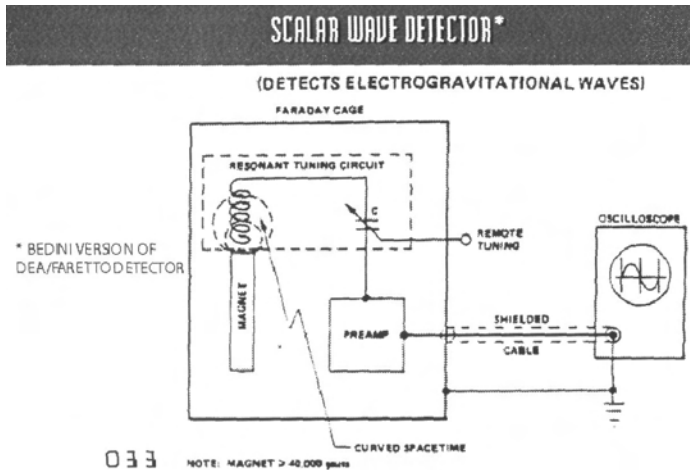
They could exhibit incredible "aerodynamic performance," seemingly in the atmosphere. Actually they would not be moving "through" the atmosphere at all but through a higher space outside each particle of atmosphere.

They could seem to materialize and dematerialize.

They could seem to plunge into the ocean or rise out of it.

They could even seem to operate under the ocean or inside the earth itself.

Such anomalous vehicle performances have been seen all over the world, particularly since a few years after WWII.



Slide 033: Scalar Wave Detector

On this slide we show a concept for a detector for scalar EG waves. This is the Bedini scalar wave detector, adapted from an original concept by Dea and Faretto.

The idea is quite simple: install a very powerful bar magnet vertically inside a grounded Faraday cage. Then install an open-ended coil longitudinally above the magnet so that a line through the longitudinal axis of the magnet passes through the longitudinal axis of the coil above it. The open end of the coil does not touch the magnet.

Connect the other end of the coil to a variable tuning capacitor, so that the coil and capacitor form a tunable, series-LC-oscillatory circuit. The output of the capacitor is connected to a transistorized preamplifier inside the cage. A tuning shaft for the capacitor is very carefully passed through a small hole in the shield to allow tuning from outside.

The output of the preamp passes very carefully through a small hole in the shield, through a shielded cable, to an adjacent oscilloscope. The cable shield is also grounded to reference ground potential.

The theory is as follows: Suppose a normal EM wave appears inside the cage, above the magnet or closely adjacent thereto. In that case a coupled **oscillation** appears in the field of the magnet, and this oscillation is coupled to the coil immediately above it. If the oscillation is within the bandwidth of the tuned

series LC circuit, detection occurs. This is amplified by the preamp and passed to the oscilloscope, where it is displayed on the scope.

Note that the detector detects normal EM wave. Now our problem is: how do we get an EG wave to be detected? And how do we assure that we do not detect ordinary EM waves from outside?

Actually this is simple. Ordinary waves (except for quite low frequency) will be grounded out by the Faraday shield, and will not penetrate the cage. Thus these normal EM waves cannot enter the cage and appear above the magnet. They will not be detected.

Scalar EG waves, on the other hand, will enter the cage since they do not couple to conduction electrons in the metal of the cage. Above the pole of the magnet, spacetime is locally bent. After all, a pole is a magnetostatic scalar potential, which is a part of the conglomerate called "G-potential." The pole represents an increase (or decrease, depending upon whether it is a north or a south pole) in **the** magnetostatic component of the local G-potential. This is a curvature of spacetime. An EG wave entering this region adds a varying component of magnetostatic G-potential, which bleeds-off in the coil as an ordinary EM wave.

Another way to view the detector is to model the EG wave as a longitudinal wave, and an ordinary EM wave as a transverse wave. When the EG wave enters the curved spacetime region above the magnet, to the coil (the "observer" in this case) the longitudinal aspect of the EG wave appears to be rotating back and forth, so that an oscillating transverse component is present. This transverse component appears to the coil as an ordinary EM field, and so the LC circuit detects it if it is in the proper frequency band.

Yet another way to view the situation is to realize that an EG wave entering the magnet results in an oscillation component added to the magnetostatic scalar potential (pole strength) of the magnet. Accordingly, the magnet is a receiver for scalar waves, which are detected to "bleed-off as an oscillation of the magnetic field strength of the magnet. Coupling of this oscillating magnetic field to the coil creates an oscillating current flow into the capacitor. This oscillates the voltage input to the preamp, which amplifies and feeds the signal to the oscilloscope for display.

In fact rather like the latter view! It is important to remember that a magnetostatic potential and an electrostatic potential can be oscillated by a scalar EG wave. By placing a magnetic material inside a Faraday cage, the oscillation of the magnetostatic scalar potential (pole strength of the magnet) can be used as the EG detecting mechanism. By placing a chargeable material inside a Faraday cage, the oscillation of the electrostatic scalar potential can be detected. (Possible examples of the latter type detectors are given by Hodowanec, Radio Electronics, April 1986.)

Note also that one may detect waves at one reference level and not at another. Changing the bias on the zero-reference ground of the Bedini detector affects the detection. To look inside a normal EM carrier (such as the Woodpecker) and see what scalar signals are riding upon it, the carrier may be used to bias the reference ground of the Bedini detector.

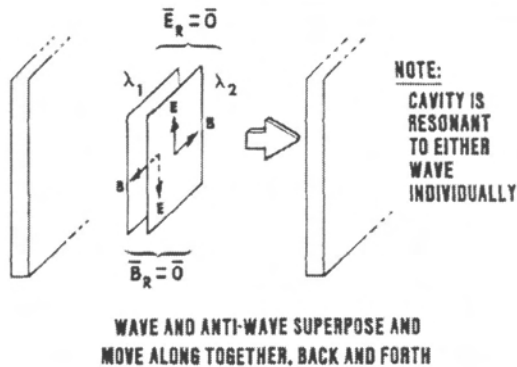
To produce a spectrum analyzer, simply use additional series resonant LC tuning circuits in parallel (put multiple taps on the coil, and wire each tap to a separate tuning capacitor of different capacitance). Again, varying the zero reference level is important, as is varying the strength of the magnet.

Golden also has invented an excellent series of scalar wave detectors based upon quite different proprietary principles.

The bottom line is: we can indeed rigorously detect and measure scalar EG waves. When one considers the large sums of money presently being spent to bury large aluminum cylinders etc. in an attempt to detect gravitational waves, one wonders why some funds could not be released to a few unorthodox researchers by the National Academy of Sciences to fund the proven creation and detection of electrogravitational waves!

Note from TEB: I understand that it took Bedini about 600 attempts before he got the device to work. It was then handed over to a different party to produce, who made some "improvements," and the device then failed to work.

SCALAR RESONANCE



Slide 034: Scalar Resonance

Here we explain a new kind of resonance: scalar EH resonance, or electrogravitationalresonance.

First, imagine we have a standard resonant cavity, represented by the two walls in our diagram. In this cavity we have a resonant EM wave moving back and forth, represented by the forward-most plane. In accordance with convention, we show the E-field vector and the B-field vector at right angles in this moving wave front. As the wave front moves back and forth, the vectors vary back and forth; however, at any one point between the walls, the two vectors always have the same value. Thus our resonant EM wave forms a standing wave in the cavity.

Now imagine that a second wave front, precisely like the first and of the same frequency, is superposed over the first wave front and travels along with it. This second wave - the "antiwave" - has its force vectors 180 degrees out of phase with the force vectors of the reference wave. Hence the E-fields and B-fields of the two superposed waves always sum to vector zeros, anywhere in the cavity.

To an external observer, the cavity contains no ordinary electromagnetic force fields, hence no ordinary EM energy.

However, the energy density of a single EM sine wave in vacuum is given by

$$[E^2 + B^2]/8\pi \quad [9]$$

This energy density is always positive. Hence the energy density of the two waves at any point x between the walls is equal to

$$[E^2+B^2]/4\pi \quad [10]$$

where

$$E = E(x) ; B = B(x) \quad [11]$$

Thus the energy density of vacuum varies with x . But, rigorously, since the resultant E and B fields are zero, this describes a standing gravitational wave. Hence we have a standing EG wave, existing in the resonant cavity. This is an example of scalar resonance. Rigorously the cavity has mass and inertia, to an outside observer, as a result of the two warps in spacetime it contains.

Note that in one half-cycle the energy density of vacuum is greater than ambient, and in the other half-cycle it is less. In the region of one half-cycle, time flows at a faster rate than to the ambient observer, and in the other half-cycle time flows at a slower rate than to the ambient observer.

One half-cycle appears to contain negative electrical charge, and the other appears to contain positive charge.

One half-cycle appears to contain a north pole (positive magnetostatic scalar potential), and the other half-cycle appears to contain a south pole (negative magnetostatic scalar potential).

Perhaps now one can begin to understand why a continuously accelerated orbital electron in the atom does not radiate EM energy, completely in violation of Maxwell's equations. The electron is naught but a complex aspect of a standing scalar resonance, existing between the nucleus and the orbit.

SCALAR RESONANCE

- NOT IN PRESENT TEXTBOOKS
- CONTROLS NATURE OF PARTICLE
- BENDS SPACETIME
- CONTROLS MASS
- CONTROLS INERTIA
- CONTROLS GRAVITY
- CAN FLOW
- A "MASS" IS LIKE A CAPACITANCE
- HAS A SCALAR MAGNITUDE
- HAS SPECIFIC PATTERNING

Slide 035: Scalar Resonance

Scalar resonance is not in the conventional textbook.

Scalar resonance is a particular zero-summed multi-resonance, electromagnetically, so that it does not act in an electromagnetic manner.

A scalar resonance is a standing electrogravitational wave. It can be made **electrically**, but it is not electrical in behavior.

In any scalar resonance, spacetime is curved, and it is the magnitude (and direction; of this spacetime curvature that is oscillating in "standing wave" fashion. In respect to stress of the vacuum medium, one half of a standing sine wave of scalar resonance is tensile; the other half is compressive. However, this is with respect to the local ambient stress of vacuum.

"Mass" of a particle is just a characteristic exhibited by a trapped scalar resonance. Usually this trapping is done by the "spin" of the individual particle.

The concept of "mass" may be compared to the concept of "capacitance." That is, a mass is an accumulator for scalar waves; that is, for scalar resonances. It is continually being "charged" and "discharged" by absorption and emission of **scalar** waves from and to the ambient vacuum scalar wave flux.

Indeed, the magnitude of a mass may be defined in terms of the absolute value of this "switching" (absorption = switch in; emission = switch out) rate. In a very early paper I defined the mass of an object as proportional to the absolute value of the sum of the input and output switching rates, where each "switch"

represents a change of action of $h/(4)$. (Bearden, Quiton/Perceptron Physics: A Theory of Existence, Perception, and Physical Phenomena, Mar. 1973, AD 763210, available through NTIS.) In that scheme, one kilogram of mass equals a switch rate of 17.053×10^{50} switches per second. An object is in a Lorentz frame when the switch-in and switch-out rates are equal in a given direction. If, in addition, the in-out rates in all directions are constant, the object is "stationary" with respect to a Lorentz observer. If not constant in all directions, the object is in a curved spacetime with respect to a Lorentz observer. In that case either the object's local spacetime is warped or the object is in a generalized, accelerated frame.

In the normal linear spacetime, the "charging" and "discharging" are equal in all directions; hence the "mass" exhibited in any direction is the same.

With respect to an "external observer's" equilibrium flux, a moving object encounters an increased amount of flux rate along its line of motion, just as a moving object in a rainstorm encounters more raindrops per second in the direction of its path, than does a stationary object. Encountering increased scalar wave flux (with respect to the external observer) forces the moving object to absorb and emit scalar waves at a higher rate along its direction of motion than when it is not moving. Thus to the external observer, the mass of the object has increased, insofar as any disturbing force along its line of motion is concerned.

At right angles to its line of motion, however, the flux rate is precisely the same as when the object is at rest. Therefore the "mass" of the moving object with respect to any disturbing force at right angles to its line of motion has not changed, as seen by the external Lorentz observer.

Thus is explained both parts of one of the alltime great mysteries of special relativity: (1) how the mass of an object increases with respect to its motion, and (2) why the mass only increases with respect to its line of motion, and not at right angles to it.

The inertia of a particle is due to its mass, i.e., to the total magnitude of its trapped scalar resonance.

The gravitational attraction between two masses is due to their spacetime curvature. Further, mass is like a capacitance. It can trap additional scalar waves as trapped resonance; hence increase its magnitude or "inertial charge." Or, it can discharge more scalar waves than it absorbs; hence decrease its magnitude or "inertial charge."

Those scalar waves emitted from resonance are emitted as a pattern ensemble of the resonance. Hence they may be regarded as constituting a current of scalar resonance leaving the mass-accumulator-object. Scalar waves absorbed into trapped resonance may be regarded as constituting a current of scalar resonance into the mass-accumulator-object. Thus it is proper to speak of scalar resonance as being able to "flow."

Further, it is possible to increase the mass of an object directly, by transmitting scalar EM waves to it so that it absorbs them. (By "absorbing" scalar waves one means that more enter the object than leave it, so the object acts as an inertial accumulator charging up with inertial charge. This is done by insuring that the reference potential of the scalar wave transmitter is higher than the reference potential of the irradiated object.)

It is also possible to decrease the mass of an object directly, by transmitting scalar EM waves to it so that it emits more than it absorbs. (By "emitting" scalar waves one means that more leave the object than enter it, so the object acts as if it were an inertial accumulator that is discharging its inertial charge. This is done by insuring that the reference potential of the scalar wave transmitter is lower than the reference potential of the irradiated object.)

As can be seen, the scalar wave "transmitter" is actually somewhat comparable to a heat pump; it can either act as an "energy transmitter" or as an "energy extractor," depending upon the difference in potential between "transmitter" and "receiver."

Finally, scalar resonance can have a specific pattern: both in frequency and in spatial curvature aspects, as well as "rate of flow of time" aspects. Indeed, scalar-wise every object has its individual "scalar pattern" which is a unique fingerprint. Since that print is spatiotemporal, it is a product of the object's entire past history. Thus - scalar-wise - no two objects are identical.

This brings up another rather amazing potential: If a reasonably precise scalar pattern of an object can be "irradiated" and resonated with scalar waves, energy may be created in or extracted from the distant object, just as stimulating one tuning fork can excite another at a distance by sympathetic resonance. We leave it as an exercise for the reader to ascertain the relevance of this statement to clairvoyance, radionics, remote viewing, etc.

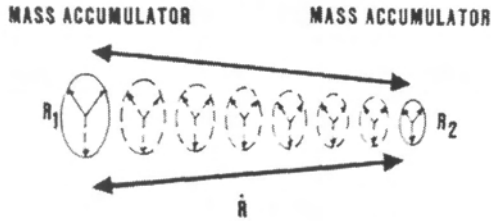
For the skeptic, however, we must point out that - rigorously - quantum mechanics requires that, continually, in any localized region of spacetime, the "pattern" of any object in the universe appears momentarily in the virtual state, purely from statistical considerations alone. So long as the situation remains statistical, any place in the universe can continue to have the "ghosts" of

everything present there, in an ethereally thin pattern, and the observable world will not be affected by it. However, if one can discriminate and scalarly "charge" or "discharge" individual patterns in this "ghost-realm," action-at-a-distance is directly possible, as is materialization and dematerialization. If one accepts that even thought itself produces such virtual "ghost-patterns" in the virtual particle flux of vacuum, then it is at least theoretically possible to even materialize thoughts and thought images.

We have entered a new kind of reality where the old rules and the old limitations do not necessarily apply.

SCALAR RESONANCE CURRENTS

CURRENTS OF SCALAR RESONANCE CAN FLOW TO CHARGE A MASS WITH ADDITIONAL "MASS" AND "INERTIA," OR TO DISCHARGE IT.



Slide 036: Scalar Resonance Currents

As we pointed out, we can often greatly simplify matters by considering currents of scalar resonance. These currents flow from higher potential to lower potential, regardless of whether we are considering "transmission" or "reception."

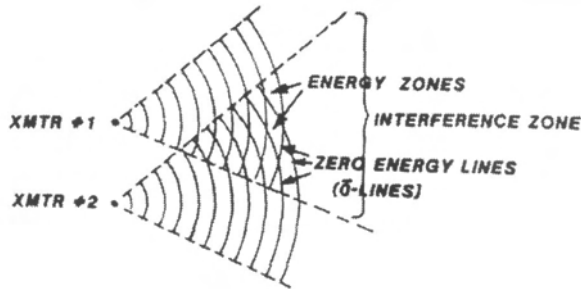
Indeed, to "transmit at lower potential" is to receive, and to "receive at higher potential" is to transmit.

Thus the "transmitter-receiver" is a special system where simply biasing the two nodes differently determines which way the scalar resonance current will flow.

We may increase or decrease an object's inertia and mass, simply by properly biasing the transmitter-receiver system's two nodes.

In one accidental experiment of some hours in duration, Golden charged up an area so that, locally, all clocks became erratic. This included electrical clocks, battery-driven watches, wind-up kitchen clocks, and a pendulum-operated grandfather's clock. The rate of flow of time itself was apparently altered in the local area by the accumulated charge, which took some four days to drain off and discharge. At the end of the four days of discharge, all clocks and watches had returned to normal.

TRANSVERSE WAVE INTERFERENCE



Slide 037: Transverse Wave Interference

On this slide we show the orthodox representation of EM wave interference.

The chart is stylized since we assume two single-frequency EM waves that intersect and interfere in the indicated region.

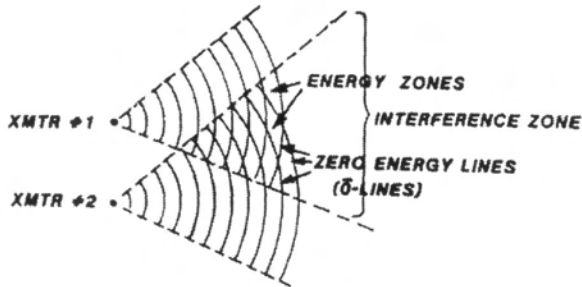
In the interference zone, in-phase wave amplitudes add (constructive interference) while out-of-phase wave amplitudes subtract (destructive interference). In our stylized mode, we show the zero-summed locations as lines.

Conventionally, these interfering waves are considered to be transverse waves in vacuum.

The point is, in this scheme we think of "putting in the waves of finite amplitude, and creating the zero-amplitude regions by destructive interference." We create additional waves of increased-amplitude regions by constructive interference.

Note that this view is only half correct. It addresses the electromagnetics, but not the gravitational aspects. Actually the regions of destructive EM interference are regions of constructive G-interference, and the regions of constructive EM interference are regions of destructive G-interference.

TRANSVERSE WAVE INTERFERENCE



Slide 038: Transverse Wave Interference

Here we show the same interference situation, only now we think of transmitting scalar EM waves, which we model as longitudinal waves.

Again we assume two single-frequency scalar EM waves that intersect and interfere in the indicated region.

However, to an external observer, each of these waves individually appears to have zero E and H fields, hence to contain zero EM energy. That is, conventionally we seem to be transmitting waves of "pure potential," without any "force field" amplitudes whatsoever. We say we are transmitting waves of "artificial potential," since we deliberately constructed the zero-vector-summation scalar waves in the first place.

In the interference zone, a strange thing now happens. The relative magnitudes of the artificial potential of one wave with respect to the artificial potential of the other depend upon the phase relationship between the two. Further, whether the "gradient" so established appears negative or positive also depends upon the phase relationship between the two.

What results is most interesting: the out-of-phase condition now produces an EM gradient whose sign and magnitude are functions of the location within the interference zone.

Thus one now has real, non-zero EM potential gradients, both electrical and magnetic. And so real EM energy has emerged in an interference pattern within the area.

Ironically, we get essentially what we had before! Only now we have "put in the zero-reference lines, and produced the non-zero gradient (energy) zones."

In other words, we have recreated ordinary EM energy at a distance, directly from the interference of gravitational potential energy (anenergy).

And, to the laboratory observer, there has been no "EM wave" energy flow through the intervening space.

This was Tesla's secret of "wireless transmission of energy to a distance without losses."

Further, in a hypothetically perfect case, the interference represents a sort of "energybottle."

But now recall our need to take the sign of the scalar current into account. In this energy bottle, then, EM energy emerges and stabilizes - if and only if our transmitters are at higher reference potential than the ambient interference zone. If our transmitters are biased at lower potential, then energy is extracted from the energy bottle and re-emerges back at the transmitters, where it must be extracted and disposed of, if the transmitters are not to be burned out.

BACKGROUND FOR THE BRIEFER:

If we interfere two transmitters in a region of great energy -such as the molten core of the earth itself- and bias the transmitters negatively, we can extract enormous energy directly from that distant source!

Indeed, a slight variation of this effect is precisely how the Soviet Union obtains the enormous energy with which to power its incredibly powerful strategic "continent-buster" scalar EM weapons. Scalar frequency pairs - 12 kiloHertz **apart** - are transmitted into the earth itself on some portion of the earth's "giant scalar resonance" frequency curve. Biasing the two transmitters differently with respect to each other produces a high potential difference (voltage) between them. At the same time, biasing them both negative with respect to the earth's molten core produces a scalar resonance current from the core to the two transmitters. In the "outer loop" between the two scalar transmitters, there appears a gigantic voltage and gigantic electrical current that can be captured by appropriatemeans. This electrical power is tapped off and transmitted to incredibly powerful scalar EM weapon systems. There special accumulators and switchers are are utilized to provide the power of many Niagaras to each weapon.

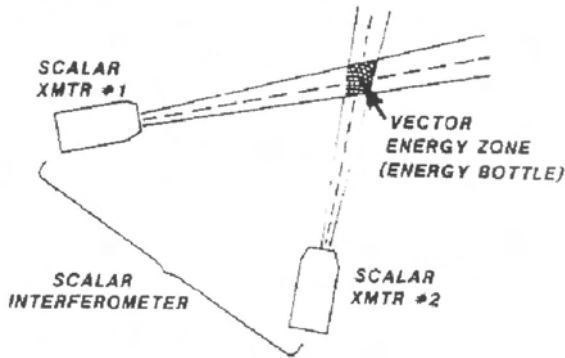
Just before May 1, 1985 the Soviet Union performed a "full-up" operational test of their entire strategic scalar EM weapons complex. This test was detected and monitored periodically by Frank Golden. Some 27 of these giant Soviet "power taps" were locked into the molten core of the earth, producing forced (entrained)

scalar resonance of the entire planet on 54 controlled frequencies under our very feet. The remainder of the scalar frequency spectrum was ablaze with literally hundreds of Soviet scalar transmitters: probably the entire strategic scalar command and control system to underwater submarines, higher command centers, distant commands, etc. was activated in the giant exercise.

For several days, the system was exercised on a mind-boggling scale, apparently as part of the Soviet Union's highly accentuated 40th anniversary celebration of the end of World War II.

Ironically, not a single U.S. intelligence agency, laboratory, or scientist detected this monstrous exercise for the new Soviet leader, Gorbachev. Not a one of them had a detector for scalar EM radiation, and not a one of them officially believes the exercise ever happened.

CREATING ENERGY AT A DISTANCE



Slide 039: Creating Energy at a Distance

A most useful device is obtained if one uses a scalar interferometer where the two transmitters transmit beams that intersect at a distance.

In the interference zone, an energy bottle is created.

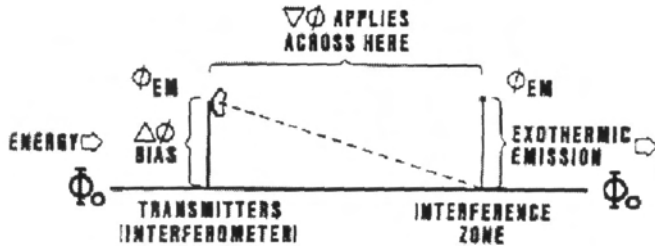
By biasing the transmitter reference potentials well above that of the distant energy bottle, EM energy emerges in that zone. In that case the interferometer is operating in the exothermic mode.

By biasing the transmitter reference potentials well below that of the distant energy bottle, EM energy is extracted from the distant zone and emerges from the transmitter. In that case the interferometer is operating in the endothermic mode.

If ~~the~~ transmitters transmit continuously, the effect in the distant zone is continuous.

If each transmitter transmits a pulse, and the two pulses meet in the distant intersection zone, then an explosive emergence or extraction of energy occurs at the distant interference zone, depending upon whether the interferometer is operating in the exothermic or the endothermic mode.

EXOTHERMIC MODE (SCALAR INTERFEROMETER)



Slide 040: Exothermic Mode (Scalar Interferometer)

For a scalar interferometer, " $\nabla\phi$ " (the gradient of the potential) applies between the transmitter site and the distant intersection site, not to the intervening space in between. Thus one speaks of "energy flow" as being between transmitter and intersection, without any "in between." In the intervening space, all the energy exists as locked-in artificial potential, not EM force field energy (gradient bleed-off of potential).

In the exothermic mode, the ground potential of the transmitter is biased well above the ground potential of ambient vacuum. Energy enters the transmitter and "disappears", to "reappear" in the distant interference zone.

If continuous wave transmission is used, the energy continuously appears in the distant zone.

If pulse transmission is used and timed so that the two scalar pulses meet in the distant zone, energy explosively appears there.

If multiple frequencies are transmitted in the manner of a Fourier expansion of a particular geometric form, then a 3-dimensional energy form appears at the distant intersection. In this manner, a spherical or hemispherical shell (a globe of "dome" of EM energy) can be created at a distance. If pulse transmission is used, this will be an impulsive or explosive emergence of that energy form. If continuous transmission is used, this will be a continuous glowing form.

By feeding incredibly powerful transmitters with large amounts of energy extracted from the earth's molten core by "energy taps," very large spherical

globes and hemispherical domes of EM energy can be created. The energy in the interference "shell" of such a sphere or hemisphere is sufficiently dense to lift Dirac matter from the Dirac sea of the vacuum. Thus the shell contains a glowing plasma.

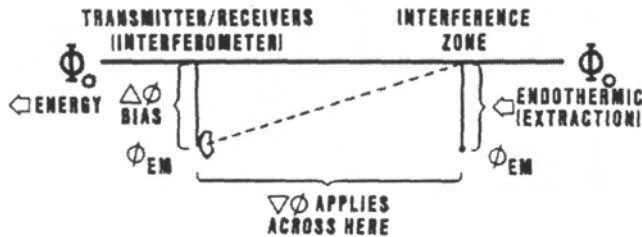
Many such scalar howitzer signatures have been seen over the oceans, particularly over the North Pacific by jet airliners flying into and out of Japan. Also, such globes and domes of light have been seen deep within the Soviet Union, by observers in Afghanistan and by pilots of aircraft landing in Iran.

In the impulsive exothermic mode, a large visible flash will occur if EM energy in the visible spectrum is produced. "Flashes" in the infrared may similarly occur, if the emerging energy is in that spectral band. In September 1979 our Vela satellites detected such a large "nuclear flash" over the South Atlantic, off the southern coast of Africa. A second "nuclear flash" detected by the Vela satellites in 1980 was in the infrared only. Some years ago, a series of Momalous "flashes" and "booms" occurred off the east coast of the United States. These were due to the orientation and alignment -and registration - of one or more Soviet "scalar howitzers" - scalar EM interferometers in the exothermicmode.

Large "booms" occurred over the shuttle launch site at Cape Canaveral, associated with three shuttle launches prior to the end of November 1985. These were tests of such exothermic scalar EM howitzers, being tested as part of the Soviet Launch Phase ABM system. In that mode, the scalar pulses from the two transmitters are injected into special zero-reference scalar EM "channels" established in the EM carriers of the Woodpecker over-the-horizon radars. The scalar pulses travel through these channels, traveling in the ordinary EM beam of the transmitter and following it in its curvature around the earth in the earth-ionospheric waveguide. The scalar pulses are timed, phased, and oriented so as to meet the rising shuttle. In these tests the transmissions were offset in time so the shuttle would not actually be destroyed, but the system could be tested against actual shuttle launches in the U.S.

The specific uses of these various exothermic modes will be covered in later parts of the briefing.

ENDOTHERMIC MODE (SCALAR INTERFEROMETER)



Slide 041: Endothermic Mode (Scalar Interferometer)

In the endothermic mode, the bias on the transmitters is such that energy is extracted from the distant intersection zone, to re-emerge at the transmitters. There the energy must be caught and disposed of if it is not to burn out the transmitters. When very large amounts of energy are extracted from distant points, the Soviets often use a "dump" method of temporarily capturing, and storing in an accumulator, the heat energy emerging at the transmitters. A "scalar energy tap" established into the accumulator then feeds a second howitzer in the exothermic mode. This howitzer is focused on a distant dumpsite - often Bennett Island, where U.S. weather satellites continually observe exhausts.

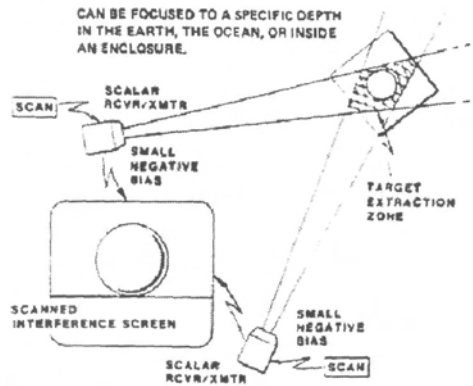
In the impulsive endothermic mode, energy is impulsively extracted from the distant intersection zone. In the atmosphere this results in a very sharp cooling, or a "cold explosion." It also results in the type of boom and rumble often associated with thunder after a lightning bolt.

On April 9, 1984 the Soviet Union tested such a "cold explosion" off the coast of Japan, near the Kuril Islands. In the suddenly induced low pressure "cold zone" above the ocean, ocean water was sharply sucked up from the ocean, forming a dense cloud. Then air rushing in to the low pressure zone forced the cloud upward, forming a mushroom much like that of an atomic explosion in visual appearance, except for the absence of a flash and the absence of a giant shock wave moving out away from the site of the explosion. (In this case the

Soviets controlled the rise time of the pulse so that no "giant atmospheric boom" occurred.).

As the cloud rises, it expands by mixing - very similar to a giant thunderhead buildup, except much faster. In this case the cloud rose to 60,000 feet in about 2 minutes, spreading out until it reached a diameter of about 200 miles. The pilots **and** crews of several Boeing 747 jet airliners in the general vicinity saw the incident. Sometime after that, a U.S. weather satellite photo of the area occurred. The cloud in that photo has an anomalous density distribution, differing from that of all other clouds in the area.

TESLA'S "BIG EYE" FOR REMOTE VIEWING



Slide 042: Tesla's "Big Eye" for Remote Viewing

Nikola Tesla also planned a very special use for his endothermic scalar interferometer. He planned to produce what he called his "big eye to see at a distance."

This is accomplished as shown on the diagram. First, the system is only weakly endothermic, so that only a small amount of energy is extracted from the **distant** target. Also, the beams are "scanned" by an open receiver, timewise, from side to side and top to bottom. By scanning yet another single beam through the intersection zone and phasing its pulses, an even better representation can be obtained. Thus the receiver produces a representation of the energy extracted from various locations within the distant endothermic zone. By displaying the received signals on an appropriately scanned screen, a representation of the distant scene in the intersection zone can be created. Indeed this is a special kind of "microwave interferometry," and - with modern techniques - the imagery obtained might be surprisingly good. With development, it might even become as good as the image presently obtained by side-looking acquisition radars.

Interestingly enough, since scalar EM beams will easily penetrate the earth or the ocean, one can also look beneath the earth or beneath the ocean with this type of scanning scalar interferometer.

The importance of this capability to strategic and tactical reconnaissance is obvious. Camouflage, cover, and concealment have no effect on such a **system**. One can easily look inside buildings and into underground facilities. With a small system such as this, the U.S. Marines at Khe Sahn would have had **little**

difficulty locating the tunnels continually dug under the perimeter by the Viet Cong. And targets under jungle canopies are directly visible.

BACKGROUND FOR THE BRIEFER:

It requires little imagination to see that this system is easily adapted to produce an "underwater radar." With such devices, the problem posed by the underwater nuclear submarine is solved. For example, an entire area can be continually searched, much like acquisition radar systems do now. A submarine can be detected and tracked, and none of its ordinary detectors will detect anything out of the ordinary. By using a separate pair of beams in the exothermic mode, powerful scalar pulses can be fired at the distant sub, intersecting at the submarine in a violent EMP throughout the sub and its armament. Thus the sub and all its missiles are destroyed instantly.

Or, continuous exothermic transmission can be used by the targeting weapon at lesser power, gradually interfering with the sub's electrical systems and causing it to lose control. The sub then sinks to crush depth and implodes.

Precisely that scenario seems to be what happened on April 10, 1963 to the U.S.S. Thresher nuclear submarine. It left a signature: the sub's surface companion, the nearby U.S.S. Skylark, was in the "splatter zone" of the underwater scalar interference. That is, spurious EM noise was being generated. In all the Skylark's electrical systems, some of which were actually disabled. So intense was the "electronic jamming" that it required over an hour and a half for the Skylark to transmit an emergency message back to its headquarters that the Thresher was in serious trouble and contact with it had been lost. Some of the Skylark's communication systems actually failed, but later resumed operation inexplicably, once the jamming was gone. That type of "jamming" of multiple bands and multiple electronic equipments, of course, together with the anomalous failure of electronic equipment and its later mysterious recovery, were direct signatures of the use of the exothermic scalar interferometer against the undersea target area in the vicinity of the Skylark.

The very next day, Apr. 11, 1963, the same Soviet scalar EM howitzer system was tested in the "destroy submarine" pulse mode. A huge underwater EM blast occurred off the coast of Puerto Rico, about 100 miles north of the island. The underwater explosion caused a huge boiling of the surface of the ocean, followed by the rising up of a giant mushroom of water about a third of a mile high. The mushroom of water then fell back into the ocean, completing the signature.

Fortunately the startled crew of a passing U.S. jetliner that was just passing its checkpoint in that area saw the entire incident. (See Robert J. Durant, "An Underwater Explosion - or What?", Pursuit, 5(2), April 1972, p. 30-31.)

Thesetwoincidentswerefull-upoperationaltestsofKhrushchev'snewly deployed superweapons. He probably staged this dramatic one-two punch in a

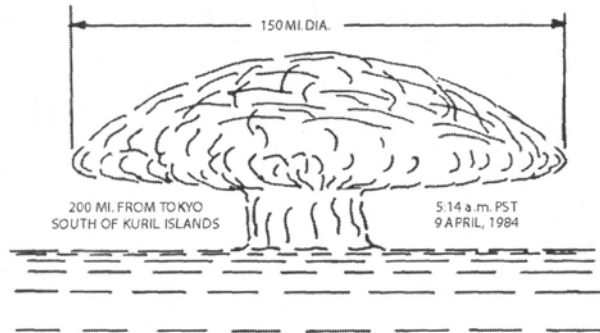
desperate effort to recover face with the Communist Party after his disastrous facedown by Kennedy in the Cuban Missile Crisis a few short months previously. Apparently the attempt was successful, since he remained in power another year before being deposed.



Slide 043: Site of Mystery Cloud

On this slide we show the location of the "cold explosion" off the coast of Japan on April 9, 1984. The site of the explosion was only about 200 miles from downtown Tokyo. The crews of several jet airliners, including Japan Air Lines Flight 36, saw it.

MUSHROOM CLOUD FROM SEA OFF JAPAN NEAR RUSSIAN TEST AREA



Slide 044: Mushroom Cloud from Sea off Japan near Russian Test Area

A short time before, the Soviets had hastily announced missile tests would be conducted into a zone some distance away from the cold explosion site. This may have been intended as deception to cover this incident, should any foreign nation indicate they understood what was going on.

It also was a direct "stimulus" to the Japanese and the rest of the world: That is, stimulate the system and see if the scientists recognize what happened. If they do, then they know about scalar EM weapons. If they don't, then their countries know nothing of scalar EM weapons, and those countries are defenseless against them.

At any rate, at about 5:14 a.m. Pacific Standard Time on April 9, 1984, a **giant** mushroom cloud erupted above the ocean south of the Kuril Islands. The mushroom rose rapidly, expanding as it rose. In two minutes it had reached **an** altitude of 60,000 feet and a diameter of about 200 miles.

One pilot of a Boeing 747 who observed the cloud was a former B-52 bomber pilot. He described the cloud as very similar to a mushroom cloud from a gigantic nuclear explosion, except there was no flash of visible light. Taking evasive action, he turned off course away from the blast, and braced for a blast shock wave, which never came.

MUSHROOM CLOUD RISING FROM SEA (COLD EXPLOSION)

- 0514 HOURS, 9 APRIL 1984
- GRAY-WHITE CLOUD APPEARED
- ROSE 60,000 FT IN 2 MINUTES
- 180 MILES S.E. OF HOKKAIDO
200 MILES FROM TOKYO
SOUTH OF KURIL ISLANDS
- SOVIET MISSILE TESTING SCHEDULED
ABOUT 350 MILES AWAY
AT 2100 HOURS, 9 APRIL 1984

Slide 045: Mushroom Cloud Rising from Sea

Indeed, this highly anomalous cloud was due to a cold explosion - a test of a Soviet scalar EM howitzer in the pulsed endothermic mode.

In the weapon's targeted interference zone, EM energy (heat) was rapidly withdrawn when the biased endothermic extraction occurred. Above the ocean an intense low-pressure zone was created. Water from the ocean was sucked up, as if by a giant vacuum cleaner. The water was violently broken into droplets, forming a dense cloud, with a strong upward momentum.

The surrounding higher-pressure air rushed into the low-pressure zone, pushing the rising dense cloud of water vapor upward as its upward momentum continued. Mixing caused rapid expansion of the rising cloud, causing its density to thin measurably as it rose and expanded. An effect very similar to the formation of a strong thunderhead resulted, except much faster.

The mixing cloud also resembled the mushroom cloud from a giant nuclear explosion, just as an emerging thunderhead does.

But no outward blast wave resulted as does from a nuclear explosion. Also, no visible flash occurred, probably as a result of deliberate design by the Russians.

Thus a beautiful "stimulus" and test was conducted: quite a few airliners were "pinged," providing a high-level stimulus to competent observers. The news was sure to be reported by them to several nations. The press was sure to pick up the story. This was a high order stimulus to see whether the U.S., Japan, or other

potential adversaries of the Soviet Union recognized the testing of a cold explosion weapon.

By our reaction, we assured them (with high confidence) that we still knew nothing of scalar EM interferometry or cold explosions.

MUSHROOM CLOUD FROM SEA OFF JAPAN

- FIVE BOEING 747s FLEW THROUGH OR NEAR THE CLOUD
 - ✧ NO CONTAMINATION
 - ✧ NON-NUCLEAR
- OCEAN 21,000 FEET DEEP
 - ✧ TOO DEEP FOR SUBMARINE VOLCANO TO CAUSE CLOUD
 - ✧ INDICATES MAN-MADE PHENOMENON

Slide 046: Mushroom Cloud from Sea off Japan

Five Boeing 747's flew through or near the cloud on their way to Anchorage, Alaska. The aircraft were checked at Anchorage for radioactive contamination, but nothing was found. This showed that the huge "explosion" had been non-nuclear.

The ocean in the area is also about 21,000 feet deep. That is really too deep for a submarine volcano to have erupted and caused the cloud. (Besides, a volcano would have continued to snort at least a bit, and so that appears to be out of the question as a possible cause of the incident.)

In short, a manmade phenomenon is indicated.

Indeed, we know it was a cold explosion. As I've stated previously, a colleague has in fact produced the basic effect over a dish of water in the laboratory, using a small scalar interferometer in the endothermic mode.

NOT A KNOWN NATURAL PHENOMENON

- DR. DANIEL A. WALKER ET AL
- GEOPHYSICIST, UNIV. OF HAWAII
- MONITORS ARRAY OF HYDROPHONES
 - ON OCEAN BOTTOM
 - RECORDS SIGNALS (SEISMIC, VOLCANIC)
- DATA SHOWS ABSENCE OF ANY NATURAL SEISMIC OR VOLCANIC EVENT THAT COULD HAVE CAUSED THE APRIL 9 PHENOMENON OFF THE COAST OF JAPAN
- PUBLISHED IN SCIENCE

Slide 047: Not a Known Natural Phenomenon

Further, the story does not end there.

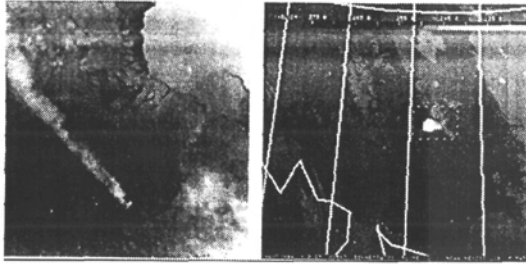
A geophysicist at the University of Hawaii, Dr. Daniel A. Walker, together with his colleagues monitor an array of hydrophones on the ocean bottom, recording signals such as seismic incidents, volcano eruptions, etc.

Dr. Walker and his colleagues performed a comprehensive analysis of the data recorded by the hydrophones in and around the time of the incident in question. The data shows the absence of any natural seismic or volcanic event that could have caused the April 9th phenomenon off the coast of Japan.

He and his colleagues concluded that it was either an as yet unknown natural phenomenon, or a man-made phenomenon.

Their report is published in Science. (Walker et al, "Kaitoku Seamount and the Mystery Cloud of 9 April 1984," Science, 227(4687), Feb. 8, 1985, p. 607-611.)

EXPLOSIVE EVENTS SEEN ON SOVIET ISLAND



Slide 048: Explosive Events seen on Soviet Island

Here are two U.S. weather satellite photos of the anomalous exhausts on Bennett Island we previously referred to.

The exhaust in the left picture is about 150 miles long, and is nearly horizontal (about 1.5 degrees above the horizontal). It is entirely consistent with the continuous exhaust from a "dumping transfer" scalar EM howitzer in the continuous exothermic mode. (The primary howitzer, of course, was activated in the endothermic mode.)

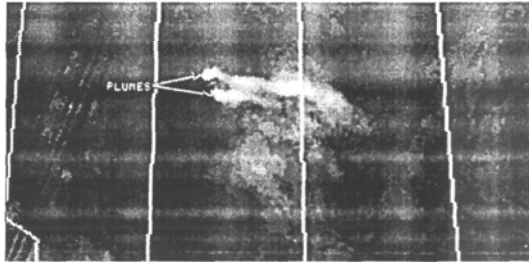
I think any open-minded investigator must admit that that is indeed a very powerful jet-like exhaust, and not like anything one ever sees from a natural volcano or geological gas vent. If anyone knows of such an anomalous volcanic or geological exhaust, I would be most delighted to see a photo or report. To my knowledge, no such natural photo exists, and no such natural exhaust has ever **been** reported.

The right picture shows the "puff of an explosive emergence of the exhaust. In other words, this one is the exhaust from a "dumping transfer" howitzer used in the pulsed exothermic mode. Since it did not have so much energy to dump, it could dump it in a pulse. Again, the primary howitzer, of course, was activated in the endothermic mode.

Over 100 weather satellite photos of these anomalous exhausts have been taken since 1974.

One or more U.S. aircraft have even been vectored through the exhausts, and samples of the exhaust taken and analyzed. The exhaust is made up of a little clay and mud and water, and is colder than the surrounding air.

EXPLOSIVE EVENTS SEEN ON SOVIET ISLAND



Slide 049: Explosive Events seen on Soviet Island

U.S. weather analysts euphemistically call these exhausts from Bennett Island plumes.

Here is another U.S. weather satellite photo, showing the twin emergence of multiple puffs.

One might expect such exhausts if the secondary "dumping transfer" howitzer is operated in the continuous mode, with continuous extraction by "power tapping" the accumulator of the primary howitzer. In that case, the signature of the exhaust would expose the operation of the primary howitzer. For example, this exhaust would indicate multiple puffs, hence probably multiple frequencies and multiple primary transmitters, each phased in a controlled manner. That of course indicates the production of Fourier expansion forms - of 3-dimensional geometrical forms - by the primary howitzer(s). Since these are puffs, it may indicate the explosive formation of distant spherical balls of energy by the primary howitzer. This in turn indicates the use of a howitzer system in the "pulse firing" mode, which can be used against missiles, ships, aircraft, ground targets, armored vehicles, underwater targets, etc.



Slide 050: Explosive Events seen on Soviet Islands

This slide shows the location of three areas of interest relative to Soviet scalar EM weapons testing.

Wrangel Island, north of the northeastern portion of the Soviet mainland, is associated with tests of these weapons in large circular breakups of the ocean's ice cover. This of course could aid submarines that wished to surface and fire cruise missiles, or submarines that wished to fire from underwater and needed the ice broken up.

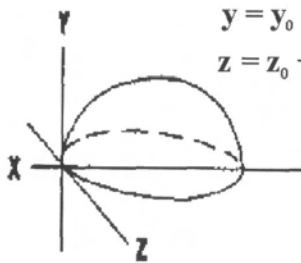
Strangely enough, Wrangel Island has a most peculiar history: legally it still belongs to the U.S., but has been "given" to the Soviet Union without permission of the U.S. Senate, which is illegal.

Bennett Island, a little farther to the west and still north of the Soviet **mainland**, is noted for its phenomenal number of anomalous exhausts as previously discussed.

North of the Soviet mainland and near its middle lies the large island of Novaya Zemlya. Weather satellites have taken pictures of anomalous circulations over this island, which are further candidates for exhausts from scalar EM howitzer operations.

CREATING A SPATIAL 0-FIELD PATTERN

TRUNCATED FOURIER EXPANSION (3D)



$$y = y_0 + f_1(\lambda_1) + f_2(\lambda_2) + \dots + f_n(\lambda_n)$$

$$z = z_0 + g_1(\lambda_1) + g_2(\lambda_2) + \dots + g_n(\lambda_n)$$

NOTE:
INTERFERENCE OF TWO SUCH
SCALAR HEMISPHERES CREATES
A "GLOWING HEMISPHERICAL
SHELL"

Slide 051 : Creating a Spatial 0-Field Pattern

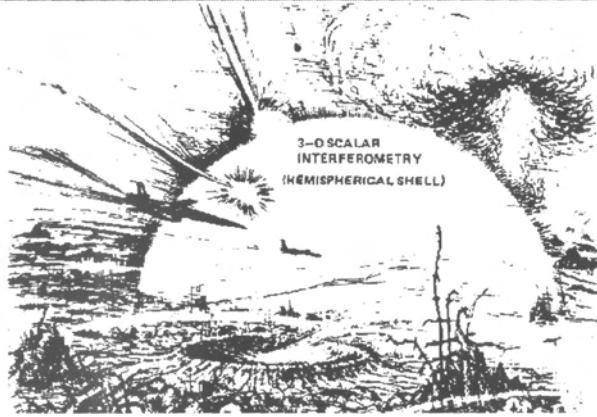
On this slide we show that a hemispherical dome (or other regular shape) can be composed from scalar waves by 3-dimensional Fourier expansion. By truncating the expansion - say after 10 or 12 frequency terms - a good representation of **the** desired form can be obtained with a practical number of frequencies, and in turn a practical number of transmitters. A computer is used to compute the multiplying functions for each frequency, and the entire complex of frequencies is **then** transmitted to produce the scalar form. By interfering two such scalar forms, a 3-dimensional shell of locked-in, ordinary EM energy is formed in space.

Interference of two such scalar hemispherical surfaces creates a "glowing hemispherical shell or dome of energy."

Interference of two such scalar spherical surfaces creates a "glowing spherical shell or globe of energy."

Both such geometric forms have been repeatedly seen.

TESLA SHIELD



Slide 052: Tesla Shield

Of particular interest is the hemispherical shell of energy, which years ago I dubbed the "Tesla shield."

As shown on this slide, two scalar hemispherical surfaces are created, using multiple frequency transmitters and truncated Fourier series expansions. Interference of the two scalar hemispheres creates a great, glowing hemispherical shell of ordinary electro-magnetic energy. In the shell, the energy density is sufficient to lift Dirac matter from the Dirac Sea of vacuum. The shell is thus filled with a glowing plasma.

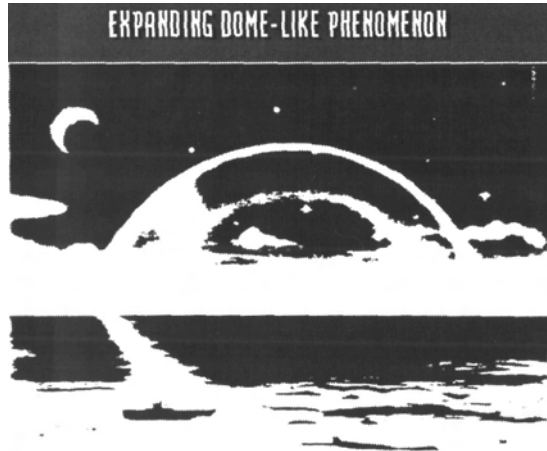
Such a shell may be several hundred miles in diameter at the base. The enormous energy required to form such a defense shell is obtained by a "scalar power tap" into the molten core of the earth itself, as previously explained. In late April/early May of 1985, 27 such "power taps" were placed in the earth by the Soviets. If each tap is capable of powering four to six large scalar EM weapons, then the Soviet strategic scalar EM arsenal contains over 100 monstrous superweapons capable of generating exothermic explosions, endothermic explosions, engineering the weather, locating and destroying underwater submarines, detecting and destroying ballistic missiles shortly **after** launch, detecting and destroying long range strategic bombers as soon as they are airborne, etc.

At any rate, the giant Tesla shield is useful against any penetrating vehicle. If the shell is not so large, its energy density may be very high. In **that** case, **the intense**

plasma heating will fuse and even vaporize metallic bodies. In addition, any vehicle encountering the shell is subjected to an extremely intense EMP arising everywhere inside its circuitry. EM shielding is of no use against the creation of energy throughout the spacetime of the circuits; such shielding only helps against energy flow through space in the conventional sense.

Thus the electronics of any vehicle encountering the shield are instantly duded, whether or not they are shielded against ordinary electromagnetic interference (EMI). This includes the electronics operating a nuclear warhead, carried by a re-entry vehicle. Electrically everything penetrating the shell is totally duded. Further, explosive materials are exploded when such an EMP is encountered, and combustible materials are fiercely consumed or set afire. Ablative shielding suffers an interesting catastrophe: since energy does not try to "flow into" the shielding but "arises everywhere in it simultaneously", "ablation" occurs everywhere throughout the ablative material, simply exploding it instantly. In addition, for smaller Tesla shells (say of 50 miles diameter) the energy density is sufficient to melt or vaporize metals such as in missile structures.

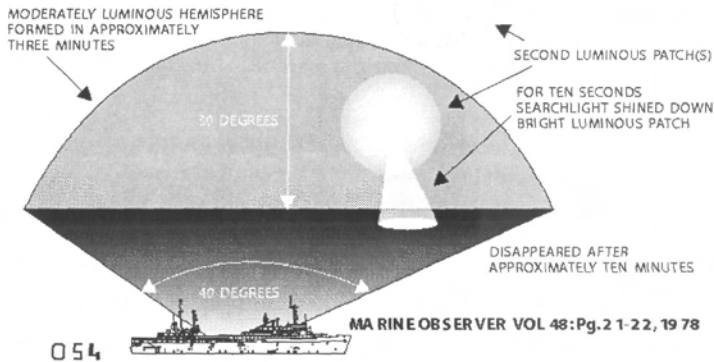
With such a Tesla shield, there is no need to discriminate true warhead-bearing re-entry vehicles from decoys, chaff, etc. The entire "mess" entering the shield is simply "cleaned up" and "sterilized" or destroyed. The shield can take care of ICBMs/IRBMs and their nuclear warheads, strategic bombers and their nuclear **bombs**, cruise missiles and their nuclear warheads, re-entry vehicles and their warheads, decoys, chaff, etc.



Slide 053: Expanding Dome-like Phenomenon

Here we show one instance of apparent Soviet testing of the Tesla shield (hemispherical shell of energy) over the ocean. This incident occurred in the Caribbean and Western North Atlantic Ocean on Mar. 20, 1969 and is reported in the Marine Observer, Vol. 40, 1970, p. 17. A semicircle of milky white light, quite intense at first, was sighted on the horizon. The semicircle enlarged, dimming as it expanded. The incident lasted for about 10 minutes. Seen from a passing ship, the top of the hemisphere reached a sighting elevation angle of about 50 degrees, while the base of the hemisphere of light subtended an arc of about 70 degrees. This is directly indicative of a test of the Tesla shield, first as a small, more intense shield and then expanding to greater size for a less intense shield whose primary destructive mechanism is EMP. Note that the EMP in a Tesla shield is locally contained in the energy-bottle shell. It is not an ordinary EMP of energy radiated out of the shell.

HEMISPHERE & GLOBES 1977



Slide 054: Hemisphere & Globes 1977

Here is a second instance of apparent Soviet testing of the hemispherical Tesla shield over the ocean. This time it is combined with simultaneous testing of two smaller scalar interferometers creating Tesla globes of EM energy.

This incident occurred at 23 degrees 5 minutes north, 17 degrees 25 minutes west. It was sighted and reported by a British ship, H.M.V. Kinpurnie Castle, on Mar. 24, 1977. The report is in the Marine Observer. Vol. 48, 1978, p. 21-22.

First a large, moderately luminous hemisphere of light formed, requiring about 3 minutes to do so. Seen from the ship, the top of the hemisphere was at a sighting elevation angle of about 30 degrees, while the base subtended an arc of about 40 degrees. This was the basic Tesla shield.

Then two other luminous globes or patches of light, each of about 1 degree diameter as seen from the ship, formed in the same area; one inside the shield and one outside it. From the glowing globe inside the shield, a light beam similar to a giant searchlight shone down to the ocean's surface for about 10 seconds.

Again the phenomena lasted about 10 minutes and then disappeared.

The luminous globe or patch inside the hemisphere might be the test of a second weapon deployed from a Soviet aircraft in the area. If so, the aircraft has placed a **strong** spherical shield around itself. In addition, the aircraft is utilizing some sort of scalar interferometer beam weapon in an underwater mode. Probably this would imply a "shot" at a hostile nuclear submarine inside the shielded zone.

Thus this aircraft would have the scalar EM equipment to search for the

underwater sub and detect it, and also to concentrate interference energy upon it underwater, destroying it quickly.

Suffice it to say that it is possible to perform scalar interferometry by means of a single beam, in a proprietary process discovered by a close colleague. Thus the "glowing beam to the ocean" resembling a searchlight makes very good sense in the anti-submarine role. The same weapon, of course, could also attack any hostile surface vessel that might have been inside the shielded area at its formation.

The second luminous globe or patch, outside the hemisphere, is probably from a second scalar interferometer from the naval task force, simulating the continuous attack of a certain target (missile or aircraft) outside the protective dome.

As can be seen, this phenomenon is directly indicative of the types of operations one would expect from the testing of Soviet scalar EM weapons at sea, possibly to protect a Soviet naval task force during simulated combat operations.

SARYSHAGAN DIRECTION, SEPTEMBER 1979 (SEEN FROM AFGHANISTAN)



MULTIPLE EVENTS SEEN
IN SEPTEMBER 1979
FROM AFGHANISTAN

STRANGE LURID GLOW
THAT FLARED SILENTLY
OVER THE HINDU KUSH;
AS DESCRIBED BY
NICK DOWNIE.

THE SUNDAY TIMES
AUGUST 17, 1980

WITNESS TO A
SUPER-WEAPON?

Slide 055: Saryshagan Direction, September 1979

The London Sunday Times of 17 August 1980 contained information and a photo-sketch of incidents of sighting of the testing of very large Tesla globes deep within the Soviet Union. British war cameraman Nick Downie made the sightings from Afghanistan. The phenomena seen were in the direction of the Saryshagan Missile Test Range, which - according to the U.S. Defense Department's Soviet Military Power, 1986 - contains one or more large directed energy weapons (DEWs).

Even though Downie was seeing the giant globe of light from a great distance, it flared silently over the Hindu Kush and expanded to subtend an arc of about 20 degrees, dimming as it expanded. (An arc of 20 degrees subtended by an object many hundreds of miles distant indicates an object of well over a hundred miles in diameter. This gives some idea of the enormous energy being controlled and manipulated by these Soviet weapons.).

Downie saw the sight on more than one occasion in September 1979.

BACKGROUND FOR THE BRIEFER:

In the same month - September 1979 - a stationary luminous globe containing a vertical stripe of black in the center was seen in the sky off Saint Petersburg, Florida. This particular type of sighting in that area has been previously correlated with times of known activity at Saryshagan.

Further, in the same month U.S. nuclear-warning Vela satellites detected a mysterious "nuclear flash" over the South Atlantic, off the coast of Africa. Controversy has raged in U.S. intelligence and scientific circles to this day as to whether a nuclear explosion or some other mechanism produced the flash.

Indeed, the flash may have been produced by a scalar EM howitzer from Saryshagan as one more "ping" of the U.S. intelligence system, to ascertain whether or not it knew anything about scalar EM howitzers. Again, the negative response told them with high confidence that (1) we still didn't know about scalar EM stuff, and (2) we were still absolutely defenseless against the Soviet scalar EM weaponry.

In 1980, a second "Vela flash" was reported. This time it occurred in the infrared region only, which positively rules out any sort of nuclear explosion. Even this increased stimulus still evoked a U.S. action that revealed total ignorance of scalar EM weaponry.

An alternate possibility for the September 1979 Vela flash also exists: countries not hostile to the U.S. may have tested a scalar EM weapon that produced the flash.

At any rate, from Downie's sightings, it is highly probably that the DEW weaponry at Saryshagan Missile Test Range was active in September 1979, and was producing huge Tesla globes. If the DEWs at Saryshagan can produce the giant luminous Tesla globe, they almost certainly are scalar EM interferometers and can produce the giant Tesla shields as well. Downie reported other earlier sightings of similar phenomena seen by Afghans deep within the Soviet Union in the same direction toward Saryshagan.

Briefly let us cover the uses of such a "giant globe" or spherical shell of glowing EM energy and plasma.

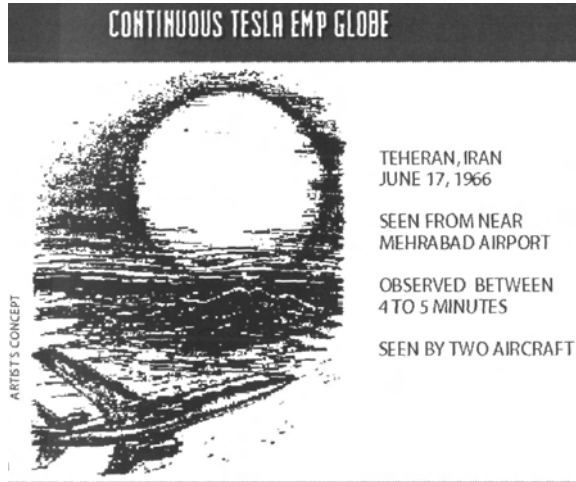
By placing such a "giant globe" thousands of kilometers out away from the defended heartland, an entire arc of the sky can be defended against long-range ballistic missile attack in midcourse. During their midcourse trajectory, the attacking missiles would have to penetrate the globular shell twice, exposing them to giant internal EMPs twice. A very high probability thus exists that all missiles entering the space occupied by the globe are duded upon entry and/or exit. This includes the electronics inside the nuclear warheads themselves. Also, this is particularly effective against MIRV and MARV missile carriers, since the multiple re-entry vehicles are normally still on the main vehicle during most of midcourse. The use of this midcourse ABM globe defense greatly reduces the number of vehicles arriving at the latter part of midcourse and at the terminal phase of their trajectory.

By using a smaller, more intense globe and placing it on incoming clusters of objects or single objects, both EMP and intense local heating are used against the objects. This is suitable in the latter part of midcourse and in the **terminal**

phase of ICBM's, IRBM's, SLBM's, and cruise missiles. It is also useful against incoming strategic bombers and their air-to-surface missiles, both ballistic and cruise.

Two modes of the globes - especially the small ones - can be used. First, the continuous mode can be used to "fry" or vaporize incoming objects in a relatively small volume (say two or three tens of kilometers in diameter). Second, the "pulse" mode can be used to "service" all incoming objects, whether or not they have passed through the "large globe" midcourse defense. This provides an additional guarantee of killing the objects; discrimination is not required, just service all of them. The exposure of all incoming objects to multiple attacks raises the probability of kill to essentially 100%, or as close to that as one wishes. Of course the incoming vehicle may still encounter a terminal defense consisting of the Tesla shield and associated roving "quickshot" small intense globes.

In short, with these systems an essentially 100% ABM and anti-bomber defense is possible. Further, the Soviets have possessed such an effective defense for two decades, just as they have openly stated.



Slide 056: Continuous Tesla EMP Globe

Here is another verified incident of a gigantic test of a Soviet scalar EM howitzer deep within the Soviet Union.

This is a CIA report, released under the Freedom of Information Act. One can be quite sure that the incident occurred as stated.

The phenomenon was seen from two aircraft approaching Mehrabad Airport in Teheran, Iran on June 17, 1966 and reported by their pilots.

On the far horizon deep within the Soviet Union, an intense spherical ball of light appeared, "sitting on the horizon" so to speak. The globe of light increased to enormous size, dimming as it did so, literally filling an arc of the distant sky as it expanded. The sighting was shielded from most ground observers' view at the airport itself due to an intervening mountain range that masked most of the phenomenon from the ground.

The silent, expanding globe was observed for four or five minutes before it faded away.

BACKGROUND FOR THE BRIEFER:

Again, this is positive evidence of the testing of a giant scalar EM interferometer, in the "midcourse ABM globe" type of action.

However, note the date - mid 1966! The Soviets have therefore been testing such scalar weapons of enormous size and power for at least two decades. This

implies that development must have started at least a decade earlier, or in the mid '50s.

Still earlier in January 1960 Nikita Khrushchev had announced the development of a "fantastic" Soviet weapon, one that could even destroy all life on earth if unrestrainedly used. In 1962 the ebullient Khrushchev was forced to back down and lose face before John Kennedy in the Cuban Missile Crisis. Khrushchev's missiles and bombers were in woeful shape, as Kennedy well knew (by courtesy of the Soviet spy, Colonel Oleg Penkovsky). Kennedy did not know that Khrushchev's new superweapons were nearing deployment, but were not yet quite ready.

To save face and prevent his immediate ouster, Khrushchev apparently conducted a startling two-strike demonstration of his new weapons as soon as they became operationally ready. On April 10, 1963 he detected and destroyed **the** U.S.S. Thresher nuclear submarine using a scalar EM howitzer in the underwater "continuous" mode.

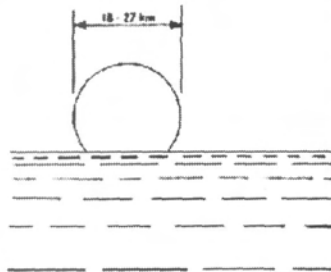
The next day he demonstrated the "pulsed" underwater destruction mode for **nuclear** subs by producing a giant underwater EM explosion underneath the ~~ocean~~ 100 miles north of Puerto Rico. Ironically, just as the Atlantic was coming **alive** with U.S. naval vessels searching for the lost Thresher, a second test of the weapons that had finished off the sub occurred to the south of them, unnoticed and disregarded, even though seen and reported (to the FBI and the U.S. Coast Guard) by a passing U.S. jetliner's pilot and crew, who observed the underwater explosion.

We thus can peg the development of these weapons by the Soviets as starting **well** before 1960. The first operational deployment of the giant strategic weaponry occurred in early 1963.

Note that the 1966 testing observed here is completely consistent with this estimated development schedule.

Thus large Soviet strategic scalar EM weapons have been operational on site for 23 years! This implies that at least three additional generations of the scalar EM weapons have been developed and deployed by now.

MYSTERIOUS LIGHT OVER NORTH PACIFIC



SEEN FROM 42° N LAT, 153° E LONG

JUNE 18, 1982
OBSERVED IN
NORTHERN PACIFIC
700 KM EAST OF KUSHIRO

SEEN BY TWO AIRCRAFT:
JAL FLIGHT 403
JAL FLIGHT 421

NOTE:
SUCH INCIDENTS ARE
REPEATEDLY SEEN BY JETLINER
CREWS OVER THE NORTH PACIFIC

ASAHI EVENING NEWS, TOKYO
JUNE 22, 1982

Slide 057: Mysterious Light over North Pacific

Incidents of Soviet testing of the Tesla shield and the Tesla globe weapons are routinely observed by airline pilots flying over the North Pacific into and out of Japan.

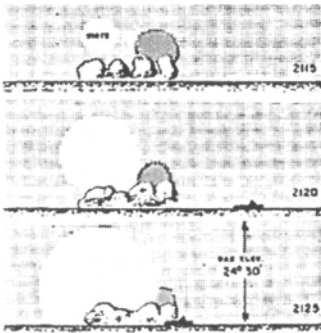
This is one typical example. Two jetliners, Japan Air Line flights 403 and 421, sighted and reported a large glowing globe of light sitting just beyond the horizon and extending well above it. The aircraft were in the vicinity of 42 degrees N latitude and 153 degrees longitude at the time. The sighting was thus about 700 miles east of Kushiro.

The pilots estimated the diameter of the ball as at least 18-27 kilometers. Depending upon the actual distance to the sphere, it may have been of much larger size.

This incident is reported in the Asahi Evening News, Tokyo, June 22, 1982.

The jet airliner pilots flying over these waters have reported many other **similar** sightings.

WHITE SPHERE SEEN IN NORTH ATLANTIC 1976



JUNE 22, 1976
2113 — 2140 HOURS
OBSERVED IN NORTH ATLANTIC

- 2113: ORANGE GLOW BEHIND CLOUDS
- 2115: WHITE SPHERE OBSERVED ALT 10° , BEARING 290°
- WHITE SPHERE DEVELOPED AS SHOWN
- STARS COULD BE SEEN THROUGH SPHERE AT ALL TIMES
- BY 2140 THE SPHERE HAD DISAPPEARED

MARINE OBSERVER, 47:66, 1977

Slide 058: White Sphere seen in North Atlantic 1976

Here is another sighting closer to home.

This incident was observed from a passing ship on June 22, 1976 in the North Atlantic, at about 2113-2140 hours. It is reported in the Marine Observer, Vol. 47. 1977, p. 66.

First, an orange glow was sighted behind some distant clouds. A couple of minutes later, a glowing white sphere of light was observed to the left of the orange glow, just above the clouds. The white sphere then slowly expanded to a much larger sphere, dimming as it expanded. At its maximum size, the top of the white sphere reached about 24 degrees 30 minutes elevation angle to the observer. Development to maximum size required about 10 minutes.

By 2140 hrs the sphere had faded and disappeared. The sphere was sufficiently thin that the stars could be seen through it at all times.

Again this incident strongly fits the large Tesla globe mode of a Soviet scalar EM interferometer.

The significance and role of the orange glow are not known at this time.

CONTINUOUS TESLA FIREBALL



ARTIST'S CONCEPT

SEPTEMBER 10, 1976
BETWEEN
MOSCOW AND LONDON

SEEN BY
BRITISH EUROPEAN AIRWAYS
FLIGHT 831

CIA REPORT
RELEASED UNDER FOIA

Slide 059: Continuous Tesla Fireball

Here is another incident that represents a stimulus to the British government, to see if the British are aware of scalar electromagnetics.

Again, this is a CIA report released under the Freedom of Information Act, so the details are reliable.

On Sep. 10, 1976 British European Airways flight 831, flying between Moscow and London and over Lithuania at the time, observed an intense ball of light above the clouds below the aircraft. The light was so intense that it lit up the sky in the entire vicinity.

The concerned pilot reported the glowing object to the Soviet ground authorities with whom he was in contact. He received the harsh instructions to ignore the light, and essentially to continue on his way out of there.

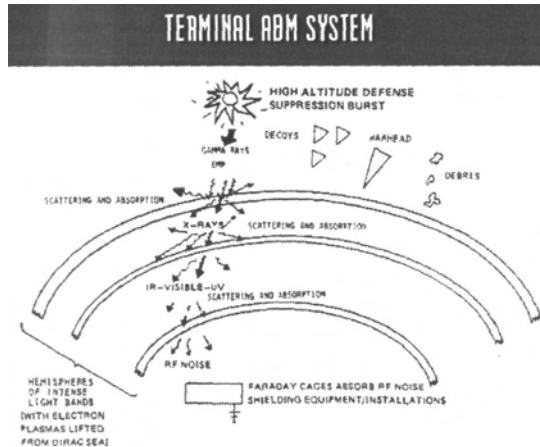
Here we see an incident involving a small, intense Tesla globe, of the kind with which the defense could "service" objects that had already penetrated a large midcourse globe, or aircraft approaching the defended area.

Obviously the Soviet authorities were tracking the aircraft, and knew it was in the vicinity. It seems logical, then, that they deliberately placed the brightly glowing ball beneath the aircraft so that the pilot and crew could not fail to observe it.

The strange message to the pilot was simply designed to increase the intensity of the stimulus. The stimulus was to be something like, "The Soviets are doing

something in research and development that allows them to create intense balls of glowing light at a distance, and place these objects in the air in and around aircraft, possibly to intercept them." The purpose, of course, was to observe the British government's reaction after the incident was reported by the pilot upon his arrival at London.

Again the reaction of the British - and the U.S. as well - was as predicted. Again we showed that we knew nothing of scalar electromagnetic weapons, and did not recognize one when we encountered its effects.



Slide 060: Terminal ABM System

Very neat things can be done if one nests several Tesla shields - say three or four - concentrically, one inside the other. In that case even the nuclear radiation (such as gamma rays) from a defense-suppressive high altitude nuclear burst can be handled.

For example, suppose three such concentric shields are placed over a large vital area. Further, suppose a high altitude nuclear burst is placed up above the outer shield. Gamma radiation almost instantly strikes the plasma in the outer shell, where it is absorbed, scattered, and re-radiated at lower temperature. (That, after all, is what plasmas do.)

Inside the first shell, the scattered radiation is now in the x-ray and ultra-violet region. Let us track the most lethal component, the x-rays.

The scattered x-rays then strike the second plasma shell, and are absorbed, scattered, and re-radiated at lower temperature. Inside the second shell the scattered radiation is now in the visible and infrared region, with a little ultraviolet.

This optical radiation in turn strikes the third plasma shell, and is absorbed, scattered, and re-radiated at still lower temperature. Inside the third shell most of the energy is now in the form of radiofrequency (RF) energy, with a little IR and visible band spectral energy content.

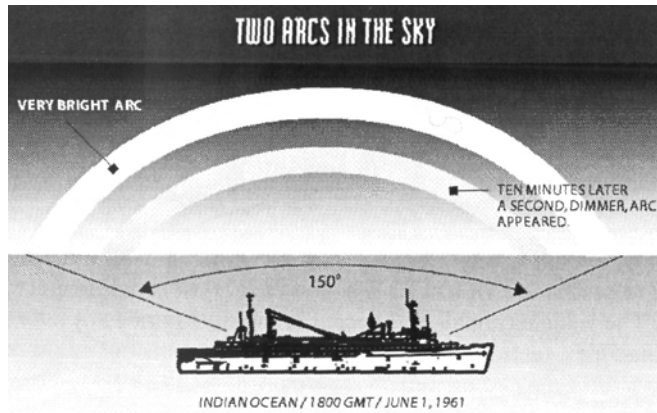
At this point, ordinary electromagnetic interference (EMI) shielding of electronic equipments on the ground and inside the third shield can take care of any RF interference resulting from the emergent RF noise.

As can be seen, three shells are sufficient to convert the gamma and x-ray radiation (and ultraviolet and infrared) mostly to harmless RF energy before all three shells are penetrated. Thus the tactic of deliberate defense suppression by a preliminary high altitude nuclear burst can be countered by multiple Tesla shields.

In addition, of course, any ordinary vehicles penetrating all three shields are exposed to successive violent EMP's, and are almost certainly electrically duded. The vehicles are also subjected to multiple periods of intense heating, so combustibles, fuels, explosives, and ablatives are destroyed. In addition, metal structures may be melted or vaporized.

Think of it this way: anything that hits one of these Tesla shields goes phht! Just **like** a bug hitting an electrified bugkiller screen.

For years passing ships have observed and reported such multiple-shield "light phenomena" over remote regions of the ocean. U.S. intelligence has routinely **not** paid any heed to reports of "lights at night" over remote ocean areas, and so Soviet tests in this manner have remained relatively unnoticed by officialdom.



Slide 061 : Two Arcs in the Sky

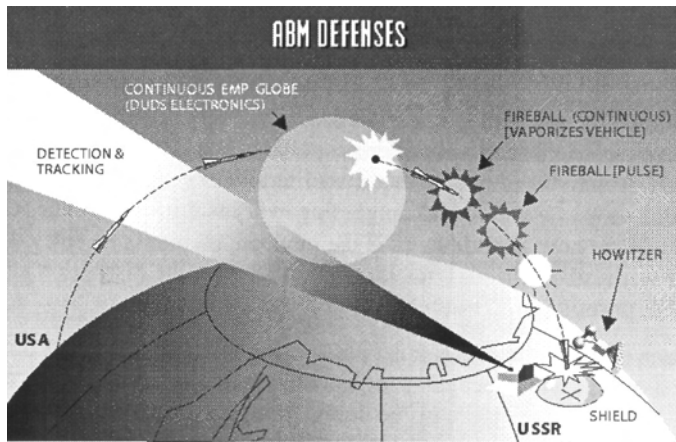
Just to list one incident involving the testing of multiple concentric Tesla shields, here is an early test conducted in mid-1961 over the Indian Ocean.

The incident occurred at 1800 hrs. Greenwich mean Time (GMT) and was observed by a passing ship. The report is contained in Marine Observer, Vol. 32, 1962, p. 64.

First the ship's crew observed a gigantic, very bright arc of light on the horizon or beyond it, with both ends passing below the line of sight to the horizon. This was in fact probably a large Tesla shield, but of such low intensity that only **its** intersection arc could clearly be seen. The arc subtended an arc of about 150 degrees across its diameter at the bottom. After about 10 minutes, a second **and** dimmer arc appeared, concentrically inside the first one. The ship thus was observing what probably was the nesting of two giant hemispheres (of EM energy) to provide a multiple Tesla shield.

This was probably a test of an early research and development prototype, since Khrushchev had only announced his new "fantastic weaponry" in development in his January, 1960 speech to the Soviet Presidium. And apparently land-based weapons such as this prototype probably did not become deployed and operational until April 1963. However, even in 1961 the Soviets would have been developing and testing prototypes of the weapon adapted for naval task force protection and usage.

Several other similar phenomena involving nested hemispheres or giant concentric arcs of light have been seen by mariners at sea.



Slide 062: ABM Defenses

When the various capabilities of Tesla shields, globes, and scalar howitzers are integrated together into an ABM defense, a most formidable Soviet strategic defense capability is apparent.

On this slide we deal only with midcourse and terminal phase ABM defense. Later we shall cover the application of these weapons to launch phase ABM defense, primary phase bomber defense, underwater antisubmarine defense, etc.

Suppose the U.S. is provoked to desperately launch a missile attack toward Russia, as indicated on this slide.

First would come the launch phase destruction of the launched missiles, which we will cover shortly.

Any remaining missiles in midcourse would encounter extremely large, glowing spheres of light, where the EM energy density is contained and held in the spherical shell "energy bottle" of the glowing globes. Each globe might cover an area of up to about 20 degrees, as seen from the Soviet defended area. Missiles carrying MIRV and MARV payloads would not yet have deployed their re-entry vehicles.

As a missile and its payload encounter one of the globular shells, an intense EMP is suddenly experienced throughout the missile and all of its components. Again, EMI shielding is of no consequence since the EMP arises in each increment of spacetime throughout the vehicle volume. The result is instantaneous blinding of all electronic circuitry, including the electronics of the

nuclear warheads themselves. The HE content of the nuclear warhead system is violently exploded, totally destroying the configuration of the warhead. A low-order nuclear detonation may occur, but more likely the warhead's nuclear material is just broken up, finely divided, and set afire.

In addition, all combustible materials are set fiercely afire or destroyed. Explosive materials such as booster propellants and HE explosives are violently exploded. Ablative and plastic materials literally explode into pieces, torn apart by sudden violent ablation and outgassing everywhere within. The remnants of the vehicle are now total duds, as is the payload, including re-entry vehicle, nuclear warhead electronics, nuclear materials from the disruption and explosion of the HE portion of the warhead system, etc.

Still, each piece of the debris must pass through the glowing shell once more before it exits. Thus a second "shot", precisely as effective as the first, still awaits each and every piece of the debris plunging along inside the shell as it exits.

As the debris continues on to the latter part of midcourse and early terminal phase, any portions large enough to track are subjected to small, intense Tesla globes where the energy density in the shell is many orders of magnitude greater than in the larger globe used in earlier midcourse. This part of the defense system simply services each incoming "blob" methodically, probably first in the pulse mode. Later, any blobs still remaining are given the maximum "continuous heating" mode with a small Tesla globe, to actually vaporize metals and materials.

In the unlikely event that anything active still remains, or that an object has managed to elude the large and small Tesla fireballs, a Tesla shield is still to be encountered, towering over the protected area. For significant targets this shield will be concentric, and will contain three or more concentric Tesla shields. Again, the approaching vehicle will be subjected to multiple EMP's and severe heating throughout its volume. In addition, the concentric shields will "clean up and sterilize any gamma radiation and EMP resulting from any deliberate high altitude defense suppression nuclear burst that somehow (inconceivably!) gets through the launch phase ABM system, and the Tesla-globe midcourse and early terminal phase defenses.

As can be seen, the system complex represents a most formidable defense ~~that~~ certainly approaches 100% effectiveness against the present triad, and even against the addition of cruise missiles.

In addition, since these weapons suffer from very strange constraints and limitations, the scalar transmitters are actually dual mode: they become conventional radars by simply switching into the ordinary EM mode. They are part of the more conventional ABM defense system complexes we presently recognize in the Soviet Union. In this conventional role, backup ABM missile

interceptors are available, to be employed in case the conventional role must be assumed.

Later we will address the reason for the strange limitations that must be placed upon unqualified use of the large scalar EM systems, particularly in the pulse or "burst" nodes.

NETWORK OF VIRTUAL TRANSMITTERS



Slide 063: Network of Virtual Transmitters

In July 1976 the U.S. received very special Bicentennial greetings from the Soviet Union.

At that time, communications systems of the world in the 3-30 megaHertz band suddenly met substantial interference from extremely powerful, chirped Soviet transmitters that were suddenly activated. These transmitters continue their transmissions to this day.

Estimates of the power of these enormous transmitters vary, but figures range as high as several hundred megawatts, with a nominal figure being 100 megawatts.

These powerful transmitters were promptly nicknamed "Woodpeckers" because of the characteristic sound of the chirped signal when received. That is, the received signal made a "pecking" sound much like a woodpecker's beak hitting a block of wood.

Several nations protested, but the powerful signals have continued, right down to this day. The only Soviet response was to add a "spread spectrum" capability, so that the transmitter did not dwell too long on one specific frequency, but shifted periodically to other frequencies.

These transmitters have apparently never been precisely located by U.S. intelligence, but their beams carry much of the characteristics of an **over-the horizon (OTH)** radar. They have been dubbed OTH-radars by U.S. intelligence, and can without question perform that mission, in addition to some very interesting missions which U.S. intelligence does not assess.

Soviet Military Power, Department of Defense, 1985, p. 45 shows the direct intersection over the United States of the Woodpecker radar beams used in an OTH-role. We show an illustration of that intersection on this slide.

In addition, we show an additional "scanner" beam that can be scanned across the intersection "grid" over the U.S., formed by waveform interference of two main Woodpecker beams.

These Woodpecker transmitters have a great many diverse functions.

First, they can be used in a conventional over-the-horizon radar node, since their beams follow the earth-ionosphere waveguide and curve around the earth. In this mode they can detect missiles at launch and thereafter, and strategic bombers when taking off and thereafter.

However, these scalar interference grid weapons have many other uses.

First, they can be used to biologically attack entire populations in a targeted area. This aspect is not covered in this briefing. Suffice it to say that phase-locked ELF modulation signals of 10 Hz and less are often detected on multiple Woodpecker frequencies simultaneously. In a target area, this modulation - if sufficiently stronger than the Schumann resonance of the earth's magnetic field - will entrain a percentage of the brains into "forced entrainment." In that case, these human brains are "synchronized" to the Woodpecker signals so that multiple coherent frequencies are phase-locked into them. That is, multiple coherent EM channels directly into these entrained brains now exist. At that **point**, Fourier expansions may be used to attack specific portions of the brain geometrically.

In addition, scalar EM disease patterns can be modulated upon the carriers, again with Fourier expansions. Specific biological effects can be induced in the entrained populace at will, limited only by the state of the art of the Soviet technology used to attack them. Possible induced effects include instantaneous **death**, heart seizure, severe emotional disruption, loss of control of internal functions, diseases, disabling of the immune system, and even implantation of **thoughts**, emotions, and ideas which are interpreted by the targeted subjects as their own.

While further discussion of this area is beyond the scope of this briefing, the biological aspects of the Woodpecker transmitters are horrible. It suffices to say that, in thousands of experiments, Kaznacheyev demonstrated that almost any **kind** of cellular death and disease pattern could be electromagnetically transmitted. Kaznacheyev reported the effect in the near ultraviolet. Experimenters at the University of Marburg in West Germany duplicated the experiments in the infrared.

The bottom line is that photons themselves can carry death and disease patterns between cells. Scalar EM technology allows the synthesis of the actual potential pattern (which after all represents total control of charge and charge distribution,

hence biochemistry in the cell) of a particular cellular disease or death mechanism. Symptoms (and cellular death from them!) of nuclear radiation, chemical poisoning, bacterial infection, and other mechanisms were successfully induced by the Kaznacheyev experiments.

Dr. Popp of West Germany has published an analysis of the virtual photon master control system of the cells. Since scalar EM represents the deliberate ordering of virtual particle flux into deterministic patterns, the master control system can readily be entered with scalar techniques to induce disease and disorder at will.

NETWORK OF VIRTUAL TRANSMITTERS

WOODPECKER INTERFERENCE GRID
(SCALAR COMPONENTS)



Slide 064: Network of Virtual Transmitters

On this slide we diagrammatically represent the Soviet woodpecker interference grid over the U.S. This grid can easily be used to influence and control the weather, and for over a decade the Soviets have manipulated the weather over the U.S. and other parts of the world.

By the peculiar title of this slide, we wish to call attention to the fact that, in the exothermic mode of scalar interferometry riding on the woodpecker radar signals, each of the woodpecker grid interference cells can act as a little "virtual transmitter." It's exactly as if the Soviets had been permitted to enter the U.S. and build thousands of EM transmitters at regular intervals all over the country!

And of course it's even worse. In the endothermic mode, it's as if the Soviets had been permitted to enter the U.S. and build thousands of "cold generators" all over the U.S. That is, in that mode, each of the "transmitters" can actually extract electromagnetic energy.

These two modes have enabled the Soviet Union to drastically manipulate the weather at will over the U.S. during the last decade (and similarly, for other places as well.)

(For a disclosure of the Soviet weather control operations over the U.S., see T.E. Bearden, Soviet Weather Engineering Over North America, 1-hr. videotape, 1985, available from The Tom Bearden Website www.cheni.org. We will only summarize here.).

Briefly, inside various reference level zeros on the ordinary EM woodpecker carriers, scalar "channels" are established. Scalar beams, signals, and interferometer pulses and transmissions can be transmitted through these reference channels as if directly through a wire. Phasing, pulse shaping, and Fourier expansion formation of geometric forms are then the key to be used in scalar interferometry through the internal scalar channels of the Soviet woodpecker signals.

By choosing one or more grid cells and using scalar interference there in the exothermic continuous mode, local heating and expansion of the air, and formation of a high-pressure area, occurs.

By choosing one or more grid cells and using scalar interference there in the endothermic continuous mode, local cooling and shrinking of the air, and formation of a low-pressure area, occurs.

By electromagnetic "rotation" of the interfering scalar beams, the hotspots and coldspots can be moved along a desired path and at a desired speed.

By these methods the entire jetstream across the U.S. can be deviated and controlled to a large degree. Moisture can be drawn from the Pacific beyond Southern California and Mexico, and collided over the southern U.S. with extremely cold air brought down from Canada, producing ice storms such as those in and around February 1, 1985.

Violent thunderstorm activity can be induced and directed. By adding "spin", these same storms can be induced to form extensive tornados.

By sustained weather engineering operations, drought or excessive rain and flooding can be induced in areas of the U.S. as desired. Crops can be destroyed or heavily damaged by severe and unseasonal weather.

If the grid is placed in the ground on scalar EM carriers instead of normal EM carriers (and the woodpecker "radars," can switch to, or add, scalar carrier mode whenever they wish), it can be used as an anti-submarine weapon, as we shall see later. It can also be used to cause substantial ocean effects that have drastic consequences on the world's weather - such as the anomalous El Nino of 1982-83.

By localizing one spot of heating at the top of a thunderstorm anvil, and another spot of cooling at its side, a localized downburst can be created. Our weather satellites have detected just such an anomalous combination heating and cooling of thunderstorm anvils over the U.S. While there may exist natural mechanisms to cause this anomalous dual pattern, it may also be caused by Soviet weather engineering, which can cause either broad-area or highly localized effects.

All these types of weather engineering incidents have been deliberately created over the U.S. by the Soviet Union.

Perhaps the greatest weather effects can be induced by altering some of the large-scale normal mechanisms that influence and control our weather. Thus the **artificially** induced El Nino of 1982-83 was a case in point, causing drastic weather upsets worldwide for a year or more.

The last decade has seen weather so anomalous that it could only occur once in 1200 years by chance. It has not been due to normal chance, but by Soviet weather engineering, particularly since the advent of the Woodpecker transmitter complexes.

ADDITIONAL BACKGROUND FOR THE BRIEFER:

The Woodpecker transmitters can carry scalar components, which, in addition to biological strikes, can be used for many other purposes such as to

1. Influence and control the weather,
2. Deviate the giant jetstreams of the upper atmosphere,
3. Detect, track and destroy missiles shortly after launch,
4. Detect, track and destroy strategic bombers and other aircraft,
5. Attack land and ocean surface targets by large aerial electromagnetic explosions: the EM explosion produces the fireball, the thermal effects, and the blast wave of a nuclear explosion without the nuclear radiation and radioactive fallout contamination;
6. Attack surface land and ocean targets by large "cold explosions", where living things freeze almost instantly, leaving the surface facilities and equipment intact,
7. Attack land and ocean surface targets by severe internal electromagnetic disruption, so that all electronics are duded,
8. Attack personnel on land and sea by direct destruction of their nervous systems with an internally induced strong EMP,
9. Disrupt the operation of distant facilities, equipment, and personnel or destroy food crops in large areas by severe cold or severe heating, or even startling oscillation between the two.

In addition, the scalar aspects of the Woodpecker transmitters can be beamed through the earth and ocean as surface waves or at a given depth to intersect at a distant region. This mode can be used to

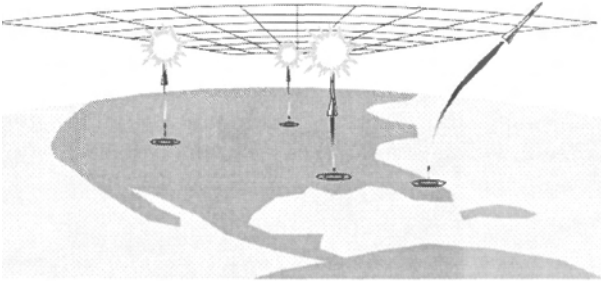
10. Cause distant earthquakes in a distant fault zone by depositing energy in the rocks there, increasing the plate stress until slippage occurs at a fault zone,

11. Cause large, anomalous rocking of an entire plate or large area, by depositing and extracting energy from alternate areas, causing buckling of the large rock plate,
12. Set up an interference grid under the water, so that underwater submarines can be detected, tracked, and destroyed on station and with their missiles still unfired,
13. Attack naval vessels and task forces through the water and through their hulls, without warning,
14. Attack missile silos and nuclear storage sites "before launch", directly through the earth itself,
15. Initiate the full nuclear explosion of implosion-type nuclear warheads on-board missiles on station,
16. Initiate full nuclear explosion of implosion-type nuclear warheads in storage sites and ready reserve,
17. Destroy seaborne and ocean-bottom-mounted mines and underwater sensors, even including entire "fields" of them,
18. Detect and destroy hostile torpedoes, ship-to-underwater anti-submarine missiles, and dumped anti-submarine munitions and charges,
19. "Pump" the electrical grounding of distant electrical power distribution and generation systems so that the system catastrophically fails,
20. "Pump" the electrical grounding of distant electrical power systems so that radio and television transmitters, power grids, and wiring complexes in buildings and facilities radiate a desired scalar wave component or signal complex at equipment and personnel.

All in all, the woodpecker transmitter complexes and other associated scalar EM weaponry are most useful in the major missions required in war.

LAUNCH PHASE ABM SYSTEM

- "BIG EYE" SCANS GRID SQUARES, DETECTS PENETRATION
- COMPUTER TRIGGERS MULTIPLE TRANSMITTERS
- PULSES PHASED SO EMP PULSE OCCURS IN DESIRED SQUARE
- PENETRANT IS DUDDED OR DESTROYED



Slide 065: Launch Phase ABM System

On this slide we show the use of the Woodpecker grid in the Launch Phase **ABM** system role.

The scalar components establish an interference grid over the U.S., at some altitude above the earth. One or more separate scalar interferometers transmit through scalar channels established in the Woodpecker's normal EM carriers, scanning through the grid square cells one by one in the "just barely extract energy" endothermic mode.

Back in the Soviet Union, the energy extracted passes through a scanned receiver biased just so that the normal energy extracted from the distant atmosphere does not show on a scanning screen. Any substantial amount of additional energy appearing in the cell - such as from the jet engines of a large aircraft or the rocket exhaust of a large missile - will be detected.

The **operation** of this weapon is four-fold: (1) the scanning interferometer or "big eye" scans the grid squares, detects penetration, and tracks the rising missile. (2) A separate scalar EM interferometer (a howitzer) is controlled by a computer and fired through a separate scalar EM channel opened in the ordinary EM woodpecker carriers. (3) Two timed scalar pulses are fired so that they converge and meet in the grid cell containing the rising missile. This results in the **sudden** emergence of a violent EMP pulse throughout the missile and the surrounding vicinity. (4) All missile and warhead electrical and electronic systems are instantly dugged and destroyed. In addition, fuels, propellants, and

explosives of the missile are immediately ignited, explosively destroying the penetrating missile.

That takes care of the missile target. (The same weapon, of course, can be used against airborne strategic bombers - including Stealth-type bombers. In fact, Gary Powers' high flying aircraft was probably shot down in 1960 by a "jury-rigged" scalar EM howitzer using modified radars and timed scalar pulses to provide an aerial explosion and EMP.)

The Woodpecker grid/howitzer weapon system can be placed over the ocean and used against cruise missiles, naval surface-to-air and surface-to-surface missiles, submarine-launched ballistic and cruise missiles, etc. Placed over a carrier task force, it can also take care of the aircraft launched by the carrier as fast as they are launched. It can also handily take care of the missiles launched by guided-missile cruisers of the accompanying task force.

Now let's take a look at the command and fire control end of this weapon system, way back in the Soviet Union.

SOVIET COMMAND & CONTROL CONCEPT



Slide 066: Soviet Command & Control Concept

On this slide we show a postulated Soviet fire control system for the grid weapon.

Two or more operators sit at a control console, facing a giant display (screen). The display contains a grid, which represents the distant interference grid of the Woodpecker carriers (or scalar EM carriers, if in the underground or underwater mode). A distant missile launched into the real interference grid overhead will cause a spot of light to appear in the appropriate grid square (cell) on the operators' screen. The operators will track the displayed target, select firing mode and type of action, engage the target, and assess whether or not the distant target is killed or missed by the firing.

When a missile is launched in the distant area over which the Woodpecker grid has been placed, it quickly rises through one of the scanned grid cells on its upward journey. As it penetrates the cell, additional energy is extracted (since part of the missile's exhaust energy is now extracted also). At the screen in the Soviet Union, the additional energy received rises above bias, causing a "bloom" or spot of light to appear on the screen at the appropriate grid cell representation.

The distant operator has now detected the missile launch and its location. He places a marker over the target track and activates the computer, also inputting the type of firing or action to be performed. In this case, let us say he wishes a burst of **energy** to emerge inside the distant launched missile, and has activated that mode of firing action.

The computer computes the necessary parameters for another scalar interferometer channel in the exothermic mode, and for firing at the location of the rising missile so that two scalar pulses will meet in the cell penetrated by the rising missile on the other side of the earth. As the channel is opened, the firing solution settled, and the interferometer howitzer readied, the computer activates indicators on the console notifying the operator. When all is ready, a "ready-to-fire" light is lit on the console.

Upon receiving the command to fire and destroy the missile, the operator presses the fire button. The computer fires the activated scalar EM howitzer in the pulse mode. The operator continues to watch his screen.

When the pulses meet in the distant grid cell, a violent EMP suddenly arises in and throughout the missile and its surrounding vicinity. This explodes the missile propellants and warheads, destroying the target.

On the distant screen, a sudden drastic "blossoming" of the target results from the sudden extraction of a great deal of additional energy by the scanning scalar interferometer. The operator thus knows he has made a "kill."

Should for some reason the target be missed, additional energy will still be extracted by the scanning interferometer from the grid cell/vicinity in which the EMP suddenly emerges. The distant operator will still see a bloom on his scope, but not nearly so great as when the missile explodes. He thus knows that the EMP effect of the firing has occurred, but the target has been missed (he will see the bloom in its offset location as well). In that case, the operator can quickly mark the EMP location, hit the switch, and the computer will automatically correct and fire again.

At any rate, for a miss a large "sonic boom" or blast still results in the EMP emergence zone from sudden heating of the air. These are precisely the type of booms that were associated with three NASA shuttle launches prior to the end of 1985. These were actual testing of this weapon system, using the shuttle launches to provide a target, and delaying the burst some minutes so the shuttle would not actually be destroyed. On Nov. 26, 1985 a "marker beacon" (glowing ball of light) was also created over the site. This was probably to orient **satellites** and other detection systems. Some 12 minutes after that nighttime launch, **a** large blast occurred over the site, heard for hundreds of miles up and down **the** coast. Shortly after, the light suddenly moved away very rapidly - faster than **a** jet aircraft.

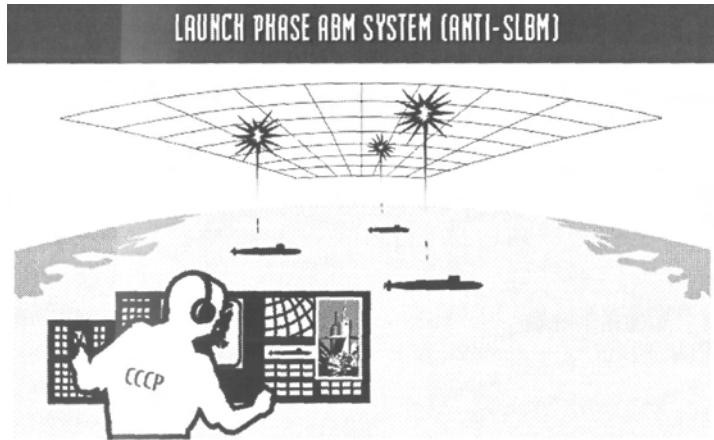
If many missiles are being launched, the operator marks them rapidly, one **after** the other, and the howitzer fires burst after burst at them, decimating the launched missiles, one after the other. In this fashion most of the counterstrike missiles launched by the U.S. would be destroyed shortly after launch, greatly reducing the number of missiles that make it to midcourse.

However, apparently the loss of the shuttle launched on Jan. 28, 1986 was caused by the addition of a metal-softening pattern in the exothermic mode, in and around the booster, using the actual booster ionic flames as a receiver-amplifier. This led to the failure of one of the supports and the partial breakaway of the right booster. The booster rotated into the tank, causing damage and the resulting explosion when the venting main fuel hit the booster flame.

By spread spectrum techniques and proper timing and phasing, one system of Woodpecker transmitters can set up multiple interference grids, in various parts of the world. The scanners and howitzers can operate in the appropriate zones, again by spread spectrum techniques and proper timing and phasing.

In fact, the latest versions probably can operate in the "ordinary EM carrier" (atmospheric) mode and the "scalar EM carrier" (underwater and in the earth) mode simultaneously - again by timed switching between EM and scalar EM carriers, spread spectrum techniques, and timing and phasing of howitzers and Manners.

Thus a single system can operate in the earth, underwater, and atmospheric modes. It can operate against the very wide range of different targets previously mentioned. It can do all this "simultaneously," from a real-time practical viewpoint.



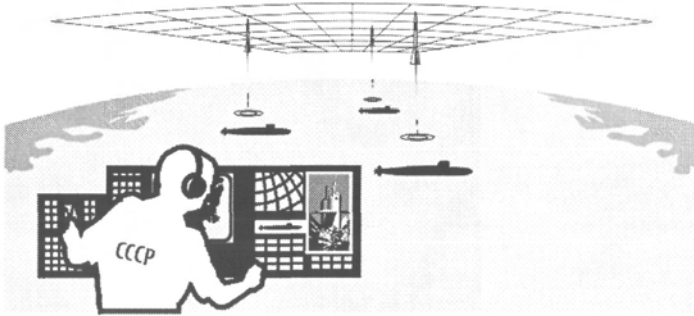
Slide 067: Launch Phase ABM System (Anti-SLBM)

Here we show the operation of the system in the atmosphere over the ocean, to destroy sub-launched ballistic missiles such as Poseidon and Polaris. The system operation shown uses the normal EM Woodpecker carrier frequencies, with scalar components to establish the interference grid, and scalar channels for **the** scanners and howitzers. The grid can be set up by this method anywhere in the world.

As can be seen, during their early launch phase, this mode will take care of the missiles launched from underwater U.S., British, and French nuclear submarines.

Remember, this is just one mode in which the system is operating. It can at the same time have other interference grids at other locations, and even in other modes, including underwater grids used against the submarines themselves, it can be engaging a multitude of targets of a wide variety of types, essentially all simultaneously.

DETECTING & MARKING MISSILE LAUNCH



Slide 068: Detecting & Marking Missile Launch

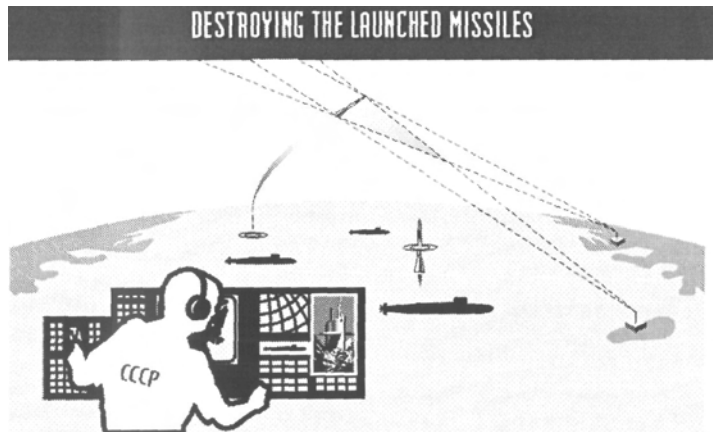
Here we show the missiles launched from the underwater submarines, when just detected in the atmosphere over the ocean. As each rising missile is detected, an operator at the screen places a cursor (a "marker") over the detected track spot on the scope.

The computer quickly computes the firing parameters and indicates when the system is "ready to fire."

By using additional scalar scanner frequencies in the multi-gigaHertz range and fine scanning, the operator is able to accomplish non-cooperative target identification.

After the operator places a cursor over a target, the advanced system fine-scans and identifies it as hostile, then continues the track in automatic.

When the operator presses the fire button for a designated target, the computer initiates fire by the appropriate scalar EM howitzer through established grid scalar firing channels.



Slide 069: Destroying the Launched Missiles

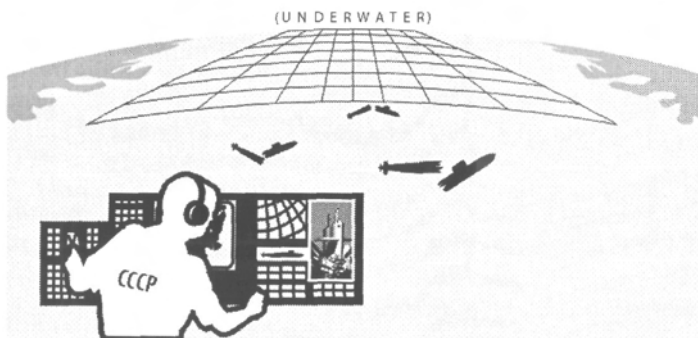
On this slide we temporarily omit the interference grid and diagrammatically show the operation of the scalar EM howitzer. As shown, two pulses are fired so that they meet in the grid cell where the rising missile is located. A drastic EM pulse suddenly emerges everywhere throughout the missile and its vicinity causing instant missile destruction.

Of course, individual howitzers not in the Woodpecker carrier's scalar channel can also fire at the missiles in the purely scalar exothermic mode. Or they can utilize the large "Tesla globe" in the continuous mode, the small Tesla "ball of light" in the continuous or pulsed mode, etc.

Also, continuous EM energy can be caused to emerge in a broader, "defocused" interference area causing electronic dudding of circuits in vehicles over a wider area. This is a very useful mode to use against mass attacks by many aircraft and/or many missiles at the same time. That is, the entire formation can be attacked in the "dud electronics" mode, and then followed up by more intense servicing of each individual hapless target.

Again, in 1960 Gary Powers was probably downed by a crude prototype scalar interferometer "howitzer" obtained by modifying two ordinary radars. At least the Soviets had previously been unable to down a penetrating U-2 with missiles they possessed. We know the scalar howitzers were in development, for Khrushchev had announced to the Presidium in January 1960 that a new "fantastic weapon" was in development. A development prototype was probably used to down Powers' aircraft.

SHIFT TO ANTI-SUB MODE



Slide 070: Shift to Anti-Sub Mode

In the underwater mode portrayed on this slide, the Woodpecker transmitters have been switched to "scalar carriers" mode and the carrier beams transmitted through the ground and into the ocean underwater. (Remember, an artificial EM potential that does not couple to charged particles or ions will travel through the ocean, but a force field will not.)

Thus a giant scalar interference grid is now established underwater. Additional scalar beams in the weakly endothermic mode scan this grid. When a submarine enters the grid, it substantially changes the potential in that cell, and the scanner picks this up. The distant screen now displays the sub as a "track" of light in the appropriate grid square cell. The computer switches in fine-scanning and non-cooperative target identification. It identifies the target as hostile and alerts the operator (by blinking the track and changing its color to red, for example).

As before, the operator marks the target and enters the firing mode and type of action desired. Again, let us assume the "EMP burst" mode of destruction is to be used. The computer computes the firing parameters and readies the howitzer. When the commander gives the command to fire, the operator presses the firing button. The computer fires the howitzer.

Two scalar pulses proceed through the howitzer scalar channel and meet in the submarine. Throughout the sub and its vicinity, a violent EMP is suddenly experienced, knocking out the electrical systems, electronic equipment, and igniting propellants and explosives in the on-board missiles and armament. This explodes the submarine, missiles, and torpedoes instantly.

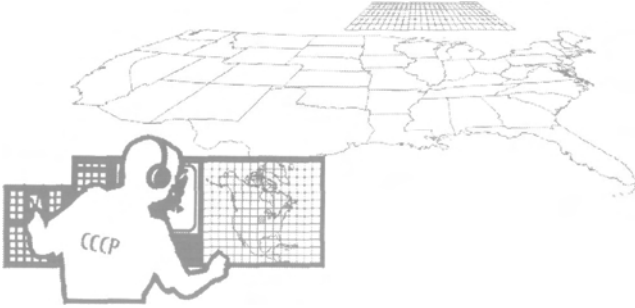
At the distant command console, the scanners detect the violent eruption of energy from the exploding submarine. It appears on the screen as a sudden strong blossoming of the track. The operator assesses that the target has been destroyed. He immediately engages another target if one is present.

If the EMP is off-course and misses, the scanners still pick up a smaller blossoming in the offset location. The operator immediately knows he has missed the target. He marks the offset bloom, presses the switch for "Correct!" and the computer makes the firing correction. When the operator again gets a Ready-to-Fire light illuminated, he presses the firing button and fires again at the target, this time with corrections applied.

Again, the same Woodpecker system - using timing, phasing, scalar/EM switching and spread-spectrum techniques - may be involved in several grids and many types of targets. When in a target-rich environment, the firing operators may be very busy indeed.

As we shall later see, the same weapon system may also be firing in the "cold explosion" or pulsed endothermic mode, where intense bursts of instant and severe freezing are unleashed in the target zone.

SHIFTING TO EARTHQUAKE MODE



Slide 071: Shifting to Earthquake Mode

The uses of the complex grid, scanners, and scalar howitzers is limited only by human ingenuity and state-of-the-art of the technology developed.

By shifting to the scalar-carrier mode and transmitting in the surface layer of the earth, the interference zone can be established in a distant region of the earth, beneath the earth's surface.

Suppose we establish a very small interference grid in the earth at and around a distant fault zone. Then by steadily depositing energy in the zone in the continuous exothermic mode, the stress in the fault area is steadily and gradually increased. Eventually the plates on each side of the fault will slip, and a "natural appearing earthquake" occurs. If the energy is deposited slowly and gently, a gentler quake can usually be effected. If the energy is deposited fairly rapidly, a higher peak stress can usually be reached before the rocks slip, and a larger, more destructive earthquake results.

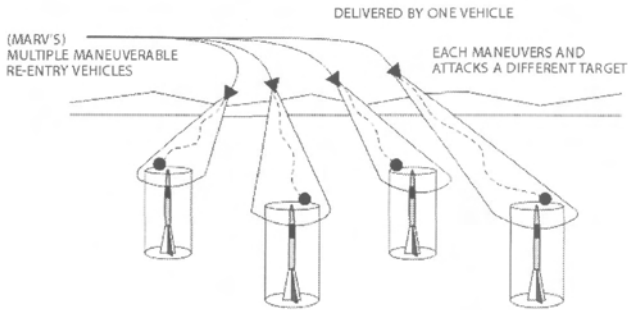
By making a wider grid in the earth in a larger area, a strange kind of earthquake can be induced, whether or not a fault zone exists in the area. By pouring energy out of alternate cells and extracting energy from the others, a "wave-like"

buckling tensile and compressive stress is created throughout the zone. As this continues, the entire plate area will try to oscillate, moving and causing an anomalous sort of "rocking, flat earthquake" throughout a large area.

Not too many days after the destruction of the Challenger on January 28, 1986, such an anomalous "flat earthquake" occurred in the U.S., near the Great Lakes,

involving some 10 states. This was probably the subsequent testing of an additional weapons mode of the same Soviet scalar EM system that destroyed the shuttle.

SUPPRESSION ATTACK - MARV'S (WITHOUT DEFENSES)



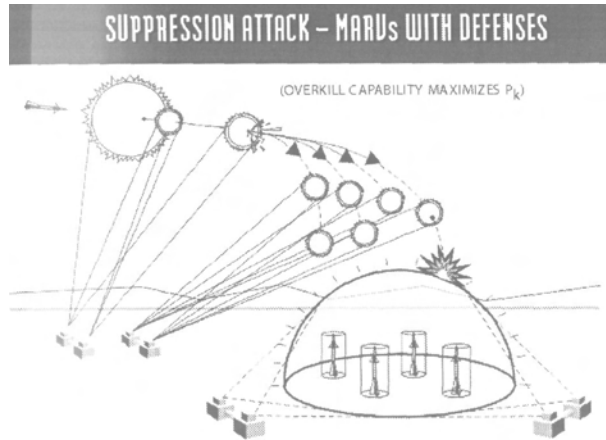
Slide 072: Suppression Attack—MARVs (without defenses)

Now to shift the emphasis a bit, and look at the impact on some "normal" strategic systems and concepts.

On this slide we show the basic idea of suppression attack against an enemy's ground based missile force in fixed-site silos. The attack uses multiple maneuverable re-entry vehicles (MARVs) delivered by a single carrier missile, which acts as a "bus." The bus ejects the MARVs at the appropriate time, and each of the MARVs heads toward its predesignated target, maneuvering as it re-enters the atmosphere and proceeds to the target. The maneuver makes conventional intercept of the MARV by conventional anti-ballistic missiles more difficult.

In this manner, missile silos without defenses may be caught by surprise and destroyed.

The "bus" concept actually multiplies the number of targets a single launched missile can attack, and the maneuvering of the MARV increases the difficulty of defending the target area by orthodox means.



Slide 073: Suppression Attack—MARVs (with defenses)

Now suppose some of the scalar EM defenses we have discussed are added to the picture.

On this slide we show a similar missile field, defended by a Tesla dome and by multiple scalar howitzers.

The howitzers take the incoming buses under attack during the early midcourse phase, by means of very large spherical EMP globes. Many of the buses - and their entire payloads, including the nuclear warheads themselves - are duded by these midcourse defenses.

Servicing of duded vehicles that have penetrated the globe now occurs farther along in midcourse. Each dud vehicle may be serviced, for example, with a small globe in the continuous mode for an appreciable number of seconds. This causes vaporization or fusing of the physical structures of the vehicles.

Groupings of incoming vehicles may also be serviced by medium-sized globe in the pulse mode. This assures dudding, and is especially useful for clearing away chaff and debris with smaller ballistic coefficients. It also is useful to further insure that the nuclear warheads themselves are totally duded.

An additional wrinkle is to place scalar signal patterns - that affect and transmute a nuclear warhead's radioactive nuclei - onto a continuous globe. In short, by the proper scalar signals it is possible to transmute plutonium and uranium into harmless elements, and it can be done at a distance. The 4th and 5th generation Soviet scalar EM technology is probably capable of doing **this**

This insures that, not only are the incoming nuclear warheads electromagnetically inert, but they are also nuclearly inert and incapable of generating nuclear explosions.

Still another wrinkle - particularly useful against implosion-type weapons - is to utilize a scalar signal pattern that causes sudden generation of neutrons in the active material (plutonium or uranium). This harmlessly explodes the nuclear warheads while they are far away from their intended targets and out in space. The burst mode is probably the most useful for this tactic.

Note that, if desired, this same tactic - exploding the nuclear weapons themselves - can also be utilized in the Launch Phase ABM system grid against the missiles after launch. This capability converts an adversary's intended nuclear attack against you to an actual attack against himself!

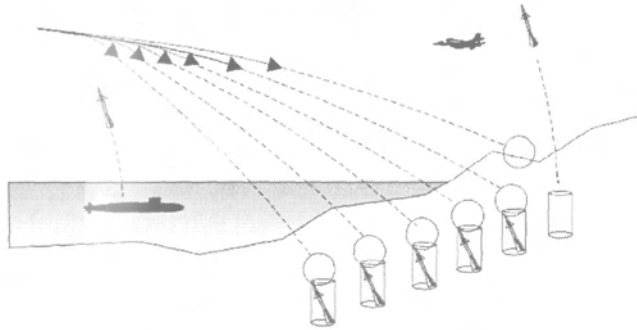
Also note that the adapted grid system in the surface of the earth can be used to explode the nuclear warheads in ICBMs while they are still in the silos, or to explode nuclear warheads in storage. In the underwater mode, the nuclear warheads in the Poseidon and Polaris missiles on-board the nuclear submarines can be exploded in a similar manner. In fact, the nuclear reactor used to furnish the power for the nuclear submarines can also be exploded or disabled in this manner, as can land-based and ship-based reactors.

Again, this actually turns an adversary's own nuclear weapons against him. His own weapons can be used to obliterate him. Without scalar defenses, possessing the capability of nuclear attack becomes a serious detriment!

But back to our slide. Just in case something gets through this formidable defense somehow, the Tesla Shield (dome) provides the final reiteration that takes care of any residue "leakage."

The sum total of these defenses fully justifies the 1968 Soviet statement in Military Strategy that the USSR has achieved a 100% defense, and the West has

RESPONSE TO COUNTERFORCE STRIKE – WITH NO DEFENSE (FIRST STRIKE)



Slide 074: Response to Counterforce Strike with No Defenset

Here we show the orthodox concept of response to a surprise counterforce nuclear strike when the surprised force has no defenses.

A great percentage of the attacked missile silos are destroyed. The surprised side thus is able to mount only a limited strike in retaliation. Perhaps he is able to launch some remaining silo-based missiles that escaped destruction. He is also able to launch missiles from any of his underwater nuclear submarines that escaped. Some of his strategic bombers may have escaped destruction on the ground or while airborne on station; these surviving bombers can be directed to proceed with strategic reprisal against the enemy.

As can be appreciated, this entire concept is now totally obsoleted by the Soviet possession of scalar EM weapons.

The "mutual assured destruction" capability - or MAD concept as it was so aptly named! - is no longer mutual.

And for two reasons: (1) the Soviet surprise attack could destroy essentially all our Triad forces wherever they are, in the first attack. (2) Even if a very small number of our strategic forces survive, the puny strike we could attempt to launch could be repeatedly decimated from launch to terminal phase.

The restraint on the Soviets is not because of our Triad forces. The restraint is twofold: (1) a second nation has scalar EM weapons, and would undoubtedly unleash them upon the Soviet Union with great violence if such a massive

world-wide destruction of U.S. forces occurred or was threatened (is it really "accidental" that six major Soviet missile ammunition storage sites mysteriously exploded within seven months?); (2) the closed-loop scalar radiation exchange system of Earth-Sun could be inadvertently "tweaked" in the feedback loop from Earth to Sun, so that a large solar scalar resonance was stimulated. In that case the Sun could emit a mighty resonant "burp" that would simply wipe out all life on Earth in a fiery shower.

The "terror" in the "balance of terror" between nations has just increased by many, many orders of magnitude.

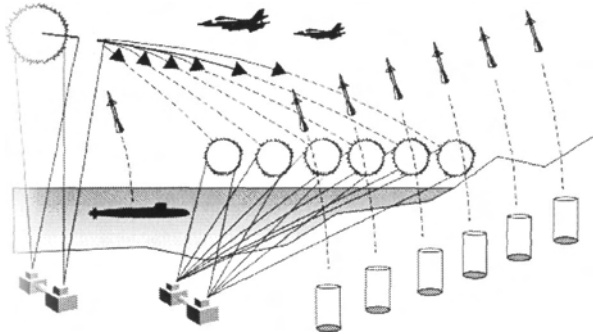
The biblical prophecy that the Earth will be wiped out by "fire and brimstone from heaven" is very near fulfillment now.

Put another way, the pucker factor - even on the Russians who may contemplate unleashing Armageddon - is higher than any Western strategic analyst has ever imagined, even in his wildest nightmares.

Truly these weapons are "more frightening than the mind of man has imagined," as Brezhnev put it in 1975.

The frightening scalar EM weapons can be used, but only very, very gingerly indeed. If a slight mistake is made, everybody loses everything.

RESPONSE TO COUNTERFORCE STRIKE – WITH DEFENSE



Slide 075: Response to Counterforce Strike with Defense

On this slide we show the impact of scalar defenses against an adversary who possesses only the orthodox nuclear weapons and delivery systems, and makes a "first strike" by surprise against his opponent.

In this case, the attacked opponent has scalar EM defenses.

With just the midcourse and terminal scalar EM howitzer defenses, almost all of the attacking missiles and re-entry vehicles are destroyed.

If for some reason (such as to prevent triggering the sun and destroying the world inadvertently!) the attacked adversary does not wish to attack strategically with scalar EM weapons, he may now launch a massive retaliatory strike on his opponent.

And if that opponent has no ABM defenses, he's just bought the farm.

What a funny coincidence! Long ago, we crazy Americans chose to put all **our** eggs in the offensive basket. That is, we thought the Soviets cannot dare to strike us because we will have enough surviving missiles to penetrate any orthodox defense and destroy them in return. They would also have the same "mutual assured destruction (MAD)" capability, of course!

The MAD concept was aptly acronymmed - it was an insane idea from its inception. That is, the Soviets were not supposed to defend their cities **and** populace, and neither were we. That way, you see, we could destroy their

citizenry at will, and they could destroy ours at will. We deliberately agreed to that, thinking - in our insanity - that the Soviets agreed also.

Of course the Soviets weren't playing the same lunatic's game at all. They simply fed our own garbage back to us, and we importantly thought we were negotiating something. Unknown to us, they were secretly building and deploying scalar EM defenses even then. Since we didn't know of any other defense, we assumed the Soviets could not defend their citizenry with ABMs any better than we could defend ours with ABMs. So we blithely scrapped our ABMs.

The high government officials of the United States of America grossly violated our constitution and their sworn oaths of office. Our constitution specifically charges the government of the United States to defend the people of the United States. That means our officials are specifically charged with defending our people. Yet they deliberately agreed not to do so, and they deliberately sacrificed us in advance.

They committed treason of the highest kind, by deliberately surrendering us to total destruction anytime the big balloon goes up.

The constitution doesn't charge the government with surrendering our citizens to destruction under any circumstances. It charges the government with defending us against destruction.

Ronald Reagan is the first U.S. president in some time to see through the MAD concept. At least he stands forthrightly for defense. It's just a shame that the government and scientific leaders under him aren't aware of the Soviet scalar weapon developments, so they could brief him on these startling developments.

Be sure you understand what the government leaders before Reagan have been saving. For years, our official policy has effectively said to the Russians: "We will allow each side a token defense only. We deliberately will not defend ourselves, so that anytime you decide to strike us you can destroy us. In return, however, we do not think you will want to strike us, for we believe that - before we become ashes from that strike - we can get enough away at you, to destroy you as well. Of course we believe you are in the same sort of boat."

Then we said, "There! That's settled! What a relief! Nobody can strike anybody anymore. Now can we talk about partial disarmament and on-site inspection?"

The Soviets just kept their astonished amusement to themselves and kept building scalar defenses (and scalar offenses as well!). Their deception plan called for imbedding the scalar EM weapons in ordinary systems when possible, and hiding the scalar EM weapons tests in ordinary weapons tests when possible. Of course they had to be adamant in their opposition to on-site inspection; after all, even Western scientists, if allowed on site with the dual-mode weapons, might suspect something was different and possibly things were amiss.

The Soviet deception has worked like a charm. The U.S. MADmen who created and implemented the MAD doctrine have succeeded in prejudicing two generations of academicians and elected U.S. leaders against the need for effective defense. A vast wasteland of inane paper studies - learnedly dealing with ABM's, penetration tactics, leakage, force and counterforce, radar blackout, electronic warfare, etc. etc. - has been churned out by our military, industrial, and university "think tanks" to clog the minds, efforts, and literature of our defense and governmental establishments.

Our homeland has no effective ABM defense (and very little defense against aircraft or subsonic cruise missiles).

Our field army has no effective ABM defense (or air defense). Our naval forces have no effective ABM defense (although they are better defended against air attack than the field army). Yet ballistic missiles - and to some extent cruise missiles - have supposedly been our greatest threat for decades, followed closely by the secondary threat of massed aircraft attack.

A cynic might take the stand that, if our Defense Department hasn't been allowed to defend us (with deployed weapon systems, not by "paper studies") against what we ourselves have proclaimed is our biggest threat, then why is it called the Defense Department? Why not call it the No-defense Department'?

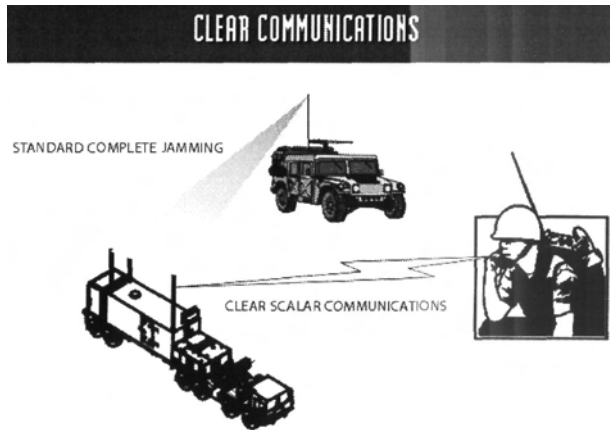
Understand, a great many fine, hard-working people in DoD have certainly tried to get adequate defenses developed and deployed. The sheer weight of the bureaucracy and its mind-numbing entanglements has prevented it.

But it's even worse. Our bureaucrats - both in government and in "big, organized science" - have been so caught up in the "Russians are really just ignorant peasants" syndrome and the "not-invented-here" (NIH) syndrome **that** they've not recognized the greatest scientific and technical breakthrough in history. Such a breakthrough - far greater in importance than the nuclear bomb has been made, developed, and deployed by the Soviet Union, all in secrecy and behind the smokescreen of a masterful deception plan.

We've totally missed the most incredible "secret superweapons" development program of all times, and the worldwide testing of the weapons themselves.

Hiroshima and Nagasaki should serve as object lessons in the price of ignorance of such technological breakthroughs.

History does repeat itself. But this time it's not we Americans who got the growl new superweapon first.



Slide 076: Clear Communications

Now let us rapidly give some unique capabilities that one can do with scalar EM in smaller things. Not only can scalar EM weapons be used in the big "continent burning" strategic weapons, but they can also be used for a variety of smaller defense tasks.

For example, one can establish a zero reference anywhere one wishes in an ordinary carrier. Inside that zero, one can establish as many independent "carriers" as one wishes, and hide them completely from ordinary detectors.

The way to do that is easy. Take as complex a signal as you wish. Subtract it from zero. That gives a "complement" which, when summed with the original signal, will produce the zero. Then only a scalar detector can go inside the zero and pull out the individual components.

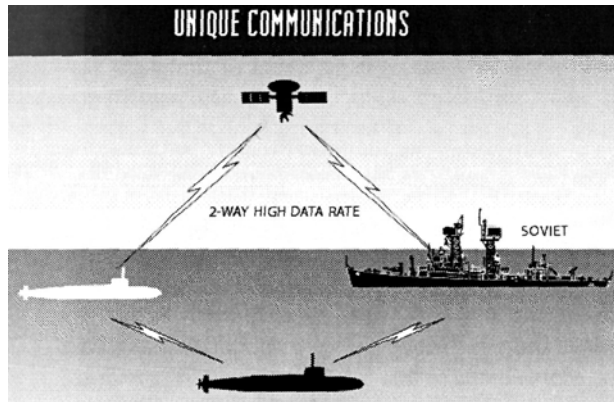
So take a carrier wave. Let the enemy jam it completely, with gobs of power.

Your scalar communication channel stays serenely there, calm and unjammed.

The enemy thinks you're jammed and can't communicate. Meanwhile, you continue to communicate just fine.

Or be real smart. Take one of those components inside the first zero. Pick a zero reference inside it. Hide still more carrier components inside the second zero. Do this as many times as you wish.

You can put all the telephone calls in the United States of America on one carrier. And you can keep them clear, right through total jamming.



Slide 077: Unique Communications

But that's still not all.

You can also communicate with your submarines underwater. High data rate. Chat away as you wish. You can scramble, frequency hop, encrypt, the works. They can also communicate back to you.

Remember. EM force fields of any appreciable frequency won't travel through the water. Natural EM potentials grab charged particles and ions, so they won't travel through the ocean either. But artificial potentials don't grab onto charged particles or ions, and they will go through the ocean quite nicely.

Everything - aircraft, ships, shore installations, submarines, etc. - can communicate like gangbusters if they possess scalar EM technology.

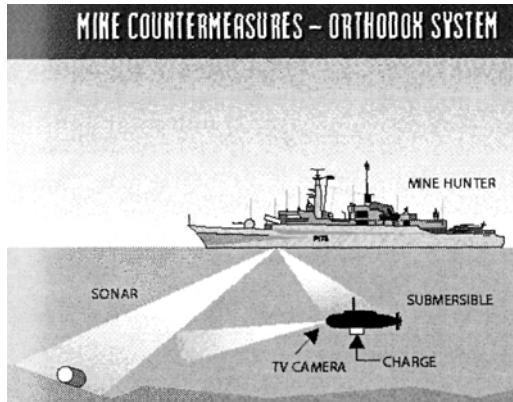
In fact, you can even build scalar EM underwater radar if you wish.

The airborne scalar EM radar can see under the ocean with a little adjustment. perhaps as well as a conventional side-looking radar sees distant targets today. The airborne scalar EM radar can detect and track the underwater submarine while tooling along.

In fact, the airborne scalar EM radar can then destroy the sub, by using a **little** scalar interferometry. And it's even possible to do scalar interferometry with a single transmitter! How, is proprietary to a friend.

In fact, you can even use your enemy's jamming transmission as a "wire" along which to establish your scalar EM channels. You can use these scalar channels in the "weakly endothermic mode" to locate his transmitter and "lock-in" on it. You can "walk" the lock-in right past his encryption function to the "clear" input, and receive and record that in the clear. All this from a distance.

You can then destroy his equipment if you wish, or just continue to monitor him in the clear if it's important to do so. Perhaps now we can understand what the decades-long weak microwave radiation of the U.S. Embassy in Moscow is all about. Or why the Soviets are building a nice new Embassy, bristling with antennas, on the high ground in Washington, D.C.



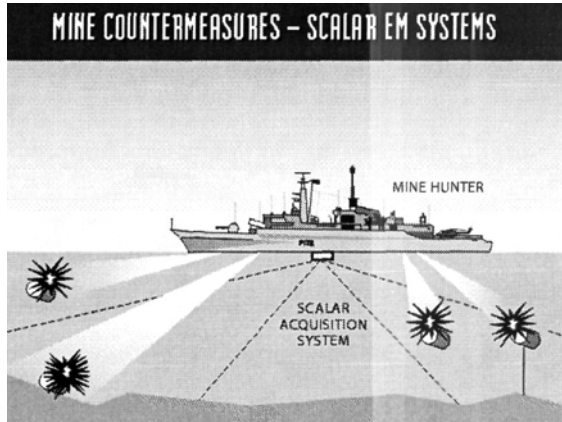
Slide 078: Mine Countermeasures—Orthodox System

Take something like mine countermeasures, for example. Finding and destroying mines - particularly those placed on the bottom in relatively shallow areas such as ports and rivers - is a really tough problem.

Presently it's often done as portrayed on this slide.

Here a minehunter ship uses an underwater sonar to locate the mine, or what resembles a mine. Then it directs a submersible robot vehicle to proceed over to the object and examine it with an underwater television camera. If it's a mine, the submersible places a remotely operated charge beside it, then chugs away. When it reaches a safe distance away, the charge is exploded, causing the mine to detonate.

A very painful process. Very time consuming, and very difficult.



Slide 079: Mine Countermeasures—Scalar EM Systems

Now try the same thing while using scalar EM underwater systems. The scalar EM acquisition system is really a sophisticated scalar radar. It scans a large area rapidly, locating moored mines, bottom-planted mines, and drifting mines.

The acquisition system is also a scanned "underwater eye." The operator in the surface vessel can tell whether or not it's a mine he's located.

Once the target mine is detected, a computer computes the firing parameters for a scalar interferometry pulse to hit it and destroy it. The operator fires the pulse, destroying the mine.

The same system that detects the mine at a distance identifies and destroys it at a distance. In this way large areas can be quickly scanned and swept clean of mines.

If a suspicious object is detected and one is still not quite sure it's a mine, shoot it anyway! If it's a mine, it explodes. If it's just a rock, nothing happens. So the same system can do "discrimination by fire."

The same system is useful to destroy midget submarines, bottom crawlers, etc.

It can also wipe out whole arrays of underwater sensors by electromagnetically dudding them.

It can take on a sub if it has to! Here it would just gently kindle EM energy inside the sub's controls, causing it to lose control of all its systems. The sub

would then sink to crush depth and implode. The scalar EM mine sweeping system could, of course, simply "blow" the sub, but might itself get caught in the resulting explosion.

SCALAR ANTI-PERSONNEL WEAPON



Slide 080: Scalar Anti-Personnel Weapon

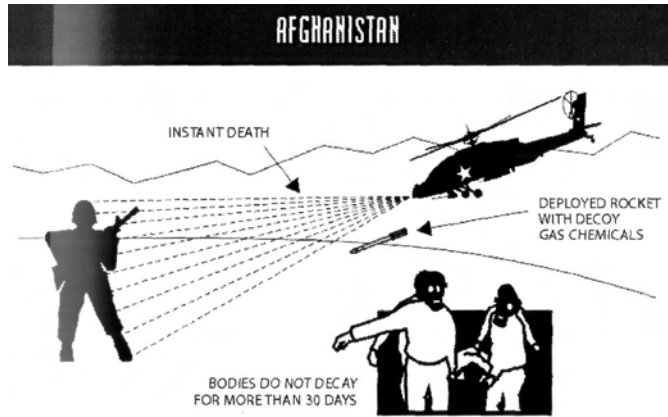
From a military viewpoint, these scalar EM weapons are really quite all-around weapons.

For example, they are very lethal against personnel.

Set in the "high intensity pulse mode," one blast and a person's nervous system is destroyed instantly. Total, instantaneous death results. One can blast away at entire groups of infantrymen, for example. It's the peak power that's important, not the average power. So the weapon doesn't require too much battery power.

Set on a lower intensity pulse mode, one zap can simply knock out a person, rendering him instantly unconscious.

Quite useful if one needs prisoners to interrogate. Also very silent, which is useful in operations employing stealth and surprise.



Slide081 : Afghanistan

The Soviets are employing just such a scalar "death ray" weapon in Afghanistan, apparently in the noses of some of their HIND helicopters.

These choppers usually fire gas rockets to camouflage the testing of the tactical scalar death ray. For example, they may fire rockets filled with nerve gas, and some persons will die convulsively from the chemical.

Those hit by the scalar EM weapon, however, have a most peculiar death **mode**,

Death comes instantly and totally. There is no convulsion, no response. The entire nervous system is destroyed instantly. Every living cell in the body is killed instantly, including all bacteria, germs, etc.

A body hit with this thing falls like a limp rag and lies where it falls. It doesn't decay in even 30-45 days. In a macabre fashion, it's been reduced to something like food irradiated with nuclear radiation; everything is killed, so the material is preserved for an extended period before any decay can set in.

Western military authorities have speculated that this strange death is due to some sort of eery new gas.

However, even with the most virulent gas, some seconds are required for a **body** to die. And while it's dying it goes into convulsions. Violent convulsions.

This eery, instant death that leaves a non-decaying corpse is not due to a **gun**, This is the signature of a high-powered pulse kill using a scalar EM weapon

The associated gas rockets are the disguise used to fool our intelligence analysts.
They're just part of the Soviet deception plan.

ADDITIONAL NOTES AND REFERENCES

15. For details of the mysterious, instant deaths in Afghanistan, see Yossef Bodansky, "Soviets testing chemical agents in Afghanistan," Jane's Defence Weekly, 1(13), Apr. 7, 1984, p. 508

SCALAR ANTI-TANK WEAPON



ARMOR HAS NO EFFECT

Slide 082: Scalar Anti-Tank Weapon

Such weapons are also effective against armored vehicles, for example.

They can be carried by personnel, mounted on vehicles, mounted in helicopters, etc.

They are truly all-purpose weapons.

An infantryman with a bazooka-sized scalar EM pulse weapon can easily knock out a tank with one shot. The armor has no effect; scalar EM goes right through conductive shielding and Faraday cages.

And with the same weapon he can knock out another tank, and another, and another...

SCALAR ANTI-AIRCRAFT WEAPON



Slide 083: Scalar Anti-Aircraft Weapon

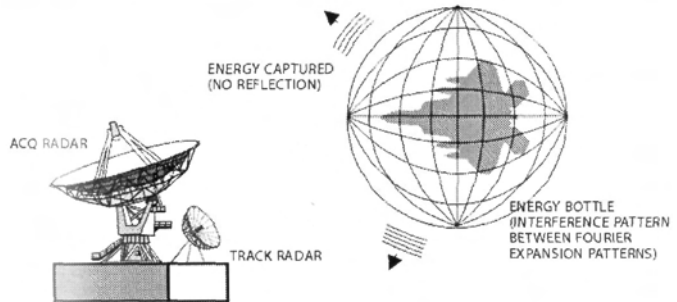
And, if a helicopter or a fixed-wing aircraft attacks him, he can bring the same weapon to bear on it.

He can knock down a chopper or a jet. With one shot.

And another. And another.

Also, it's a line-of-sight weapon. He doesn't have to compute lead angle and all that jazz. Just aim, get the target in his sights, and pull the trigger.

RADAR INVISIBILITY



Slide 084: Scalar Anti-Aircraft Weapon

Another neat trick you can do with scalar EM is make an aircraft invisible to ordinary radar.

Just use multiple transmitters on the airplane to establish a spherical interference shell, in the bandwidth of the threatening radar, around the aircraft.

When the signal pulse (or continuous wave) from the ground-based radar **strikes** the "energy bottle" in the shell, it interferes with it and is diffracted, scattered, and partially absorbed.

The ground-based radar doesn't get any coherent return pulse or return signal reflected from the target.

Radars don't track aircraft; they track the reflection of their own signal bouncing off aircraft. No reflected signal, no aircraft - as far as a radar is concerned.

To shield against a passive radar (one which tracks emissions from the aircraft), just detect and complement your own emissions so that "near zeroes" result in the spectrum of interest.

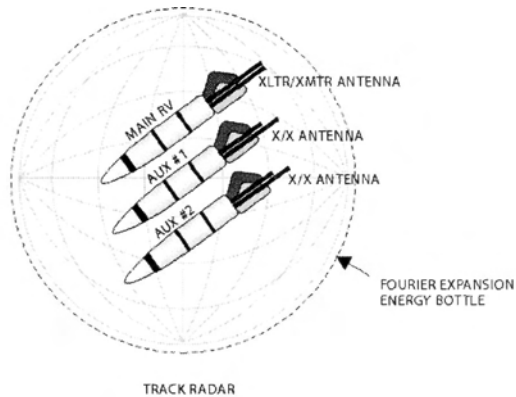
Or do both, to protect against both.

It's even possible to cool the exhaust and heated surfaces of the aircraft by a scalar EM adaptation of electrostatic cooling. Theoretically it's even possible to cause the aircraft to "disappear" optically. Takes a bit of doing, but it's possible. The basic scheme here is that, when a photon hits the target from a given direction, it's absorbed totally, and a corresponding or "matching" photon is

emitted from the opposite side in the same direction the original photon was going. In that fashion, the light emitted from the target from one direction seems to have "passed through it" from the other direction.

Since that's what empty space does, then what a distant observer sees is "empty space," so far as he can tell.

AN EFFECTIVE PENETRATION AID (CM AGAINST ACQ & TRACKING)



Slide 085: An Effective Penetration Aid

Of course you can do the same thing for re-entry vehicles.

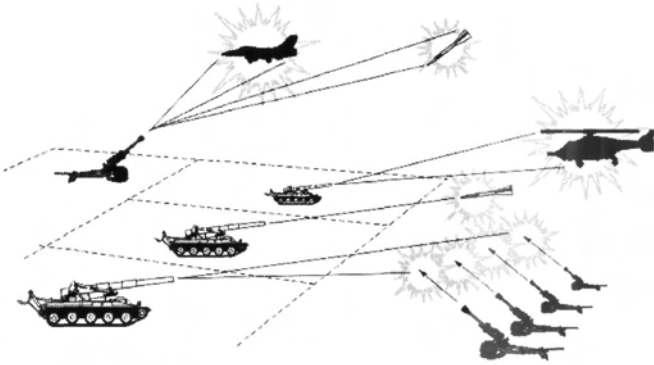
Use some multiple antennas on a vehicle. Or better yet, use satellite RV's to carry the extra transmitters necessary for scalar interferometry.

Deploy the interferometer RV's and activate the scalar EM transmitters. Place an energy bottle Fourier expansion interference shell around the ensemble in the bandwidth of interest.

Radars in that bandwidth now will be unable to detect the incoming ensemble. If nothing detects the threat, nothing is going to shoot at it or react to it.

This can also be used on a bus vehicle during midcourse, for example.

UNIQUE CAPABILITIES: ATM/AD/AARTY



Slide 086: Unique Capabilities: ATM/AD/AARTY

But the uniqueness of scalar EM devices and weapons doesn't end there.

You can hit lots of other threats that are presently difficult or impossible to effectively handle.

For example, on the tactical battlefield, the same scalar EM radar interferometer system can defend against tactical missiles (ATM role), aircraft (AD role), cruise missiles (ACM role), and even artillery and mortar shells (AARTY role).

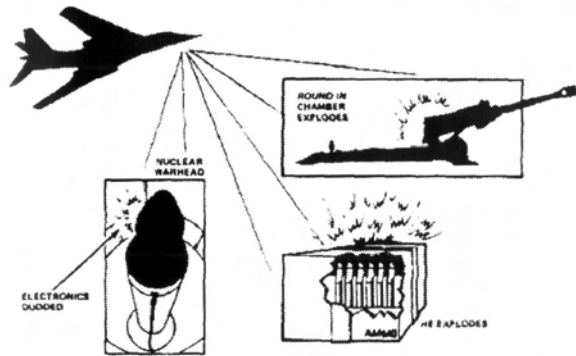
How the devil, you might ask, can it defend against artillery and mortar shells?

Simple. Sweep the artillery or mortar barrage with closely spaced pulses. Sorta like a machinegun. Or more like a phased-array radar.

If the peak power in the sweeping pulses is sufficient, the explosives are sparked and detonated. Fuses are destroyed.

So even mortar and artillery rounds can be destroyed, by the same system providing air defense and anti-tactical missile defense.

UNIQUE CAPABILITIES



Slide 087: Unique Capabilities

That's still not all.

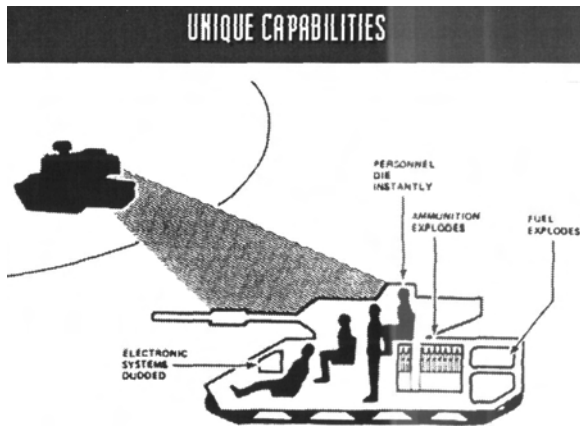
An incredible number of different types of targets can be attacked with scalar EM weapons.

For example, aircraft equipped with scalar EM weapons can attack targets such as loaded artillery pieces. The round in the chamber explodes, destroying the weapon.

It can also attack nearby stored ammunition. Again, the high explosive in the ammunition explodes, destroying the store.

Even underground missiles can be attacked. The scalar pulse will go right through the overhead cover and dud the electronics, including the nuclear warhead. It will also detonate the HE in the warhead and detonate the fuels and propellants.

A great variety of other targets can also be attacked, as we shall see.



Slide 088: Unique Capabilities

For example, suppose one attacks a tank.

With scalar EM pulse, the personnel die instantly. Total personnel kill is achieved.

All electronic systems of the tank are duded. Total systems kill is achieved.

The ammunition in the tank explodes. Total kill is achieved.

The fuel explodes. This is another total kill mechanism.

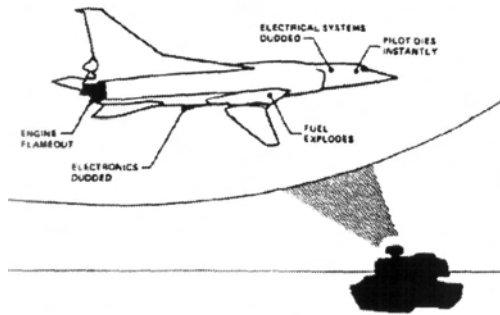
That tank has been killed totally, by a variety of mechanisms, all simultaneously.

That's a k-kill in any analyst's book.

And don't worry about retrieval and repair. That tank is finished permanently.

Even the most modern tank is just as vulnerable as the most obsolete.

UNIQUE CAPABILITIES



Slide 089: Unique Capabilities

Suppose one attacks a fighter-bomber aircraft.

Again, the kill is catastrophic from multiple simultaneous kill mechanisms.

The pilot and crew die instantly. Total destruction of their nervous systems.

The electrical systems are dudded.

The electronics in all avionics and ordnance is dudded.

The fuel explodes.

HE in on-board or out-board ordnance explodes.

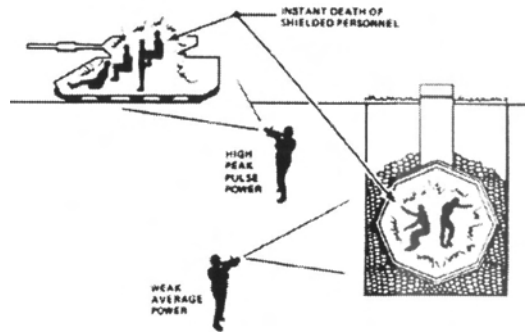
The jet engine flames out if the pulse is powerful enough.

That aircraft is finished. Permanently.

And it's point-and-shoot, line-of-sight.

Even the most modern aircraft is just as vulnerable as the most obsolete.

UNIQUE CAPABILITIES: PENETRATE SHIELDING



Slide090: Unique Capabilities: Penetrate Shielding

Shielding is ineffective.

The scalar pulse (or continuous wave) can go anywhere gravity can go.

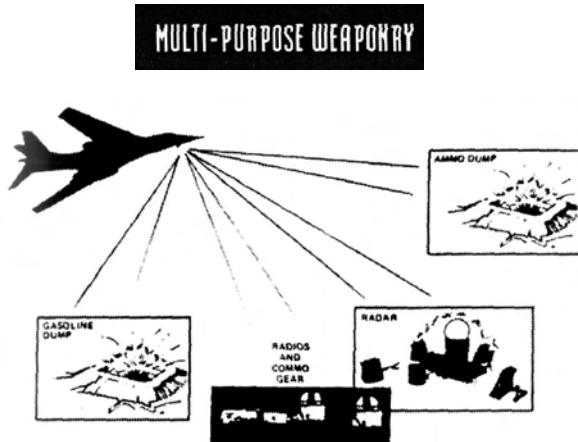
It penetrates the steel hull of tanks and armored vehicles.

It penetrates underground shelters and bunkers.

It penetrates pillboxes and fortifications.

Foxholes are no protection. Just shoot through the earth into them.

There is no longer any place to hide.



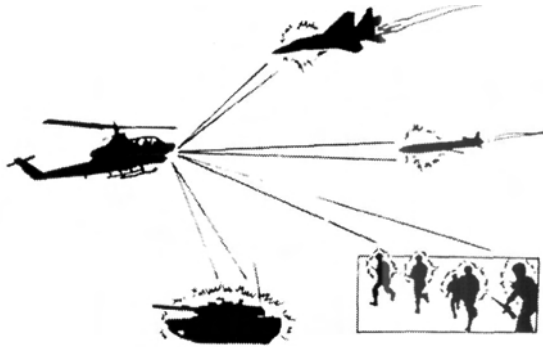
Slide 091 : Multi-Purpose Weaponry

These scalar EM weapons are all-purpose. Things such as ammunition dumps, radar systems, radios and communication gear, communications centers, gasoline dumps, etc. can easily be destroyed.

Not only that, but the weapons can be swept, giving area coverage.

You can hit both point targets and area targets.

MULTI-PURPOSE WEAPONRY



Slide092: Multi-Purpose Weaponry

Look at what a weapon a helicopter becomes.

The same vehicle, equipped with scalar EM weapons, can engage and destroy jet aircraft, other helicopters, cruise missiles, personnel, and armored vehicles.

It can also hit all the other targets we've been talking about. Any vehicle equipped with scalar EM weapons becomes a formidable destroyer on the battlefield.

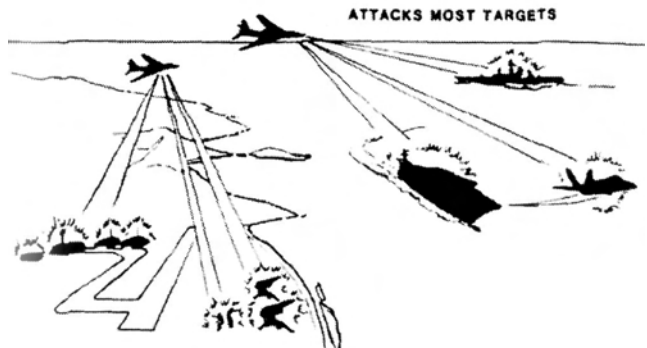
And "reconnaissance by fire" takes on a particularly lethal meaning.

Forexample,don'tworryabouttheenemyincoverandconcealment,orhighly camouflaged.

Don't worry about decoys or dummy positions.

Just sweep the area with scalar EM fire. The actual targets will be discriminated by fire and destroyed.

MULTI-PURPOSE WEAPONRY



Slide 093: Multi-Purpose Weaponry

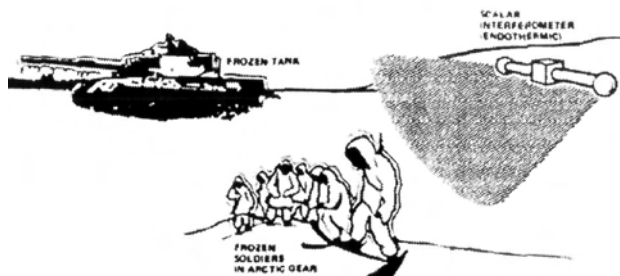
As can be seen on this slide, most targets of interest can be attacked.

A single aircraft can sink an aircraft carrier or destroy a battle cruiser from afar.

It can also destroy aircraft, ground installations, artillery, personnel, nuclear weapons storage sites, tanks, vehicles, fuels, and combustibles.

UNIQUE CAPABILITIES: HEAT EXTRACTION

- IN A ZONE, INSULATION HAS NO EFFECT.
- EXTERNAL HEATING HAS NO EFFECT.



Slide 094: Unique Capabilities: Heat Extraction

Or one can get truly exotic.

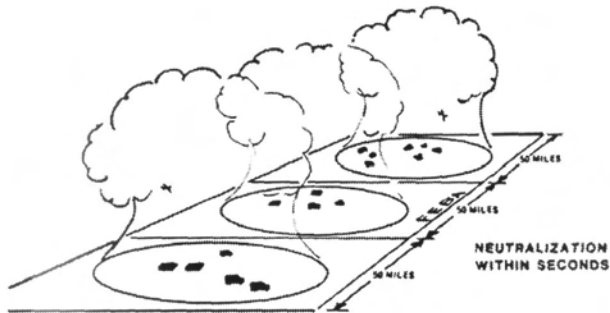
To prevent destroying equipment and installations, the endothermic mode can be utilized.

Cold explosions can be used to freeze tanks, personnel, and equipment.

The equipment and tanks thaw out.

The personnel thaw out too, but they are dead when they do. Heaters and arctic clothing are no protection.

UNIQUE CAPABILITIES: COLD EXPLOSIONS



Slide 095: Unique Capabilities: Cold Explosions

For example, suppose three cold explosions, each 50 miles in diameter, are placed upon the front-line strength of NATO.

In seconds there is no longer any "front line strength" of NATO. Every living thing is frozen into a block of ice.

A few more of these things placed on selected rear area installations, and the battle is over before it gets started. Say in about one minute flat!

Suppose NATO is quickly defeated - say in two days. And then the Russians offer us a "Dunkirk." They agree to allow us to evacuate the beaten remnant of our forces.

Are we going to evoke a strategic nuclear exchange, or are we effectively "decoupled" from Europe? Particularly if the Soviets also offer sweeping accommodations to the Europeans, and they accept? If we punch the strategic button, we guarantee our own absolute destruction. (MAD doctrine and all ~~that~~, old chap!)

Whether or not we could do anything to the Russians is a matter of conjecture.

For a demonstration, they could even invite us to launch a couple of missiles, and destroy them over our heads shortly after launch.

And they could take out a few submarines under the ocean, just to make it believable.

And destroy some SAC bombers that are orbiting on station.

Or take out a U.S. Naval Task Force, with a nuclear carrier, as a demonstration that they mean business.

Would a sane President go ahead and destroy us, or accept the Soviet's "Monroe Doctrine" and an "armistice"?

If the Soviets thought he was seriously contemplating ordering a nuclear strike, they could immediately destroy all our nuclear armaments where they sit. Our own weapons would obliterate us!

What would Congress do - after the Soviet Union had demonstrated its absolute power, offered a Dunkirk and armistice, and threatened our total destruction if we "reached for the holster," so to speak - when it realized the President might actually be contemplating evoking assured national suicide?

What would you do if you were a Congressman? If you were the President?



Slide 096: The Transmitter is the Major Weapon

As shown on this slide, with scalar EM the transmitter becomes the major weapon on the battlefield.

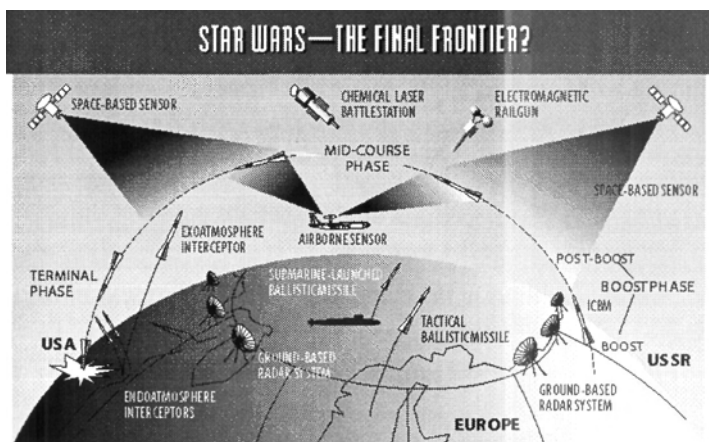
Almost every type of target of any importance can be easily and effectively attacked and destroyed or nullified by scalar EM weapons.

Small wonder the Soviets do not discard their thousands of "old" radars!

How effective do you suppose some of their "old" transmitters on their "old" aircraft might be?

What chance do you think SAC bombers would have against thousands of "old" radar-directed gun sites and "obsolete" air defense missile sites?

Could it be that even something like the old SA-1 could be startlingly effective?



Slide097: Star Wars—The Final Frontier?

But what of our advanced concepts, such as the strategic defense initiative?

Here we show some of the expensive and complex components of that powerful system.

We have ground-based radars, endoatmospheric interceptors, exoatmospheric interceptors, airborne sensors, space-based sensors, chemically propelled interceptors, electromagnetic railguns, particle beam weapons, high energy lasers, etc. all tied together by a massive command and control system. This massive, expensive system is designed to detect and destroy missiles, including ICBMs, IRBMs, cruise missiles, SLBNs, etc.

The system detects the missile launches and engages them from launch on in to the terminal phase.

Massive systems. Electromagnetic marvels. Nuclear-pumped lasers of staggering power. Perhaps even x-ray and gamma ray lasers. Directed energy RF weapons. Stupendous railguns. Sensors everywhere. Giant webs of communications. Banks of computers and control systems.

And it's totally vulnerable to scalar EM interferometer weapons. Giant scalar EM "radars" can simply sweep through all that like a scythe through standing hay.

As it stands, it's obsolete before its design is even finished.

It's obsolete to Soviet scalar EM weapons that are already deployed and operationally tested in place!

Without scalar EM weapons and defenses, all our present weapons and concepts are deadly vulnerable.

The war is over before it hardly gets started. It's not a war; it's more like a clay pigeon shoot.

Understand, if orthodox science was all the Russians possessed, the Strategic Defense Initiative would be the way to go.

But they do possess something else, and presently they have all the trump cards in the deck.

COMPARISON OF EM CONCEPTS			
CHARACTERISTIC	T H E O R Y		
	CLASSICAL EM	QM VIEW	SCALAR EM (ARTIFICIAL ϕ)
VACUUM SPACETIME	LINEAR NO CHARGE	LINEAR, CHARGED (VIRTUAL) STATISTICALLY	NONLINEAR, CHARGED (VIRTUAL) W/ DETERMINISTIC COMPONENTS
VIRTUAL SUBSTRUCTURE	NONE (FLUID EQUATIONS)	YES STATISTICAL	YES. STATISTICAL. DETERMINISTICALLY WEIGHTED
FORCE IN VACUUM?	CAUSE YES	EFFECT YES	EFFECT NO
ZERO FORCE FIELDS	NO EFFECT	BOHM-AHARONOV EFFECTS	SUBSTRUCTURE EFFECTS, ENGINEERABLE
POTENTIALS	FICTICIOUS	REAL, PRIMARY. STATISTICAL SUBSTRUCTURES	REAL, PRIMARY. DETERMINISTIC SUBSTRUCTURES
CAUSATIVE AGENT	FORCE FIELDS	POTENTIALS	POTENTIALS AND INFOLDED FIELDS OF SUBSTRUCTURES

Slide 098: Comparison of EM Concepts (Chart)

On this slide and the three that follow, we show a comparison of some of the major characteristics of the three kinds of electromagnetics.

We compare the classical, the quantum mechanical, and the scalar EM (electrogravitational) views of electromagnetics

Notice the differences between the three in regards to vacuum spacetime, virtual substructure, force, whether or not force exists in vacuum, the effect of zero force fields, potentials, and what is to be regarded as causative agents.

CHARACTERISTIC	COMPARISON OF EM CONCEPTS		
	T H E O R Y		
	CLASSICAL EM	QM VIEW	SCALAR EM (ARTIFICIAL ϕ)
CHARGE CONSERVATION	YES	YES	NOT NECESSARILY
ACTION AT A DISTANCE	NO	NO, EXCEPT BOHM-AHARONOV EFFECTS	YES, SCALAR INTERFEROMETRY
SCALAR (ZERO-VECTOR) RESONANCE	NO	NO	YES
INERTIA IS ELECTRICAL	NO	NO	YES
GRAVITY IS ELECTRICAL	NO	NO	YES
MASS IS ELECTRICAL	NO	NO	YES

Slide 099: Comparison of EM Concepts (Chart)

Now note the differing views of charge conservation, action at a distance, scalar resonance, and whether inertia, gravity, and mass are electrical.

COMPARISON OF EM CONCEPTS			
CHARACTERISTIC	T H E O R Y		
	CLASSICAL EM	QM VIEW	SCALAR EM (ARTIFICIAL ϕ)
CHARGE	WITH MASS	WITH MASS	MASSLESS
RELATIVISTIC EFFECTS DUE TO	VELOCITY	VELOCITY, INTERFERING POTENTIALS	INTERFERING POTENTIALS
HIDDEN VARIABLE	NO	STATISTICAL, NEGLIGIBLE	DETERMINISTIC, MAJOR ROLE
VECTOR THEORY APPLIED TO EM	OK	OK	REQUIRES REVISION
VACUUM EM WAVE	TRANSVERSE	TRANSVERSE	LONGITUDINAL W/ SWIRLS
ENERGY/MASS CONSERVATION	YES	YES	NOT NECESSARILY, AN ENERGY CONSERVED

Slide 100: Comparison of EM Concepts (Chart)

Continuing, note the differences in the views of charge, what relativistic effects are due to, whether or not one has hidden variables and whether they are

engineerable, how vector theory is applied to electromagnetics, the nature of the EM wave in vacuum, and conservation of energy/mass.

SUMMARY (1)

- **AHARONOV-BOHM EFFECT**
 - ▣ VERIFIED
 - ▣ MESOSCOPIC SCALE (CENTIMETERS)
 - ▣ NEED MACROSCOPIC COHERENCE
 - ▣ POTENTIAL WEAPON IMPLICATIONS
 - ▣ PROBABLE SOVIET WEAPONIZATION
- **6 TO 8 ADDITIONAL ORDERS OF MAGNITUDE NEEDED**

Slide 101: Summary (1)

Now we examine the three views for whether or not electro-gravitational waves exist and what they interact with, the number of required spacetime dimensions the type of geometry, the nature of a zero-summed EM vector, local and distant relativity aspects, and whether or not the probability states propagated by the Schroedinger equation can be deterministically engineered.

As can be seen from the last four slides, the three views are quite different, and the scalar EM view is drastically different.

SUMMARY (1)

- **AHARONOV-BOHM EFFECT**
 - ▣ VERIFIED
 - ▣ MESOSCOPIC SCALE (CENTIMETERS)
 - ▣ NEED MACROSCOPIC COHERENCE
 - ▣ POTENTIAL WEAPON IMPLICATIONS
 - ▣ PROBABLE SOVIET WEAPONIZATION
- **6 TO 8 ADDITIONAL ORDERS OF MAGNITUDE NEEDED**

Slide 102: Summary (1)

In summary, we can now state unequivocally that the Aharonov-Bohm effect has been conclusively proven, at least for the mesoscopic scale over a few thousand Angstroms, and possibly over a few centimeters.

But in these experimental proofs; the "natural" type of potential has been used, it is basically incoherent in its substructure, dooming the effect to stay small.

By utilizing macroscopic EM force fields and waves to zero-sum and comprise artificial potentials, the coherence can be maintained over a macroscopic distance - even for hundreds of thousands of kilometers.

The weapons implications - only some of which we have set forth in this treatise - are mindboggling.

SUMMARY (2)

- ZERO-VECTOR (SCALAR) EM SYSTEMS
 - ▣ SCALAR EM WAVES
 - ▣ KEY TO ELCTROGRAVITATION
- DETECTORS
 - ▣ INITIAL DETECTORS DEVELOPED
 - ▣ NEED IMPROVED DETECTORS
- INITIAL THEORY BEGUN
- PRELIMINARY EXPERIMENTS SUPPORT

Slide 103: Summary (2)

Zero-vector (scalar) EM systems are the key to scalar EM waves, which are actually electrogravitational waves.

Scalar wave detectors have been developed and are being improved. Further improvement is needed. This development is limited only by funds.

The initial theory has been begun. More work is needed. Again, this development is limited only by funds.

Preliminary experiments support the scalar EM concepts.

Equipment can be designed and made to work electro-gravitationally.

And it has been.

SUMMARY (3)

- INTERFERENCE PHENOMENA ARE KEY
 - ▣ ACTION AT A DISTANCE
 - ▣ EXOTHERMIC MODE
 - ▣ ENDOTHERMIC MODE
 - ▣ 3-D FOURIER EXPANSIONS (TRUNCATED)
- EFFECTS IN/ON NUCLEUS
- NOT ENERGY TRANSMISSION THROUGH SPACE
- SHIELDING INEFFECTIVE

Slide 104: Summary (3)

Interference phenomena are key.

One can get action at a distance - even over hundreds of thousands of kilometers.

One can engineer gravitational and inertial effects.

One can engineer the nucleus, including transmute it, easily and cheaply. One could clean up all the nuclear wastes.

Electromagnetic energy can be produced at a distant target, or extracted from a distant **target**.

This is is not energy transmission through space in the form of EM force fields. Instead, it is transmission through spacetime in the form of electrogravitational potentials.

Conventional EM shielding is ineffective against scalar EM.

SUMMARY (4)

- MOST SYSTEMS ARE VULNERABLE
 - ❑ ELECTRONICS (INCLUDING OF FUZING/WARHEAD)
 - ❑ PERSONNEL
 - ❑ EXPLOSIVES/PROPELLANTS/FUELS
 - ❑ ORDNANCE
 - ❑ SHIPS/SUBMARINES/TORPEDOES
 - ❑ AIRCRAFT/HELICOPTERS/MISSILES/DRONES
 - ❑ TANKS/APCs/WEAPONS CARRIERS/SP ARTY
 - ❑ COMMUNICATIONS/SATELLITES/RADARS/C³I
 - ❑ DEW SYSTEMS
 - ❑ SURVEILLANCE/SENSOR SYSTEMS
 - ❑ MINES/ARTY ROUNDS/NUCLEAR WARHEADS

Slide 105: Summary (4)

Almost every weapon system we presently have - or are developing - is totally vulnerable to scalar EM weaponry.

This includes personnel, electronics (including fuzing and warhead), explosives, propellants, fuels, ordnance, ships, submarines, torpedoes, aircraft, helicopters, missiles, drones, rockets, tanks, armored vehicles, weapons carriers, self-propelled and towed artillery, communications, satellites, radars, command and control, directed energy weapon systems, surveillance and sensor systems, mines, artillery rounds and ammunition, nuclear warheads, etc.

We are in dire straits. We need a "Manhattan Project" of the highest priority. Now!

The Soviets have already had the equivalent of seven or eight Manhattan Projects in this area.

SOVIET DEFENSE AGAINST MISSILES

"In our country the problem of eliminating rockets in flight has been successfully solved by Soviet science and technology...

It is interesting to note that the problem of anti-missile defense is far from being solved in the West."

**SOKOLOVSKIY
MILITARY STRATEGY
THIRD EDITION, 1968**

Slide 106: Soviet Defense Against Missiles

Here is a significant statement by Sokolovskiy, contained in Military Strategy, 3rd edition, 1968.

This is not propaganda. The Soviets really do have an effective missile defense. We do not. At the present rate we're going, we may not have one in the year 2000 - if we live that long.

SURPRISE BY USING SECRET WEAPONS

"Each side secretly develops new means of warfare in order to employ them unexpectedly. History knows many examples how the employment of a new weapon initially gave considerable success because the enemy, caught unawares and not knowing the combat capabilities of this weapon, was for some time incapable of effective counteraction."

**V. YO SAVKIN
THE BASIC PRINCIPLES OF OPERATIONAL
ART AND TACTICS
MOSCOW, 1972**

Slide 107: Surprise by Using Secret Weapons

The Soviets took to heart the lesson of our secret development of the atomic bomb. Thrust suddenly upon a fanatical nation, the atomic bomb brought the empire of Japan to its knees.

Other lesser examples - such as the impact of the German V-1 and V-2 missiles and jet fighter - also were not lost on the Soviets.

SOMETHING RUSSIA DOESN'T WANT THE U.S. TO KNOW

"Of particular importance is basic research aimed at discovering still unknown attributes of matter, phenomena, and the laws of nature, and developing new methods for their study and use to reinforce the state's defense capability."

COMMENTS:

- ❑ PORTION OF A BOOK BY MARSHALL GRECHKO
- ❑ DELETED FROM ENGLISH TRANSLATION, BY SPECIFIC REQUEST OF THE U.S.S.R.

Slide 108: Something Russia Doesn't Want the U.S. to Know

But Marshall Grechko said it even plainer.

He made it clear that the Soviet Union has actively searched for great technical breakthrough areas, particularly in discovering new laws of nature, unknown attributes of matter, and new phenomena, and developing their use for defense.

He made it so clear that the Soviet Union formally requested the U.S. State Department to have deleted from its English translation that portion of his book.

That is a positive signature that the statement is exceedingly sensitive to the Soviets. In other words, it's a real tipoff.

So of course the State Department leaned on the publisher and got that section eliminated.

ADDITIONAL NOTES AND REFERENCES

1. Nikola Tesla, "The Problem of Increasing Human Energy," Century magazine, June 1900, p. 208-209. In this article Tesla spoke of using standing waves to produce distant effects and locate objects such as ships. At this point he was thinking of a scalar radar locator, something more advanced than even our radar today. It was also capable of producing electrical effects at any part of the globe. To quote: "Stationary waves... mean something more than telegraphy without wires to any distance... For instance, by their use we may produce at will, from a sending station, an electrical effect in any particular region of the globe; we may determine the relative position or course of a moving object, such as a vessel at sea, the distance traversed by the same, or its speed..."
2. Nikola Tesla, "The True Wireless," Electrical Experimenter, May 1919, p. 87.
3. T. E. Bearden, Comments on the New Tesla Electromagnetics: Part I: Discrepancies in Present EM Theory, Tesla Book Co., 1580 Magnolia, Millbrae, CA 94030, 1982.
4. T. E. Bearden, Toward a New Electromagnetics: Part III: Clarifying the Vector Concept, Tesla Book Co., 1580 Magnolia, Millbrae, CA 94030, 1983.
5. T. E. Bearden, Toward a New Electromagnetics: Part 4: Vectors and Mechanisms Clarified, Tesla Book Co., Millbrae, California, 1983, p. 6, 39.
6. T. E. Bearden, Solutions to Tesla's Secrets and the Soviet Tesla Weapons, Tesla Book company, 1981
7. T. E. Bearden, Tesla's Secrets and the Soviet Tesla Weapons, 1 hr. 40 min. videotape, Weather Engineering, POB 1472, Huntsville, AL 35807, 1981.
8. T. E. Bearden, Soviet Weather Engineering Over North America, 1-hr. videotape, Weather Engineering, POB 1472, Huntsville, AL 35807, 1985.
9. T. E. Bearden, Star Wars Now! The Bohm-Aharonov Effect, Scalar Interferometry, and Soviet Weaponization, Tesla Book Co., 1984
10. Stefan T. Possony, "The Tesla Connection," Defense & Foreign Affairs, Aug. 1984, p. 12-14, 27.
11. Stefan T. Possony, "Psy-War: Soviet device experiment," Defense & Foreign Affairs Daily, 12(104), June 7, 1983, p. 1-2. Reports on Dr. Ross Adey's investigation of the Soviet LIDA device which is used to bombard human brains with radio waves in the 40 MHz region. Also reports on work by A. S. Davydov of the Ukrainian Academy of Sciences, who discovered how the blood-brain barrier can be penetrated by low-frequency radio waves so that brain cells are affected.

12. Fritz Albert Popp, "Photon storage in biological systems," in Electromagnetic Bioinformation: Proceedings of the Symposium, Marburg, Sep. 5, 1977. Edited by Fritz Albert Popp et al, Munchen, Wien, and Baltimore, 1979, p. 123-149. Dr. Popp has discovered, both theoretically and experimentally, that mitogenetic radiation from cells can be seen as a sort of "waste" from a virtual electromagnetic field with a high coherence. This field has a tendency to become stationary over the whole organism. In addition, it includes the storage of "virtual" coherent photons. (In other words, there is a master EM field with high coherence, stationary over the whole body. This is the cells' master control system. Storage of virtual photons -- i.e., scalar signals -- occurs in this field.).

13. To gain an appreciation of the Aharonov-Bohm effect, see Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," Physical Review, Second Series, 115(3), Aug. 1, 1959, p. 485-491. For an exhaustive discussion of the Aharonov-Bohm effect and a large number of references, see S. Olariu and I. Iovitzu Popescu, "The quantum effects of electromagnetic fluxes," Reviews of Modern Physics, 57(2), April 1985. See also Bertram Schwarzschild, "Currents in normal-metal rings exhibit Aharonov-Bohm effect," Physics Today, 39 (1), Jan. 1986, p. 17-20.

14. For details of the mysterious explosions of six major Soviet missile ammunition storage sites in seven months, see photograph, Jane's Defence Weekly, 2(3), July 28, 1984, p. 92; see also Mark Daly, "Goa and Goblet SAMs in Severomorsk explosion," Jane's Defence Weekly, 2(6), Aug. 18, 1984, p. 224; Derek Wood, "Soviets' northern fleet disabled... 'not viable' for six months," Jane's Defence Weekly, 2(1), July 14, 1984, p.3; Derek Wood, "Six explosions in the past seven months," Jane's Defence Weekly, 2(1), July 14, 1984, p. 3; John Moore, "The aftermath of Severomorsk," Jane's Defence Weekly, 2(6), Aug. 18, 1984, p. 224.

15. For details of the mysterious, instant deaths in Afghanistan, see Yossef Bodansky, "Soviets testing chemical agents in Afghanistan," Jane's Defence Weekly, 1(13), Apr. 7, 1984, p. 508.

16. For details of the Enhanced-V cloud signature of severe weather, see Gary Ellrod, "Dramatic examples of thunderstorm top warming related to downbursts," National Weather Digest, 10(2), May 1985, p. 7-13; T. J. Fujita, "Manual or Downburst Identification for Project Nimrod," SMRP Research Paper No.156, University of Chicago, 1978; D. W.McCann, ., The Enhanced-V: A Satellite Observable Severe Storm Signature," Monthly Weather Review, 111, 1978, p. 887-894.

17. For a good discussion of the modern view of the vacuum, see I.J.R. Aitchison, "Nothing's plenty: The vacuum in modern quantum field theory," Contemporary Physics, 26(4), 1985, p. 333-391.

18. For a discussion of the ring interferometer experiments related to quantum and gravitational effects, see G.E. Stedman, "Ring interferometric tests of classical and quantum gravity," Contemporary Physics, 26(4), 1985, p. 311-332.

19. For information on self-induced transparency with pulsated light, see E. L. Hahn, Scientific American, June 1967. This is a scalar EM effect. The phenomenon is observed only in insulators, not in conducting materials. A dielectric tends to stop the flow of electrons, thus stopping the bleed-off of the Kaluza-Klein 5-potential as EM force fields. Thus through the insulator or dielectric, an electrogravitational pulse is transmitted. When this pulse emerges from the other side of the

dielectric, then electrons are free to move again and form ordinary EM fields, resulting in resumed EM bleed-off of the KK (Kaluza-Klein) 5-potential. Thus ordinary photons strike the dielectric, changing into electrogravitational waves which transit the opaque dielectric, and these EG waves transform back to EM waves on the far side of the dielectric. Advanced scalar EM application of this effect can make an object optically invisible.

20. For a lucid and profound presentation of the entire subject of elementary particle physics and quantum field theory, see T. D. Lee, Particle physics and introduction to field theory, Harwood Academic Publishers, New York, 1967. Subjects covered include those at the forefront of current research. Chapter 16, "Vacuum as the source of asymmetry," is particularly important. Here Lee concisely covers the idea of degenerate vacuum states, vacuum structuring, and vacuum effects causing symmetry breaking (violation of conservation laws). An excellent coverage of asymmetries and observables is given on p.181-188. For example, whenever symmetry is spontaneously broken, a nonobservable (virtual entity) has become observable. Thus there exist mechanisms for the direct translation between virtual and observable states.

Most engineers are unaware that physics has already rigorously proven (both theoretically and experimentally) that conservation of energy can be physically violated, even by excitation of the vacuum.

However, in the present assumption of a randomized virtual microstructure of a vacuum potential, these broken symmetry effects are individually confined to very small microlevels. For example, on p. 383, Lee points out that the microscopic structure of the scalar vacuum field (i.e., of vacuum charge or "potential") is not utilized.

This of course is reasonable if all vacuum potentials used in particle physics are treated as having a randomized microstructure of virtual particle flux vectors. Since any appreciable directional coherence in such a randomized microstructure could persist only over extremely tiny distances, then the microstructure of vacuum degenerate states has negligible local effects in ordinary macroscopic systems.

In other words, these conservation violation effects would be very difficult to coherently capture and utilize to provide "free energy, emerging from the vacuum."

The randomized momentary coherences, however, are responsible for the violent microfluctuations of the EM fields, well-known in classical electrodynamics. An approach such as taken by Yater or Moray would be necessary to achieve a vacuum energy tap under such conditions. To achieve usable macroeffects, a very large collection of charge or magnetic material, etc. would be required before the probability of usable coherences would become sufficiently large. Therefore this area is neglected in practical physics and engineering.

However, this is precisely where scalar EM is lost in conventional theory and engineering practice. In scalar EM, the coupling together of macroscopic EM force field vectors into a summed zero system means that the vacuum potential's microstructure is now macroscopically ordered by that system. Further, it is sustained during translation through space. In such case, one has produced directional gravitational potential gradients that have macroscopic range and form. Further, by coherently varying the amplitude of the individual components of the zero vector system, a gravitational wave -- a controlled oscillation of the degenerate states or vacuum -- is produced. By processing the EM components, this gravitational wave can be narrowed, formed into a beam, and projected. Two such beams can be interfered, even at a great distance, producing G-interference and causing EM effects to emerge in the distant interference zone. Thus scalar EM profoundly affects quantum mechanics, quantum field theory, particle physics, general relativity, and electromagnetics.

21. For some strong and pertinent critique of present scientific bias, see Ruggero Maria Santilli, Ethical probe on Einstein's followers in the U.S.A.: An insider's view, Alpha Publishing, POB 82, Newtonville, MA 02160. Santilli is a highly published physicist and the editor of a refereed scientific journal, the Hadronic Journal. After lengthy attempts to correct injustices within the Scientific system, to no avail, he finally has gone public with his specific charges. Santilli references senior Russian physicist G. Yu. Bogoslovsky, whose 1984 paper "Generalization of Einstein's relativity theory for the anisotropic spacetime," whose research would have been impossible in the U.S. Quoting Santilli: "He would have been discredited, humiliated, and chased out of these institutions [Harvard, M.I.T., and Yale] beyond any reasonable doubt by ample documentation on similar cases." Again to quote Santilli: "Papers bearing the title of 'Generalization of Einstein's relativity' are routinely permitted with human dignity at Moscow University in the U.S.S.R., but they are absolutely inconceivable today at the departments of physics of Harvard University, of the Massachusetts Institute of Technology, of Yale University and of other similar institutions in the U.S.A., as numerous senior scientists would readily testify."

You see, dear reader, there has been a deep scientific conspiracy in the U.S. to prevent any change in the severe restrictions placed on general relativity by Einstein. This has reduced GR to a sort of "special relativity, with only distant perturbations." Specifically, it has excluded scalar electromagnetics and branded as heresy the inconceivable idea that general relativity could be local, and engineerable.

Now you know why the Soviets have been able to develop these monstrous weapons for over three decades while our scientists slept at the wheel. Scientific arrogance and pride has been our greatest enemy.

See also Bryan G. Wallace, "The great speed of light in space coverup," Scientific Ethics, 1(1), Feb. 1985, p. 2-3; "Radar testing of the relative velocity of light in space," Spectrosc. Lett. 2, 1969, p. 361; Wallace, "Letter to the editor," Physics Today, 36(1), 1983, p. 11; "Letter to the editor," Physics Today, 37(6), 1984, p. 15. See M.E. Ash et al, Astron. J., 72, 1967, p. 72. Direct experiments on Einstein's second postulate, in the 1961 interplanetary radar contact with Venus, challenge whether relativity is correct. Variations of over 30,000% of the best possible general relativity fit the MIT Lincoln Lab could generate were measured. The variations were not random but contained diurnal, lunar, and synodic periodic components. See also Bryan G. Wallace, Spectrosc. Lett. 4, 1971, p. 79 for an analysis of published 1961 data on the interplanetary radar contact with Venus that concludes that the data showed a component that was relativistic in the Galilean $c+v$ sense. See also Wallace, "The Unified Quantum electrodynamic ether," Foundations of Physics, 3, 1973, p. 381. which details Measurements strongly challenging the Einstein assumption of the constant velocity of light, and deals with the nature of the ether. See also Thomas E. Phipps, Jr., "Critique of accepted theories of special relativity and electromagnetism," Scientific Ethics, 1(2), Apr. 1985, p. 17-23.

22. For a sample of Soviet scientific freedom from narrow-minded bias in general relativity, see V. I. Denisov and A. A. Logunov, "The inertial mass defined in the general theory of relativity has no physical meaning," Teor. i Matemat. Fizika, 51(2), May 1982, p. 163-170 (In Russian). See also A. A. Vlassov and V. I. Denisov, "Einstein's formula for gravitational radiation is not a consequence of the general theory of relativity," Teor. i. Matemat. Fizika, 53(3), Dec. 1982, p. 406-418. Here we find that the intensity of gravitational radiation and the total intensity determined in the general theory of relativity in accordance with Einstein's formulas depend on the choice of the coordinate system, so that they can be made to vanish or even become negative. [Note by T.E.B.: If local curvature is

engineerable, as in scalar EM, the local choice of coordinate systems can itself be directly engineered. This clearly implies that scalar EM can thus produce either "positive" intensity radiation or "negative" intensity radiation; thus it can "produce energy at a distance" or "extract energy from a distance.]"

Continuing with Denisov: This result is a particular consequence of the general assertion to the effect that in general relativity there are no energy-momentum conservation laws for a system consisting of matter and the gravitational field. [Note by T.E.B.: Thus we can have an energy source or energy sink appear in the distant interference region, where matter has been lifted from the Dirac sea and exposed to the highly nonlinear interfering EG fields.]. See also V. I. Denisov and A. A. Logunov, "New theory of spacetime and gravitation, "Teor. and Matemat. Fizika, 50(1), July 1982, p. 3-76. Points out that "... the gravitational field in general relativity is completely different from other physical fields and is not a field in the spirit of Faraday and Maxwell." (p. 3, English version).

23. In the Proceedings of the Tesla Centennial Symposium, an IEEE Centennial Activity, Colorado College, Colorado Springs, Colorado, Aug. 9-11, 1984, see Richard A. Blade, "Modification of Maxwell's equations in free space to account for nonzero photon mass and scalar electromagnetic waves," p. 91-92; Jack Y. Dea, "Scalar fields: their prediction from classical electromagnetism and interpretation from quantum mechanics," p. 94-98; Robert W. Bass, "Self-sustained non-Hertzian longitudinal wave oscillations as rigorous solutions of Maxwell's equations of electromagnetic radiation," p. 89-90; T. E. Bearden, "Tesla's electromagnetics and its Soviet weaponization," p. 119-138.

24. To see the limiting assumptions imposed on general relativity that results in the severely restricted "ordinary general relativity" taught in almost all Western universities. see Charles W. Misner, Kip S. Thorne and John Archibald Wheeler, Gravitation, W. H. Freeman and Co., San Francisco, CA, 1973, p. 19-21, 71-72, 367-369. Among other things, these arbitrary restrictions save the conservation laws. When they are removed. the conservation laws can be violated.

25. Several anomalous events -- skyquakes, booms, or earthquakes -- have been documented in Europe. See H. W. Haak. "The Seismic event of November 9, 1983: Earthquake or sonic boom." Seismic Activity in Western Europe, (With particular consideration of the Liege Earthquake of November 8, 1983), Ed. by Paul Melchior, D. Reidel Publishing Co., 1985, p. 215-222. For such events in the United States, see S. Claflin-Chalton and G. J. MacDonald, "Sound and light phenomena," The Mitre Corporation, McLean, Virginia 22102, Nov. 1978.

26. Fundamental experiments were performed by Eotvos et al. in the early 1920s. See R.V. Eotvos, D. Pekar and E. Fekete, Ann. Phys. (Leipzig) 68, 1922, p. 11. Actually a fifth force of nature due to hypercharge may have been found by these experiments. See Ephraim Fischbach et al. "Reanalysis of the Eotvos experiment," Physical Review Letters, 56(1), Jan. 6, 1986, p. 3-6. See also F. D. Stacey and G. J. Tuck, Nature 292, 230 (1981); S. C. Holding and G. J. Tuck, Nature 307, 714 (1984); G. W. Gibbons and B. F. Whiting, Nature 291, 636 (1981); F. D. Stacey, in Science Underground, edited by M. M. Nieto et al., AIP Conference proceedings No. 96, (American Institute of Physics, New York, 1983, p. 285. See also S. H. Aronson et al, Physical Review Letters 48, 1982, p.1306; Physical Review D 28, 1983, p. 476, 495. Also, comparison of satellite and terrestrial determinations of the gravitational field constant reveals significant disagreement: see R. H. Rapp, Geophys. Res. Lett. 7, 1974, p. 35; Bull. Geod. 51, 1977, p. 301.

27. John J. A. O'Neill. "Tesla cosmic ray motor may transmit power 'round the earth: Famed scientist, on eve of 76th birthday, says he has succeeded in harnessing 'penetrating rays' to operate small motive device." Brooklyn Eagle, July 10, 1932. Tesla reported he had harnessed "cosmic rays" and caused them to operate a small motive device. Tesla's use of "cosmic rays," however, encompassed scalar EM radiation. Tesla later seems to have progressed to a simpler motive unit. In the Kansas City Journal-Post, Sep. 10, 1933, he stated: My power generator will be of the simplest kind -- just a big mass of steel, copper and aluminum, comprising a stationary and rotating part, peculiarly assembled." A similar type of "gravitational turbine" seems to have been invented by John Bedini.

28. To see just how arbitrary and postulational are present "definitions" of mass and force, see Robert Bruce Lindsay and Henry Margenau, Foundations of Physics, Dover Publications, New York, 1963, p. 283-287. Note on p. 283 that a "field of force" at any point is actually defined only for the case when a unit mass is present at that point. Also see Richard P. Feynman, Robert B. Leighton, and Matthew Sands, The Feynman Lectures on Physics, Addison-Wesley, New York, Vol. 1, 1963, p. 2-4 for a definition of the electric field in the context of its potentiality for producing a force. This problem did not exist for the original foundation of electromagnetic force fields in vacuum, since the vacuum was assumed to be a material ether. With the modern view a nonmaterial ether has emerged, yet the classical electromagnetic theory has not been made sufficiently rigorous in distinguishing "observable" and "virtual" electromagnetic force fields.

29. E. P. Battey-Pratt and T. J. Racey, "Geometric Model for Fundamental Particles," International Journal of Physics, Vol. 19, No. 6, 1980, p. 437-475.

30. Some years ago, Dr. William Tiller produced very important "free A-field" theoretical work which showed waves which did not fall off as $1/r^2$. Interesting theoretical work in scalar wave theory has also been advanced by Dea. See Jack Dea, "Fundamental Fields and Phase Information," presented at the 1985 U.S. Psychotronics Association Conference, Bergamo Center, Dayton, Ohio, July 1985. Dea has formulated an important theory for vacuum EM scalar waves, derived from Maxwell's equations with zero E and B fields. He predicts waves whose intensity falls off with distance as $1/r$ instead of $1/r^2$, and detection of these waves by various means. He shows simple generators for the waves. Detection is quantum mechanically by electron interference, not by single electrons. Thus such scalar waves will pass through normal Faraday shields. In his theory Dea does not address the question of spin vortexes in vacuum scalar waves. It is the present author's view that all vacuum waves are scalar waves, and the primary distinction between the "transverse" EM wave and the longitudinal scalar wave is simply the presence or absence of spin-vortexes. Indeed, one may argue that the present "vector wave" EM theory can be replaced by a scalar wave theory. In 1903 Whittaker proved that any vector field can be replaced by two scalar fields. See E. T. Whittaker, Proc. Lond. Math. Soc. 1, 367, 1903. By implication, since a vector wave is simply a moving vector field, it can be replaced by two moving scalar fields.

31. David Jones, "Israel's Secret Weapon," Weekend Magazine, Dec. 17, 1977.

32. John Hutchinson, private communication. Masses of wood, metal, etc. -- some weighing over 60 lbs. -- have been levitated by Hutchinson.

33. For a description and details of the April 9, 1984 incident off Japan, see Daniel A. Walker, Charles S. McCreery, and Fermin J. Oliveira, "Kaitoku Seamount and the Mystery Cloud of 9 April

1984," Science, 227(4684), Feb. 8, 1985, p. 607-611. See also transcription from Japan Airlines flight 036 to Anchorage International Flight Service, 9 April 1984, at 1406 Greenwich mean time, Federal Aviation Administration (FAA) — Alaska Region; Jim Derry, Special Agent, FAA-Alaska Region, interviews with Captain C.H. McDade, Japan Airlines Flight 036, with Captain Cornelis Vander Berg, KLM Royal Dutch Airlines Flight 868; with First Officer Reint Sol, KLM Royal Dutch Airlines Flight 868, and with Captain Mike Howe, Flying Tiger Lines Flight 078, Anchorage Daily News, 10 April 1984, p. A-1; Anchorage Daily News, 12 April 1984, p. A-1; Honolulu Advertiser, 10 April 1984, p. B-1; Newsweek, 30 April 1984, p. 25, Gregg Ripee, "Mushroom cloud sighted off Japan," Los Angeles Daily News, 11 April 1984, p. 1,8; Ross Gelbspan, "Mystery cloud baffles scientists," Boston Sunday Globe, 13 Jan. 1985, p. 1, 14; T.E. Bearden, Soviet Weather Engineering Over North America, 1-hr. videotape, 1985. See also McKenna, Daniel L. & Daniel Walker, "Mystery Cloud: Additional Observations", Science, 234(4775), Oct. 24, 1986, p. 412-413.

34. For a description of the April 11, 1963 anomalous underwater explosion north of Puerto Rico, see Robert J. Durant, "An Underwater Explosion — or What?", Pursuit, 5(2), April 1972, p. 30-31.

35. For details of the loss of the U.S.S. Thresher and the interference experienced by the U.S.S. Skylark, see John Bentley, The Thresher Disaster, Doubleday, Garden City, N. Y., 1975, particularly p. 164. Some of the communications systems of the Skylark experienced temporary failure, but were not disabled, later resuming operation.

36. The Soviet Union has a well-established history of interfering with and destroying aircraft; for example, for a listing see "Soviet and Warsaw Pact air incidents," Jane's Defence Weekly, 3(2), Jan. 12, 1985, p. 58.

37. For details of the anomalous "nuclear flashes" detected by U.S. Vela satellites, see "Scientists Fail to Solve Vela mystery," Science, 207, 1 Feb. 1980, p. 504-506. "Satellite Evidence Shows 'possibility' of Nuclear Test, DOD Says," Aerospace Daily, Oct. 29, 1979, p. 286. "A Flash of Light," Newsweek, Nov. 5, 1979, p. 64-65. "Was It a Nuclear Device?", Newsweek, July 21, 1980, p. 19. "Diverging Views," Washington Roundup, Aviation Week & Space Technology, July 21, 1980, p. 15. Philip J. Klass, "Clandestine Nuclear Test Doubted," Aviation Week & Space Technology, Aug. 11, 1980, p. 67, 69, 71-72. "Debate continues on the Bomb That Wasn't," Science, 209, 1 Aug. 1980, p. 572-573. "Navy Lab Concludes the Vela Saw a Bomb," Science, 209, 29 Aug. 1980, p. 996-997. See also Jack Anderson and Dale Van Atta, United Press Syndicate, "CIA knew South African-Israeli nuclear test was coming," Birmingham Post-Herald, Apr. 26, 1985, p. A5. The latter article repeats the CIA/DIA argument that the Vela incidents represent concurrent South African-Israeli testing of atomic weapons. Taiwan is considered a possible third partner. According to Anderson and Van Atta, a South African navy contingent was "in the area" at the time of the 1979 Vela detection, and Israel and South Africa were cooperating on an atomic bomb project as early as 1966. Apparently U.S. announcement of an impending South African atomic test in the Kalahari Desert in 1977 led to such an outcry that the test was suspended. Anderson and Van Atta cite succeeding visits to South Africa by Israeli scientists, technicians, and defense officials. However, since the actual Vela detections showed some deviations from what would be expected from nuclear tests, one can speculate that Anderson and Van Atta have presented evidence for the development of scalar electromagnetic weapons by two additional countries. One may further speculate that this could reveal what has been checking the Soviets from simply moving against the West with scalar electromagnetic weapons.

Indeed, the mysterious destruction of six major Soviet missile ammunition storage areas within the space of seven months could have been a preemptive measure and warning to the Soviets if they had actually been considering moving against the West. Also, other incidents reported in the South Atlantic may possibly be associated with the program producing the "Vela flashes." For example, see N.W.C. Rutherford, "Unidentified Phenomena," Marine Observer, 51, 1981, p. 186 for a description of a great bluish-white flash and small bolt of lightning, indicating some sort of anomalous electrical discharge, on Dec. 23, 1980 at 2245 hours (10:45 p.m.). Many other anomalous flashes for which no known causative mechanism exists have been detected by satellites. For example, the OSO-2 and OSO-5 satellites have detected about one mysterious short (less than 0.1 sec) flash about every ten orbits, at times when the fields of view of the telescopes were well above the earth. As many as three of the satellite's photometers have detected a flash simultaneously. These flashes must be removed from any discussion of satellite-observed lightning; see J. G. Sparrow and E. P. Ney, "Lightning Observations by Satellite," Nature, 232, 1971, p. 540.

38. For a description of sightings of enormous glowing globes of light deep within the Soviet Union in the direction of Saryshagan, see Gwynne Roberts, "Witness to a Super Weapon?", The Sunday Times, London, England, Aug. 17, 1980. Several incidents were observed by Downie and others.

39. For an artist's conception of a directed energy weapon installation at Saryshagan, see Aviation Week & Space Technology, July 28, 1980, p. 48. For a DOD sketch, see Soviet Military Power, 1985. Obviously classically-trained U.S. military analysts, with no knowledge of scalar interferometry, have not considered the installation as a candidate hyperspatial howitzer.

40. For a description of multiple pilot sighting (from Iran) of an enormous glowing globe of light deep within the Soviet Union, see Central Intelligence Agency (CIA) Information Report No. CO-B-321/15354-66, "Sighting of Unusual Phenomenon on Horizon Near Iranian/USSR Border," Sep. 8, 1966, released on 15 Dec. 1978 under the Freedom of Information Act (FOIA). The sighting occurred at 2142 hours (9:42 p.m.).

41. For details of sighting of the intensely glowing ball of light near British European Airways flight 831 between Moscow and London, see CIA Foreign Intelligence Information Report CO-B-324/33601-76, "Aerial observation of intense Source of Light," Nov. 18, 1976, released on 15 Dec. 1978 under the FOIA. The incident occurred between 1800 and 1900 hours (6:00-7:00 p.m.). The light was observed for 10-15 minutes, until the aircraft had flown past and left the light behind.

42. For other examples of pertinent light phenomena: F. S. Angus and G. Carling, "Optical Phenomenon: Caribbean Sea; Western North Atlantic," Marine Observer, 40, Jan. 1970, p. 17-18; R. A. Holmes, "Unidentified Phenomenon, off Barbados, West Indies," Marine Observer, 40(229), July 1970, p. 107-108; H. K. Dyer, "Unidentified Phenomenon: Western North Atlantic," Marine Observer, 43, July 1973, p.114. For a 1961 double concentric hemispheric shape observed in the Indian Ocean, see Marine Observer, 32, 1962, p. 64. For a particularly significant combination of forms, see Marine Observer, "Unidentified Phenomenon," 48, 1978, p. 21-22. Also, on the night of July 26, 1984 the pilot and crew of a Boeing 747 (American carrier) flying from Tokyo to Fairbanks, near the Kuriel Islands, at 47 5'44" N: 161 00'05" E, noticed a slowly expanding hemisphere of white light off to their left above the horizon. The shell of light continued to expand over a 10-minute

period until ahead of them and to the right. The crew braced for a shock wave which never arrived. Their weather radar saw nothing out of the ordinary. The shell of light had sharp edges and was semi-transparent so that stars became visible through it. (Richard F. Haines, private communication, Sept. 27, 1984). See also Richard Hall, "Aerial anomalies at sea," The Info Journal, 4(3), May 1975, p. 6-9 for an unusual light phenomenon seen in the Caribbean by the R.M.S. Carmania (British). The phenomenon occurred four times at precise hourly intervals, strongly suggesting an artificial origin. See also F. Shepherd, "Cloud: Strait of Gibraltar," Marine Observer, 51(273), July 1981, p. 107-108 for an incident of associated cloud, arch, and anomalous pressure effects. For another significant airline sighting by Japan Airlines flights 403 and 421 of a giant, expanding globe of light on June 18, 1982, in the North Pacific, 100 km. east of Kushiro, see the Asahi Evening News, Tokyo, Japan, June 22, 1982. For additional evidence that nomadic tribesmen passing through Kazakhstan repeatedly observe such gigantic light phenomena in close association with Saryshagan missile test range, and that Soviet deception planners foster the notion of "UFO activity" as a Red Herring, see Robert Jackson, "KGB takes to the flying saucers!", Northern Echo, Darlington, England, March 15, 1984.

43. For details of Khrushchev's announcement of a Soviet superweapon, see Max Frankel, "Khrushchev Says Soviet Will Cut Forces a Third; Sees 'Fantastic Weapon'", New York Times, Jan. 15, 1960, p. 1.

44. See Christopher S. Wren, "Brezhnev Calls for Accord against 'Terrifying Arms,'" New York Times, June 14, 1975, p. 1, 11. In a major Kremlin speech on June 13, 1975, Leonid I. Brezhnev included a statement that one major concern not covered by existing agreements was "assuming ever greater urgency with each passing day." Calling for a ban on new weapons of mass destruction, the Soviet leader stated: "The level of modern technology is such that a serious danger arises of creating weapons more terrifying than nuclear ones." He stated, "The reason and conscience of humanity dictate the necessity of erecting an insurmountable barrier to the development of such weapons." See also Malcolm W. Browne, "Senatorial Group Received by Brezhnev," New York Times, July 3, 1975, p. 2. Leonid Brezhnev repeated his proposal to a group of U.S. senators on July 2, stating that the capability to develop more terrible weapons was obvious. He emphasized, however, that he "had no particular weapon in mind." Here he may have been deliberately misleading the U.S. senators, to prevent revealing that the Soviet Union had already developed such weapons, and was horrified at their potential for total destruction. E.g., if massive and rapid scalar explosions occur, the linearity of spacetime -- and the orderly flow of time itself -- may be seriously perturbed throughout the earth and its adjacent space. From a general relativistic viewpoint, such an event might well prove catastrophic for the entire biosphere. Boris N. Ponomarev, a Soviet national party secretary, again raised the same issue to a delegation of visiting U.S. congressmen in the Kremlin on Aug. 11, 1975; see Christopher S. Wren, "Moscow Now Pressing Disarmament." New York Times, Aug. 12, 1975, p. 6. At the United Nation's thirtieth session of the General Assembly on Sept. 23, 1975, Foreign minister Andrei A. Gromyko strongly raised the same issue, warning that science can produce "ominous" new weapons of mass destruction. He urged that all countries, led first by the major powers, should sign an agreement to ban the development of these unspecified new weapons. He even offered a draft, entitled "Prohibition of the Development and Manufacture of New Types of Weapons of Mass Annihilation and of New Systems of Such Weapons." The first article provided that the types of these new weapons would be "specified through negotiations on the subject." Because of its fixation on nuclear weapons, the West may have lost its only opportunity to prevent the spread of scalar electromagnetic weapons of power unprecedented even by nuclear arms. Of course, it may also have

been a Soviet ploy to prohibit the U.S. from developing scalar electromagnetics defensive weaponry to counter the massive strategic scalar electromagnetics weapons already developed, tested, and deployed by the Soviet Union. Certainly in 1973 at a secret meeting in Prague with European communist leaders, Brezhnev had laid out a firm statement of Soviet domination of the world by 1985. See "Secret Speech: Did Brezhnev Come Clean?", National Review, 29(8), Mar. 4, 1977, p. 248, 250. Brezhnev's speech contained statements such as: "We are achieving with detente what our predecessors have been unable to achieve using the mailed fist...come 1985 we will be able to extend our will wherever we need to." Brezhnev stated the Soviet Union would control the oceans of the world, 90% of the land, and the air and space above. A front-page Boston Globe article on Feb. 11, 1975 was the first to carry the story. A copy of Brezhnev's secret speech was obtained by British intelligence in 1973, but denigrated by Secretary of State Kissinger. Apparently the first official U.S. reference to Brezhnev's startling speech did not appear until the 1976 National Intelligence Estimate. Although the big intelligence bureaucracies can do a fantastic job with "current intelligence," their record at predicting a drastic change is woeful, precisely because of the political nature of bureaucracies. See "What is Intelligence," Colonel William V. Kennedy et al, Intelligence Warfare: Penetrating the Secret World of Today's Advanced Technology Conflict, with an introduction by Dr. Ray S. Cline, Crescent Books, New York, 1983, p. 8-23. Intelligence Warfare is heartily recommended as the single book which best gives the reader a grasp of modern technical intelligence organizations, capabilities, and operations.

45. For details of Soviet weather engineering operations over the U.S., see Thomas E. Bearden, "USSR: New beam energy possible?", Defense & Foreign Affairs Daily, 13(111), June 12, 1984, p. 1-2. Cloud signature patterns reported in the article have been repeatedly sighted over multiple areas in the U.S. A series of anomalous "hole in the cloud" patterns, possibly associated with early Soviet weather engineering efforts over the U.S., was widely seen in 1967-68. See Weatherwise, 21(4), Aug. 1968, cover and p. 143; 21(5), Oct. 1968, p. 194-195, 204-205; 21(6), Dec. 1968, p. 238-245. Peculiar stationary blocking patterns have also been observed to occur and influence weather over the U.S., leading to severities such as the winter of 1976-77. See K. K. Tung and R. S. Lindzen, "A theory of stationary long waves, Part 1, A simple theory of blocking; Part 2: Resonant Rossby waves in the presence of realistic vertical shears; Part 3, Quasi-normal modes in a singular waveguide," Monthly Weather Review, 107(6), June 1979, p. 714-774. See also T. E. Bearden, Soviet Weather Engineering Over North America, videotape, 1985 for an expose on the physics and some major incidents of major Soviet weather engineering, including details and photographs of cloud signature patterns. See also C. B. Baker, "Soviet Weather Mayhem," Youth Action News, Nov. 1983, P.O.B. 312, Alexandria, Virginia 22313, p. 1-8; C. B. Baker, "Diabolic Soviet Warfare," Youth Action News, Nov. 1984; For a conventional Soviet look at weather modification (possibly intended to mislead the West), see E. T. Protasevich, "Microwave weather modification," Soviet Technical Physics Letters, 7(3), March 1981, p. 114-115. For a downburst mechanism, see Gary Ellrod, "Dramatic examples of thunderstorm top warming related to downbursts," National Weather Digest, 10(2) May 1985, p. 7-13. See Art and Kay Westermann, Weather War — Worldwide, Liberty Bell Books, POB 288, Sedona, Arizona 86336, 1983. See also U.S. Senate Resolution on Environmental warfare, July 11, 1973.

46. For details of the Soviet Woodpecker beams bending around the earth and intersecting over the U. S., see Christopher Chant and Ian Hogg, Nuclear War in the 1980's?, Harper & Row, New York, 1983, p. 71. See also Soviet Military Power, U.S. Department of Defense, 1985, p. 45. The

intersection forms an interference grid. Scalar EM channels added to the Woodpecker carriers then provide a corresponding scalar EM interference grid in the scalar area.

When adjusting the scalar interferometry components of the grid, bursts in the interference and discharges of energy as well as bursts of energy extractions occur. This leads to the production of anomalous aerial phenomena such as explosions, rumblings, airquakes, etc. In addition, direct Bohm-Aharonov forces may be engendered in ground structures, shaking buildings and windows, etc. without seismic disturbances. Such anomalous disturbances have been widely noted in the open U.S. press. E.g., particularly see Kenneth F. Bunting and Daniel M. Weintraub, "Mysterious Rumbles Jar Southland," Los Angeles Times, Dec. 8, 1984, CC(II), p. 1,10; Let Scarr, "People shook up over mystery shakes," The San Diego Union, Dec. 8, 1984, p. B1, 4. Following this and a Dec. series of anomalous aerial disturbances off the Los Angeles/San Diego coast, a sharp and unexpected weather front appeared, racking the area with high winds on the night of Dec. 12, producing widespread damage and power outages. The newly-formed front moved on to produce significant snowstorms in other areas. See Ted Thackery, Jr., "Winds Kill Two, Wreak Havoc as They Sweep Through the Southland," Los Angeles Times, Dec. 14, 1984, MF/Part II, p. 1,8; "Even Tucson gets snow in storm that dumps 20 inches," AP release, Los Angeles Herald Examiner, Dec. 14, 1984, p. A-12. During several months prior to the December 1984 Los Angeles incident, anomalous electrical failures and outages had occurred in the San Diego and Southern California area, possibly due to scalar interferometry adjustments in the Woodpecker grid over the area. For other typical incidents possibly associated with adjustment of the interference grid, see "Who boomed? Odd Noise unnerves Ohioans," Journal, Milwaukee, Wisconsin, Dec. 28, 1982; "Tremors shake Miss. Gulf Coast," Times-Picayune, New Orleans, Louisiana, Feb. 27, 1983; Sandra Skowron, "Sonic boom is just Mother Nature," Beaver Co. Times, Beaver Falls, Penn., Jan 13, 1983; "Booms in Rockland," New York Times, Mar. 1. 1979, Sec. 8, p. 82; "Loud 'boom' unexplained," Star-Beacon, Ashtabula, Ohio, Feb. 21, 1983; Paul Senecton, "The word is now IDENTIFIED," Mail, Hartlepool, England, Feb. 3, 1985: On Jan. 23, 1974 a mysterious explosion over North Wales rocked a 60-mile radius area. Associated anomalous light phenomena were also seen. Hundreds and hundreds of anomalous booms, aerial rumblings, and aerial explosions, many accompanied by flashes or anomalous shaking of ground structures, buildings, windows, etc., have occurred over the U.S. and other Western nations in the 60's, 70's, and 80's.

On occasion, an aircraft at the proper altitude and position can conceivably experience interference in its electrical systems and in its engine combustion processes due to exothermic kindling or endothermic extraction of electromagnetic energy. The combustion processes of aircraft engines produce highly ionized gases in very nonlinear conditions. These can act as strong dephasers and decouplers of the vector EM components of a vector zero summation in a scalar interference zone. Exothermic interference would have little effect on combustion, but strong endothermic interference can result in engine flameout. Anomalous simultaneous failure of jet and propeller-driven aircraft engines sometimes occurs. For high altitude grids, this can result in engine flameouts, but restart and recovery after unusual loss of altitude has dropped the aircraft out of the scalar interference zone. Several candidate incidents over and near the U.S. exist, particularly where power failures were experienced by multiple aircraft. The more usual exothermic case, however, if substantial could result in anomalous loss of control of the aircraft. For a recent candidate incident, see "Jetliner drops 32,000 feet; 400 aboard; 50 are injured," Associated Press release, Huntsville Times, Feb. 20, 1985, p. 1 and "China Airlines Pilot Denies Cockpit Error," Associated Press release, Huntsville Times, Feb. 21,

1985, p. A-9. Deliberate use of this effect as an anti-strategic-bomber weapon capable of destroying bombers at or shortly after takeoff is possible (the Arrow DC-8 which crashed just after takeoff from Gander Air Force Base, Newfoundland on December 12, 1985 may have been deliberately interfered with by just such a Soviet weapon -- see extensive newspaper and TV news coverage of that event).

In scalar EM interference with aircraft, certain signatures may occur. Different instruments may sharply contradict each other, since their activation and inactivation is no longer a simple function. The pilot's instrument panel, for example, may indicate failure of the control system, when actually it has not failed, and the flight recorder may record that the control system is still operating. In such case, the pilot may take proper action based on his own instrumental readings, yet these actions may be contraindicated for the actual status of the aircraft, resulting in opposing pilot/autopilot actions. Tentative indications of the jetliner that anomalously dropped 32,000 feet and recovered are that apparently such anomalous instrument disagreements occurred. Another signature is that, as the EM charge accumulates in and on the aircraft, its skin charges up electrically, producing a glowing corona similar to St. Elmo's fire. The Arrow DC-8 was observed to be glowing yellow by eyewitnesses, according to the Canadian Broadcast Corporation's 10:00 p.m. network TV news on April 8, 1986.

47. T. E. Bearden, Star Wars Now! The Bohm-Aharonov Effect, Scalar Interferometry, and Soviet Weaponization, Tesla Book Co., Millbrae, California, 1984, p. 19-22.

48. For a paper possibly related to the first Bedini scalar wave detector from the "free A-field is a scalar field" view, see Robert R. Lewis, "Aharonov-Bohm effect for trapped ions," Physical Review A, 28(3), Sept. 1983, p. 1228-1235. This paper analyzes the role of the Aharonov-Bohm effect for the bound states of a charged particle in the superposition of two fields: a uniform magnetic field plus the vector potential of a solenoid. Gives exact solutions for a solenoid of zero size and discusses the corrections due to a solenoid of finite size. Shows that a series of new "betatron resonances" appear in the spectrum, dependent on the flux quantum number. The fundamental betatron resonance remains narrow and unshifted for solenoid radii large enough to broaden and shift the cyclotron resonance. See also W. Ehrenburg and R. E. Siday, Proc. Phys. Soc. London, Sect. B62, 1949, p. 8 which, among other things, discusses the effect of the vector potential in electron interferometry, where the insertion of a tiny solenoid between the interfering paths is shown to give an additional phase difference proportional to the flux through the solenoid. The resulting shift in the fringe system is called the Aharonov-Bohm effect.

49. Frank Golden has developed a most important and precise scalar EM detection system to display scalar EM signals on a cathode ray tube. His important measurements have mapped the scalar resonant frequency responses of the entire earth. Two completely different types of scalar instrumentation show precise agreement on the frequency maps. The measurements show that the Soviet Union has for some time entrained the entire earth into giant scalar electromagnetic resonances on two frequencies approximately 12 kilohertz apart. It is the opinion of the author that the beat frequency between these two giant resonances is utilized by the Soviet Union to extract enormous power from the earth, essentially by a mechanism that Golden has uncovered. A complex of four to eight weapon systems might reasonably be powered from the single bi-resonant tapping source. In April 1985 Golden discovered the rather sudden activation of many other scalar frequencies with characteristics resembling command and control communications. In addition, a significant number of additional paired scalar resonances had been entrained upon the earth. It is the

opinion of the author that this showed a major activation of the Soviet strategic scalar electromagnetic defense system, with the power up of from 80 to 100 weapons, along with the complete command and control system. Golden has previously built a prototype of an actual Soviet scalar communications system and demonstrated that it works. Because of the impending mayday and the 1973 statement by Brezhnev indicating that 1985 was a critical planning year, the sudden activation of such massive numbers of weapons and communications was alarming. Accordingly, the author discreetly notified certain contacts to alert the U.S. system. Golden then detected the periodic turn-on and turn-off of the systems, indicating a large command and control exercise rather than preparations for direct tactical use. An additional difference, however, was the change from scalar electric to scalar magnetic field on many of the large transmitters. This is indicative of electrostatic location, targeting, and adjustment of the target on the earth and then switching to the "power input" mode. It is the opinion of the author that this indicated the choice of a geological target and proceeding to attack that geological target in the "slow buildup" mode. Again, proper contacts were so notified.

50. A very good coverage of the Soviet microwave radiation of the U.S. Embassy in Moscow is given in Paul Brodeur, The Zapping of America, W. W. Norton & Co., New York, 1977, passim. None of our U.S. Embassy security personnel knew of scalar interferometry, nor did they possess scalar electromagnetics detectors. Further, orthodox U.S. scientists were also ignorant of scalar electromagnetics. The Soviets were thus in a position to tailor the radiation signals and precisely determine what our on-site personnel would detect. Details of the effects on U.S. Embassy personnel, possibly associated with the microwave radiation, are given by Brodeur. A great number of related releases by the open news media also exist. For example, see Robert C. Toth, "Radiation Devices Bug U.S. Embassy," Huntsville Times, reprinted from the Los Angeles Times, Feb. 8, 1976; "U.S. Screening out Soviet 'Listening Rays'," United Press International release, Washington D.C. Star, Feb. 11, 1976; Norman R. Beebe, "Nixon Exposed to Radiation In Russia?", Associated Press release, Huntsville Times, Apr. 30, 1976; Barton Reppert, "U.S. Scientists Puzzled Over Embassy Radiation Effect," Associated Press release, Huntsville Times, May 28, 1976; Barton Reppert, "Radiation Entering Embassy in Moscow through Phone Line," Associated Press Release, Huntsville Times, May 28, 1976. See also Martin Ebon, Psychic Warfare: Threat or Illusion, McGraw Hill Book Co., New York, 1983.

51. For details of the electromagnetic transmission of cellular disease and death, see Vlail P. Kaznacheyev, "Information function of ultraweak light flows in biological systems," Problems in Biophysics, Novosibirsk, 1967, p. 7-18. Kaznacheyev et al, "Conditions necessary for appearance of distant intercellular interactions after UV-radiation," Bulletin Experimentalnoy Biologii i Meditsiny, (5), 1979, p. 468-471; Distant intercellular interactions in a system of two cultures connected by optical contact," Ultraweak Luminescence Biology, Moscow, 1972, p. 224-227; "Distant intercellular interactions caused by UV-radiation," Photobiology of a Living Cell, Leningrad, 1979, p. 221-223; "Studies on the biological role of electromagnetic emission as a factor of adaptive behavior of cells under conditions of latitude changes," Abstracts of the second all-union conference devoted to the problem of human adaptation to different geographical, climatic, and labor conditions, Novosibirsk, 1977, p. 101-104; Vlail P. Kaznacheyev, S. P. Shurin and L. P. Mikjhailova, "Distant intercellular interactions in a system of two tissue cultures," Official Bulletin of the committee on inventions and discoveries affiliated to the council of ministers of the USSR, Discovery no. 122 (19), 1973, p. 3, also printed in Psychoenergetic Systems, 1(3), Mar. 1976, p. 141-142; "Apparent Information Transfer

Between Two Groups of Cells," *Psychoenergetic Systems*, 1(1), Dec. 1974, p. 37.

52. For evidence of anomalous scalar reflection out of the scalar grid caused by a Navy chaff drop, See "Navy sabotages traffic lights, TV sets," *United Press International*, PM cycle, Jan. 11, 1985; "Power blackout blamed on anti-radar particles," *United Press International*, AM cycle, Jan. 11, 1985; "Power Disrupted Briefly After Navy Plane Drops Metallic Strands," *Associated Press*, AM cycle, Jan. 16, 1985.

53. A good summary of the early incidence of the Soviet Woodpecker signals is given by Bradley Wells, "The Russian woodpecker: a continuing nuisance," *CQ*, Nov. 1984.

54. A particularly important Soviet Paper is E. B. Smetanin, "Electromagnetic field in a space with curvature -- new solutions," *Soviet Physics Journal*, 25(2), Feb. 1982, p. 107-111. In this paper, a solution to the stated problem is obtained, which may be regarded as a classical model of a charged particle that has both a magnetic moment and a nonzero magnetic charge density. Interaction with spacetime curvature can disrupt the gauge invariance of the EM field, and it can also reestablish invariance in an initially noninvariant theory. (Hutchinson has had anomalous breaks of metal caused by standing scalar waves, which seems to be due to a mechanism that produces monopoles and deposits them in the metal at standing-wave nodes. This paper should be directly applicable.)

See also Yu. S. Vladimirov and A. A. Kozlenkov, "6-optics and a general theory of gravitation and electromagnetism," *Soviet Physics Journal*, 27(12), Dec. 1984, p. 1039-1041; V. G. Bagrov and M. D. Noskov, "New exact solution of the Dirac equation. XI," *Soviet Physics Journal*, 27(12), Dec. 1984, p. 1030-1034. See particularly V. I. Petukhov and I. A. Kuzin, "Weak processes in the field of a gravitational wave," *Soviet Physics Journal*, 27(12), Dec. 1984, p. 1025-1029.

In the latter paper it is significant that the decay probability increases in a locally curved spacetime, and that solutions are obtained for circularly polarized waves.

(In EM waves, circularly polarized waves have special characteristics in nonlinear isotropic media: exact solutions exist. Also, when two longitudinal sine waves of differing frequencies are transmitted into a nonlinear isotropic medium, the apparent difference frequency is transmitted as a sine wave, undistorted. This characteristic has been used by Westinghouse to produce improved sonar transmission through seawater, for example. The scalar EM (electrogravitational) wave may be represented as a longitudinal EM wave. Immediately, if one wishes to produce a pure scalar EG wave in the nucleus of an atom, two frequencies should be transmitted such that their difference is the frequency wished. Or circularly polarized waves may be utilized.)

Note that, by implication, one should be able to deliberately tailor scalar EM waves to greatly speed the decay of long-lived radioisotopes, such as are contained in radioactive wastes from nuclear reactors and other processes.

55. For some evidence of continuing persistence of the higher frequency scalar components applied to the scalar grid on Jan. 28, 1986 to localize the effects when attacking the Challenger, see "Poison suspected in unexplained deaths of birds," Huntsville Times, AP release, Feb. 6, 1986. From 1-4 Feb.

1986, various kinds of dead birds -- such as blackbirds, cardinals, sparrows and bluebirds -- plummeted to the ground in Birmingham, Alabama. At first some sort of mysterious poison was suspected, but later was ruled out. During this period, the woodpecker grid was particularly active in weather engineering operations. Multiple sightings of giant cloud radials occurred in various places throughout the U.S. The retention of the high frequency components possibly was intensified in the Birmingham area sporadically during the period. Birds flying into this zone would be killed if their brains acted as scalar receivers and were sufficiently jammed by the signals. Normally Huntsville (further north) is a "hinge point" for increased scalar activity, to start the Jetstream bending northeast to move along the Appalachian mountain chain. However, just before 28 January the jetstream had been diverted further south than usual by the Soviet interference, bringing unseasonably cold weather to Florida and the waiting Challenger on its launch pad. Probably hinge points further south than Huntsville were needed for this operation. If these more southern points were retained for a few days, and the high frequency components were retained, then an inadvertent high intensity area of these components may have sporadically occurred in the Birmingham area, killing the birds.

For description of the Apr. 18, 1986 Titan blast and its ramifications to the spy satellite program, see James Gerstenzang and Ralph Vartabedian, "Los Angeles Times News Service, "Titan Blast to Hurt Spy Program," Huntsville Times, Apr. 19, 1986.

56. For another very important paper indeed, see Vu. G. Ignat'ev, "Relativistic kinetics of an anisotropic plasmalike medium with damping in a field of gravitational radiation," Soviet Physics Journal, 27(12), Dec. 1984, (English translation: Plenum, June 1985), p. 1066-1069. If we substitute the vacuum "virtual plasma" for the observable plasma, this paper may be part of the smoking gun to show that the Soviet Union has developed scalar electromagnetics. Extrapolating from this paper, the amplitude of the "induced longitudinal field" is proportional to the square of the amplitude of the gravitational wave (GW) in an initially isotopic medium, but reduces to a linear proportionality as the medium develops nonlinearities (anisotropies or inhomogeneities). Whereas conventional GW are considered to be weak, the scalar GW may be very strong since we ourselves determine the variation in the energy density of vacuum it involves. Further, sharply spiked scalar EM (EG) pulses may develop appreciably more amplitude than the linearly calculated amplitude from the magnitudes of the zero-summation components. The end result is that (1) we can produce powerful gravity waves using the scalar EM approach, (2) local spacetime can be curved, producing violation of the conservation laws, and (3) the assumption of a local Lorentz frame made by Einstein as a limitation on ordinary general relativity is falsified.

In passing, note that immediately one also has a clear basis for the excess local production of energy when the battery furnishing power to a DC series motor is sharply spiked backwards in a "recharging" fashion. Further, the ions in the battery (which are several hundred thousand times as massive as an electron) possess a resonance on the order of 16 megahertz in a typical lead-acid battery. Under the correct conditions, the ions collect the excess energy (due to the initial square effect) produced by a sharp pulse of recharging potential. The ions are shocked into resonance and, on reversal, "overshoot" and deliver this excess energy to the plates, recharging the battery. Thus such a system can violate linear conservation of energy because spacetime is locally curved by the spiking, and excess energy from the excited local vacuum is collected by the ions and delivered to the plates. This is precisely the effect upon which the first Bedini free-energy motor depended. The timing and adjustment, however, are highly critical and difficult, and the battery takes a rather severe

beating.

57. For details and photographs of highly anomalous exhausts seen on Bennett Island, see "Explosive Events Seen on Soviet Island," Aviation Week & Space Technology, Sept. 26, 1983, p. 31. NOAA-6 and NOAA-7 weather satellite photographs of massive smoke plumes, one of them 150 miles long and nearly horizontal, are shown. Also, in U.S. weather satellite photos of Novaya Zemlya, similar plumes have been detected, making this location a tentative candidate for a second Soviet "exhaust site." See also Letter John M. Miller, Geophysical Institute, University of Alaska, Jan. 4, 1985 with attachment, "Bennett Island plume cases recently found." Satellite photos showing actual circular breaking of arctic ice have also been taken near Wrangel Island. See Sam Bishop, "UA photos show Soviets break ice for missiles," Fairbanks Daily News-Miner, Dec. 15, 1984, p. 1,3; Craig Covault, "Soviet Ability to Fire through Ice Creates New SLBM Basing Mode," Aviation Week & Space Technology, Dec. 10, 1984, p. 16-17. Wrangel Island in fact has a bizarre history: it belongs to the U. S., but has been illegally given to the Soviets and occupied and used by them. For details, see "Wrangle over Wrangel and the Weather War," Don Bell Reports, 32(9), Mar. 8, 1985.

58. For details of anomalous blinding (probably by scalar EM means) of U.S. satellites, see Philip J. Klass, "Anti-Satellite Laser Use Suspected," Aviation Week & Space Technology, Dec. 8, 1975, p. 12-13. For details of anomalous failures and recoveries of a British satellite, see Joe Schwartz, Nature, 280, July 12, 1979, p. 95.

59. For other possible evidence of traces of Soviet scalar EM activity over the oceans, see George D. Curtis, "An electromagnetic radiation pattern over the ocean," Undersea Technology, 5(8), Aug. 1964, p. 29-30, 40. In producing a scalar wave, there exists a sort of "signal to noise" ratio of the desired scalar wave to an accompanying, undesired normal EM component. Due to practical equipment imperfections, the generated scalar wave inevitably is accompanied by a small residue of ordinary EM wave. While measures can be taken to further purify the scalar wave, a residue always remains. Curtis may have detected the weak EM residue accompanying early Soviet interference gridding for weather control testing over the U.S.

60. Interactions which occurred between Khrushchev and renowned physicist and Nobelian P. Kapitsa are of interest. Khrushchev desired absolute defense of the Soviet Union so that the Soviets might be able to launch any action desired without risk or serious concern. Kapitsa informed the Soviet leader that, if a means of total neutralization of foreign missiles was to be found, it could only come from a group of new principles in physics which was called "energetics." The term "energetics," of course, was contracted from "psychoenergetics," and is essentially the expanded physics/electromagnetics that this author has dubbed scalar electromagnetics.

Strangely, a portion of a book by Marshal Grechko was deleted from its English translation at the specific request of the Soviet Union to the U.S. State Department. The passage stated: "Of particular importance is basic research aimed at discovering still unknown attributes of matter, phenomena, and the laws of nature, and developing new methods for their study and use to reinforce the state's defense capabilities."

The most definitive Soviet book on military strategy is titled Military Strategy (Voyennaya

Strategiya). See V. D. Sokolovskiy, Soviet Military Strategy, third edition, edited with an analysis and commentary by Harriet Fast Scott, Crane, Russak & Company, Inc., New York, 1975. There are three editions, the latest in 1968. In the third edition, the exotic weapons normally proposed for defense against strategic ballistic missiles -- such as particle beams, high energy lasers, exotic nuclear warheads, plasma weapons, antigravitational weapons, etc. -- are discussed and discounted by implication. The statement is made several times that 100% defense against missiles and aircraft is possible. A statement is also made that it is interesting to note that this capability (a solution to the strategic missile defense problem) has been achieved by the Soviet Union, but not by the West (e.g., p. 298.) In the same edition, a previous definition of antimissile defense obviously consisting of radars, computers, and interceptor missiles is deleted (see author's note 190, p. 454).

The Soviets also recognize the great importance of technical surprise: "The experience of war shows that warring sides quite often have tried to employ new types of weapons to this end to achieve surprise, which are a surprise for the enemy or are little known to him. Each side secretly develops new means of warfare in order to employ them unexpectedly. History knows many examples how the employment of a new weapon initially gave considerable success because the enemy, caught unaware and not knowing the combat capabilities of this weapon, was for some time incapable of effective counteraction... The mass introduction of new weapons into an army usually cannot remain secret for long for the other side. -- New means of warfare, and in mass numbers, are impossible to create often and quickly. In this regard, the sides have begun to take other paths concerning the attainment of surprise along with searches for new weapons and their sophistication." V. Ye. Savkin, of The Basic Principles Operational Art and Tactics, Moscow, 1972, U.S. Air Force translation, U.S. Government Printing Office, Washington, D.C. 20402.

61. The Soviets have not discarded most of their old radars, and have continued to develop, build, and deploy giant new radars (in apparent violation of SALT agreements), which U.S. analysts always analyze in conventional fashion. It is fairly straightforward, simple, and inexpensive to modify an ordinary pencil beam radar to produce scalar wave beams and geometrical scalar Fourier expansion forms. Radars can provide a wide array of totally new and unexpected capabilities when utilized in the scalar electromagnetics mode. Even older Soviet radars, with antiaircraft gun sites and older surface-to-air missile sites, will exhibit new and startlingly advanced capabilities against ballistic and cruise missiles and Strategic Air Command bombers. Since there are many thousands of these older Soviet radars still operationally deployed, in the scalar mode the Soviet strategic defense may well approach 100%, just as Military Strategy implies. Also, the antiaircraft and antimissile defense capability of Soviet land forces may be far greater than anything presently estimated by U.S. analysts.

62. To the physicists, engineers, and researchers who have made the tough sledding to this point, congratulations! Here's a bonus for you.

Turn to page 32, equation [7]. Time differentiate it (this is left as an exercise for the reader). Collect terms and study the result intensely.

Now you have the reason why rise time is so important from a scalar EM viewpoint. You can also see why spiking the innate inductance of any system very sharply is so important. Fast rise time greatly increases the value of the time derivative terms, and your gravito-inertial effects go up with

the collective squares of your zero-vector summed components. Any system has at least a little inductance. For sharp spikes, the gravitational potential goes very high. The inductance of the system momentarily opposes any current (translation: opposes any current bleed-off, or EM force field bleed-off). During that time you've got the 4-space G-potential to use. If you need to hold it longer to use it, then increase the inductance.

Now you can see why extremely rapid discharge of properly tuned, giant Tesla coils give gravitational and inertial effects sometimes.

You can see why the sharp "EMP" (electromagnetic pulse) from a nuclear explosion or EMP generating device can penetrate the ocean.

That's why the spikes (such as used by the neurophone) can carry messages directly into the brain and nervous system. You also should see why the Soviet woodpecker carriers (a Soviet over-the-horizon radar system) are loaded with scalar EM spikes (Bedini has precisely detected them from 50 Hz to 10 MHz; Golden has detected them into the gigahertz range.) to work on the humans in the targeted area. They're zapping the hell out of us. And they have done something similar at the U.S. Embassy in Moscow for decades.

Bedini has developed a simple, cheap device to mess up the phaselocking of the scalar EM spikes on the woodpecker carriers. It's based on the fact that the Russkies use a lot of circularly polarized transmitters when they make the spikes. Here's what to do: Take 4 strong bar magnets and an old (but operational) long-playing record turntable. Set it on 33-1/3 RPM speed. Glue the magnets on the top of the turntable, standing vertically, symmetrically placed around the turntable's outer edge. Place them so that on one a north pole is up, on the next a south pole is up, then a north up, then a south up. Now turn the turntable on and let it run. This gadget makes a slowly rotating magnetostatic wave. (Yes, it will also make a rotating "magnetic" wave, which is actually two rotating magnetostatic waves.). These rotating magnetostatic waves will interfere with the scalar spikes, changing them to EM (electromagnetism) and slowly rotating their phase. This breaks the phaselock of the Soviet circularly polarized scalar EM signal on the human brain. This gadget will protect the average large room.

But back to our differentiated equation.

Now you should also see why the first Bedini motor is so "devilishly difficult" to adjust. You've got to get the effect and examine it in well under 20 nanoseconds. You'll need an oscilloscope of 350 MHz range or so. Microwave-quality bench equipment is necessary; the ordinary electrical and electronic shop equipment is not good enough. You can also see why the ordinary lead-acid battery takes such a beating. However, a special battery certainly can be designed to take it. Now you know.

Okay, you tigers. Go get 'em.

63. Now here's a final bonus for the persistent reader.

This time, see J. N. Brittingham, "Focus Wave Modes in Homogeneous Maxwell's Equations:

Transverse Electric Mode," J. Appl. Phys. 54, 1983, p. 1179-1189; T. T. Wu and R. W. P. King, "Comment on 'Focus Wave Modes in Homogeneous Maxwell's Equations: Transverse Electric Mode' [J. Appl. Phys. 54, 1179 (1983)]", J. Appl. Phys. 56, 1984, p. 2587; T. T. Wu and H. Lehmann, "Spreading of Electromagnetic Pulses," J. Appl. Phys. 58, 1985, p. 2064-2065; T. T. Wu, "Electromagnetic Missiles," J. Appl. Phys. 57, 1985, p. 2370-2373. Pay particular attention to the latter paper.

Because of the Strategic Defense Initiative (SDI) and other programs, great interest has recently been kindled in using EM pulses to carry energy from a high-powered source to a target. However, so far almost all the work is still couched in terms of purely ordinary (though sophisticated) electromagnetics. It still involves the EM concept of "EM energy flow through the intervening space from the transmitter to the target." As such, the work to date still suffers from all the self-imposed ills and limitations of using the classical force fields concept of EM.

However, the theoretical work of these referenced papers is of great interest to us here.

In the first paper, Brittingham sparked a great deal of interest with theoretical work which promised a permanently focused 3-dimensional concentration of EM energy that propagates in a straight line with the speed of light. That is, this mode used a newly formulated wave packet (called the "focus wave mode") that acted as a non-dissipating EM soliton.

In the second reference, it was concluded that Brittingham's focused wave packet actually satisfied Maxwell's equations, but not the associated boundary conditions.

[Comment by this reviewer: both of these formulations use "linear time" and a "linear frame," ignoring the local general relativity aspects. Indeed, Brittingham's "focused wave packet" can be made by the zero-vector approach! However, it will not be an "EM" packet, it will be a pulse (or oscillating wave, depending upon how it is made) of 5-gravity potential. As such, it contains a multiplicity of locked-in, 5th-dimensional, non-zero EM gradients in and EM gradients out. Collectively these gradients themselves constitute a deterministic "flux of gradients" or an EM flux in the 5th dimension, with no resultant effective current of EM gradients. In other words, it's possible to build a "flux of gradients" and to have a "current of gradients," just as in ordinary EM it's possible to have a "flux of virtual particles" and a "current of virtual particles." The argument concerning the EM boundary conditions of Maxwell's equations is not relevant in such a case. The only boundary involved is the zero itself.]

Be that as it may, the 4th reference is of direct interest. In this paper, Wu has done us a great service. He shows that, under transient excitation, an antenna of finite size can transmit energy to a faraway receiver so that the energy decreases as slowly as one wishes. An electromagnetic pulse of energy with such slow decay is conveniently referred to as an "electromagnetic missile."

The electromagnetic missile has important applications, according to Wu. One possible application is the transmission of

information in a manner that is very difficult to intercept or jam. A second possible application is to

destroy or disable a distant target. However, Wu feels that so much energy is required [remember, he is speaking of EM non-zeroed force fields traveling through ordinary space] that a likely radiating source must be something like a nuclear explosion. However, as Wu points out, a nuclear explosion produces a powerful EM pulse which includes frequencies from microwaves to gamma rays. To weaponize the explosion to produce a coherent beam, the nuclear explosion must be controlled to produce a coherent radiating source and a pulsed laser-like EM beam. Wu points out that such a technology is difficult and has not been developed.

We comment as follows: It is certainly true that enormous energy is required if the waves in the pulse remain electromagnetic -- that is, if they have non-zero resultant E and B fields to the external observer.

On the other hand, if we form a complex of waves in opposition so that we control the energy content of each individual component wave, but blend all the waves so that their collective envelope wave has zero E-field and zero B-field resultants, then -- to the external observer -- the EM energy is infolded and unzipped electromagnetically. It is now electrogravitational energy, and limitations of "EM force field energy flowing through space or through a physical medium" need no longer apply. However, we may still look at each EM component wave as an individual EM wave, moving in the Kaluza-Klein 5th dimension that is wrapped-around each and every point in our ordinary 4-space. In other words, to the ordinary 4-spacetime observer, each component wave has a special channel around every point of his space, not through it. Thus we have established multiple EM channels "just outside" each point of observer space. These we call "scalar channels," and EM energy can move through each one as if it were moving through a wire. The relative potentials between the "ends of each wire" determine in which direction the "EM energy current" flows along the wire.

And in each of these "special channels," we just have a normal kind of space (to the internal observer). Wu's paper assures us that we can get as much of the input energy to the distant target as we desire. The problem then is how to break the zero-summed EM envelope (and hence the "zero channel" for each component EM energy wave) in the distant target itself, spilling the infolded contents of all the special channels back into ordinary spacetime as EM energy (either positive or negative).

That, of course is easily done by interference in the distant zone. As previously stated, there is a way in which we can even perform this interference in a single scalar beam. Since the newly formed EM energy emerges from each and every increment of spacetime occupied by the distant target, it already emerges inside the very vitals of the target. It does not have to translate through the intervening ordinary space between transmitter and target. Instead, it goes through the Kaluza-Klein fifth dimension. It translates along a line through our space, but not through our space. With the scalar EM approach, we transmit EM energy through hyperspace, not through normal space.

Hereafter we will adapt and expand Wu's SDI term "electromagnetic missile" to include these electrogravitational aspects. In other words, we include the "scalar EM missile", which consists of an infolded multiple of Wu's ordinary EM missiles moving together coherently in special sheathed hyperspace channels.

In Appendix I we show an anomalous photograph taken by Bob Gladwin, just before the shuttle launch of Nov. 26, 1985. While the photograph may be an artifact, it also is a candidate for the test strike of such a Soviet scalar "electromagnetic missile" tested against an aiming point offset from the shuttle launch which followed a few seconds later. The test was accomplished before the shuttle was launched, and offset from it, so that it positively would not endanger the shuttle itself. The conditions under which this spectacular photograph was taken happened to coincide with the special conditions required to photograph such scalar EM energy. Those conditions are clarified and explained in the Appendix.

My deep appreciation goes to Mr. Gladwin for allowing me to use this photograph. As we will point out in Appendix I, the video camera caught a picture of the Soviet scalar EM marker beacon associated with the Titan explosion of April 18, 1986. One can rest assured that the Soviets probably destroyed that vehicle, using a scalar EM missile.

APPENDIX 1: SOME IMPORTANT INDICATORS AND DESTRUCTIVE TESTING

Some of the indicators which bear on the use of the Soviet scalar electromagnetic grid via the Woodpecker EM carrier beams are given in this appendix. along with other information believed pertinent to overall scalar EM effects.

IN ADDITION, THE THESIS OF ACTUAL LIVE TESTING OF THESE WEAPONS BY THE SOVIETS -- TO INCLUDE THE DESTRUCTION OF A TROOP-CARRYING U.S. AIRCRAFT, A SHUTTLE, AND A TITAN MISSILE -- IS ADVANCED AND INDICATORS PRESENTED.

An anomalous photograph taken by Bob Gladwin is presented which possibly may have captured the "smoking gun" -- the strike of a Soviet scalar EM missile at an offset aim point near the shuttle Atlantis, just before its launch on Nov. 26, 1985. However, this photograph is caveated since it may also represent an anomalous but ordinary artifact. captured in some as yet unknown manner. The manner in which such a photograph may have been taken -- when normally the scalar energy does not show on a photo -- is explained.

Another photograph taken by George Suchary after the launch did capture the Soviet "marker beacon" utilized in the test firing, however. This independent photograph is presented, and adds credence to the thesis that the Gladwin photograph captured the test of a Soviet scalar EM pulse missile.

- INDICATORS AND SUCH -

1. Continual cloud radials have repeatedly been seen and photographed over Los Angeles, California or its vicinity.

Los Angeles is also apparently a "hinge point" for bending and controlling the jetstream. Three typical radials seen to form one after the other by Margaret Wilson (and sketched and airbrushed by her) in the greater Los Angeles area are shown in [figures 1, 2, 3, and 4](#). These radials were formed on Sunday, Jan. 26, 1986. Ms. Wilson had heard my Saturday night "Soviet Weather Engineering" broadcast over KABC Los Angeles, and my request that anyone who saw the typical radial cloud formation should photograph or draw it, noting time and location, and send the photos or drawings to me.

As Margaret described it. "To my astonishment, the next day I not only saw one, but three in the sky at the same time.

The time of the first one was Sunday, Jan. 26, at 1:15 p. m.

. . . I stepped out the back door for some minor errand and noticed a

fan of long straight clouds in the sky. The sky had been filled with dark clouds most of the morning but this had been breaking up and the western half of the sky was now clear with these lines of clouds spread out on it. I immediately thought of your request and tried to see the bottom of the fan which was hidden behind bushes and a garage. When I stepped into the street, I saw there was a semi-circle beneath them.

Not having film and a wide-angle lens on my camera. I knew I couldn't capture it in its entirety. I am, however, a retired commercial airbrush artist so I quickly sketched the formation. It is [illustration #1](#).

It was in the western sky, the base of the central semi-circle sitting about 15 degrees above the ocean horizon. It was very clear and sharply defined. The semi-circle was broken at the top and the two broken ends curled inward like commas. As I sketched the wind deformed it somewhat, the right half of the whole formation sliding down away from the left.

Ten minutes later it was getting quite clear of clouds except

for a bank over the Santa Monica Mountains to the north and there, straight north, another fan was forming. As I watched it took shape -- [illustration #2](#). The same broken semi-circle (with commas') but this time the bases of the rays were feathered about half-way out with end halves long straight wisps.

As I sketched, another fan had begun to take shape

further east. It was hard to tell its size but I had estimated the first one at about 15 miles across and the second a little larger and the third larger yet. At the peak of its formation it looked like [illustration #3](#). ...There in the middle of the central circle, hazy and a little faint was what looked like the top of a mushroom cloud. Or was it only a distant thunderhead that coincidentally found its way to a place behind the formation? The arms of the last, largest formation were rather wavy and feathery like some gigantic sea creature. It did not disperse as fast as the others, but held for a couple of hours, though it was pretty distorted by then. I could not estimate its size as I wasn't sure of its altitude.

Were they aircraft contrails? Certainly not! There was an airliner in the sky at the time -- a mere scratch on the smooth blue sky (see [illustration #3](#), right center.).

The three formations were present in the sky at the same time although the first was getting quite distorted by the upper level winds before the last reached its peak.

Tuesday our weather changed from hot and sunny to rainy as the weather man said the path of the jetstream altered, and then there was the space shuttle explosion.

...The Russians seemed very sincere in their sympathy for the loss of our astronauts but only two days later it was printed in TASS and I personally heard Vladimir Posner say that Russia hoped that the United States would now realize what could happen if the S.D.I. program was further pursued. Was this friendly concern or a threat? It is very evident that if the S.D.I. can destroy a missile in flight, it can also destroy one on the ground. This would immediately put all Russian missiles in [reach of] our arsenal. They are already in place in the most desirable target areas -- their own launch sites. I'd be panicky too if I were a Soviet leader."

[Ed. comment: My sincere thanks to this thoughtful lady who took the time to sketch the cloud radial phenomena occurring in the Los Angeles "jetstream pivot point" at this critical time, just prior to the launch and destruction of the Challenger.

Anomalous cloud grid activity (formation and dissolution) in the Los Angeles area has been positively correlated with Soviet Woodpecker activity by engineer Ron Cole, with 100% correlation in 30 straight Woodpecker measurement runs. Statistically, of course, this is quite decisive.].

2. Continual cloud radials have repeatedly been seen and photographed over Huntsville, Alabama, associated with weather engineering and grid activity. Typical radials seen by this author are shown in Bearden, [Soviet Weather Engineering Over North America](#), 1-hr. videotape, 1985. Huntsville is apparently a pivot point or "hinge point" for bending and controlling the jetstream.

3. Spectacular cloud grid patterns have been seen over Huntsville, Alabama and Los Angeles, California. An excellent videoclip of one of the Los Angeles area grids, personally observed and shot by KABC Open Mind talk show host Bill Jenkins, is shown in Bearden, [Soviet Weather Engineering Over North America](#), 1-hr. videotape, 1985. An artist's sketch of an earlier gigantic grid, extending from horizon to horizon in every direction, seen over Huntsville, Alabama by Tom Bearden and Ken Moore, is also shown in the tape. The videotape is available from P.O. Box 1472, Huntsville, AL 35807. Sketches and details of another highly anomalous grid pattern observed in the greater Los Angeles area by engineer Ron Cole are shown in [figures 5](#) and [6](#).

The reason that clouds of water droplets and/or ice particles detect the scalar interferometry and form signature patterns is simple: Consider each H₂O molecule as having two light little hydrogen atoms hanging on to the much heavier oxygen atom. The covalent sharing with the oxygen atom of the electron from each hydrogen atom means that (1) the electrostatic scalar potential between the H ion and the O ion it is bonded to, is rhythmically varying as the electron is shared back and forth, (2) this varying potential contains "electron spin holes" since it is made by the moving electron, (3) two such varying potentials exist since there are two H atoms sharing covalent electrons with the O atom, (4) the two H ions are at an angle of over 100 degrees with respect to each other, (5) the molecule assembly thus constitutes one part (one half, so to speak) of a scalar interferometer with imbedded electron spin holes for electron hooking, (6) Incident scalar waves from outside the system interact with the "half scalar interferometer." This scalar interferometry interaction is coupled to the covalent bonding electron because of the internal spin hole pattern of the molecular half of the interferometer. The coupled electron moves with the scalar pattern's changes, causing an observable interaction with and in the electrical structure

and ionic potential of the molecule, (7) the weak H to H hydrogen bonding between molecules connects resulting ionic potential changes to the structuring of the entire macroscopic cloud assembly. Thus by scalar interferometry with the H₂O "half interferometers", an incident scalar EM pattern is detected and translated into patterns of E and B force fields. The H₂O molecules then "line up" in accord with the electrical patterns detected.

Thus the clouds form "signature patterns" according to the incident scalar EM radiation patterns. Giant cloud radials in the targeted area are probably due to the type and shape of antennas -- including the type and shape of the electrical wires establishing the antennas' ground planes -- 640used by the Soviet Union to project the scalar waves. Note that such "radial" antenna patterns were occasionally used by James Harris Rogers in his underground and undersea scalar EM transmission system.

[For Rogers' patents, see U.S. patent numbers 1,316,188, Radiosignaling system, Sept. 16, 1919; 1,322,622, Wireless Signaling System, Nov. 25, 1919 (figure 6 of this patent clearly shows a "radial wire" ground plane antenna); 1,349,103, Radiosignaling system, Aug. 10, 1920 (the fourth version in figure 1 shows inside/outside variation which, for the long waves used, to a distant observer appears as a varying magnetostatic scalar potential using opposing B fields); 1,349,104, Radiosignaling system, Aug. 10, 1920; 1,220,005, Wireless Signaling System, Mar. 20, 1917; 1,303,729, Wireless signaling system, May 13, 1919; 1,303,730, Radiosignaling system, May 13, 1919; 1,315,862, Radiosignaling system, Sept. 9, 1919; also 958,829, Method and Apparatus for Producing High Frequency Oscillating Currents, May 24, 1910.].

4. Anomalous power outages in Ventura County, Southern California on Nov. 8 and 9, 1985. Again, engineer Ron Cole, who lives in the affected area, investigated and reports as follows:

"On the evening of 11-8-85 in a rural area of Ventura County known as Carlisle Canyon, a strange electrical phenomenon began to occur at about 10:15 p.m. Our first observation was that random white dots began to appear on the TV screen, then began to increase in size and brightness. The brighter the dots got, the dimmer certain lights in our home became. Yet later we found that, when some lighting circuits were dimming, other circuits were causing lights to

shine much brighter than normal. After a bit of checking, we were able to determine that lighting circuits common to pole 1 of the service transformer were the ones that were seeing a reduction in voltage, while all circuits on pole 2 were seeing an increase in voltage.

There is another interesting condition that was observed on the TV screen. The dots were in sync with the vertical field or frame rate of the signal. This means that the interference had to be of a frequency of 59.7 Hz or 29.85 Hz. Normal power line interference will form a grouped dash pattern across the screen and will strobe upward at the rate difference of 59.7 Hz or 29.85 Hz. In the 8 November case, there was no strobing of the dots whatsoever.

These conditions continued off and on for the rest of the entire evening and were observed by no less than six other persons that I know of. They were observed over the entire TV frequency spectrum, low band VHF, high band VHF, and on two UHF channels. Line interference is almost always most prominent on the low band VHF frequencies only.

These anomalous events would take place on a somewhat irregular time pattern; anywhere from 3 to 10 minutes apart. They would always last for about 2 minutes.

At 12:30 a.m. I went to bed and was not aware of any further activities until 6:20 a.m., at which time I was awakened by several sharp snapping or cracking sounds coming from the walls of my house. I rolled over and went back to sleep, only to be reawakened about 15 minutes later by my wife, who informed me that the power and phones were out. My comment was, "Some dummy must have crashed into a power pole," and I dozed off again.

At 10:15 a.m. the power and phones came back on line. Shortly after, our phone began to virtually ring off the hook. About a dozen neighbors up and down the canyon wanted me to check out their electrical wiring and various appliances. All of them were trying to explain their individual encounters and what took place when the power went out. Such things as wires snapping in walls, singing and humming sounds coming from wiring in walls, strong smell of ozone, light bulbs exploding, buzzing coffee pots, and a handful of other phenomena all took place just before the power went out at 6:20 a.m.

A typical example was that of Rob Steel. [Ed: Name changed for this report; his real name is in my files.] Rob lives four miles down the canyon from us. He had just turned on the lights in his barn and was getting ready to feed

the livestock, when he realized he had left several needed items in the garage located about 75 yards from the barn. Upon entering the garage, he saw the garage lights began to flicker, then go to a dim orange glow. Upon stepping from the garage area, Steel saw that lights in the barn were so bright that he thought the entire structure was about to explode. He froze in his tracks for a moment and his whole house and garage began to hum. Then everything went out.

An interesting point to inject is that Mr. Steel's home and several others farther down the canyon from us are being fed from a different 19 kv power feeder source than the 14 kv feeder that supplies us and most homes in the canyon.

At about 2 p.m. on 11-9-85 I was in contact with the power utility company (Southern California Edison Company) to inquire as to the cause of the power outage. My first assumption was wrong. No power poles had been knocked down; only a ceramic fuse in the 19 kv feeder system had blown and a two-pole oil breaker had kicked out on the 14 kv feeder system. Load charge recorders at the power company show that both fuse devices kicked out at exactly the same time, but they are in no way common to each other as to load distribution. They only supply power to adjacent areas.

Also, the phone company has no record of its service being out, yet the phone service was restored when the power was restored. The phone company does not use Edison Company's power to power its phones. Again, the only commonality is that the phones and phone lines were in the same area.

Numerous magnetic breakers, used as manual switch devices for well pumps and other services, were on when power was returned. These switches had previously set in their off state.

A strong electrical-type ozone odor was detected at five locations at the time the power went out.

Later we found that a Research and Development laboratory in a nearby area measured 29 Hz intermittent signals late on the night of 11-8-85. These signals were interfering with some critical tests the lab personnel were trying to accomplish. The laboratory itself did not experience a power outage.

At this point in time, the only realistic surmise we can come up with is that a tremendous ELF or scalar ground wave was adding and subtracting to the grounded neutral service side of the power pole transformers so as to sum in

and out of phase. When peak nodes were achieved, all line transformers ended up back-feeding the feeder lines out of phase, causing the final power outage.

Twenty-one persons are aware of the strange conditions of the power outage and prior events. [Ed: Their names are in my files.]"

Editor's comment: Another anomalous power outage also occurred in the same area. This occurrence is possibly associated with effects of the scalar interference grid adjustments. If the Soviets were preparing for a major test of the grid in the Launch Phase ABM mode, substantial tests and exercises may have been performed before the actual "wet run" against the shuttle launch on Nov. 26, 1985 -- about two and a half weeks after the anomalous power outage at Carlisle Canyon.

See the Rogers' patents, referenced above, for ideas of how scalar EM signals couple to the power lines and telephone lines.

As this book goes to press, John Bedini has notified me that his new and very sensitive developmental scalar detector positively verifies scalar frequency "spike" activity on the Woodpecker grid (and possibly the ground reference) from 50 Hz to 10 MHz. A normal instrument will definitely not see these signals. John's lab is at Sylmar, California and about 70 miles from Carlisle Canyon.

5. During the Skylab mission, NASA astronauts observed and photographed a mysterious green glow of the atmosphere. The glow was over 1,000 miles long and over 100 miles wide. From Carlisle Canyon, Ventura County, California the sky has also been observed to possess a mysterious green glow from horizon to horizon, on three occasions. [Editor's comment: It is hypothesized that this green glow is associated with grid activity in the Launch Phase ABM System mode.]

6. Just prior to the hapless launch of the Challenger on Jan. 28, 1986, the Soviet Union sharply bent the jetstream down through the center part of the country, then curved it eastward across the Florida panhandle. This exposed the waiting Challenger on the launch pad to severe cold air, brought down from Canada by the sharply deviated jetstream. The use of the scalar interferometry aspects of the Woodpecker grid for weather engineering over the U.S. has been documented previously. [Bearden, Soviet Weather Engineering Over North America, 1-hr. videotape, 1985;

Bearden, "USSR: New beam energy possible?", Defense & Foreign Affairs Daily, 13(111), June 12, 1984, p. 1-2.]. Wilson's cloud radial sightings on Jan. 26, 1986 and Cole's giant cloud grid sightings on Jan. 24, 1986 are directly connected with adjusting the Woodpecker grid and deviating the jetstream, to carry cold air to the Florida launch site.

7. The previous testing of the grid in the Launch Phase ABM/Anti-bomber Mode, using actual jet aircraft as "wet-run" targets, has been demonstrated by various anomalous incidents.

As one probable example, see "Jetliner drops 32,000 feet; 400 aboard; 50 are injured," AP release, Huntsville Times, Feb. 20, 1985, p. 1 and "China Airlines Pilot Denies Cockpit Error," AP release, Huntsville Times, Feb. 21, 1985, p. A-9. In this incident ([see figure 7](#)) a Boeing 747, flying at 42,000 feet and bound for Los Angeles, experienced unusual engine flameouts while still out from San Francisco. In a hair-raising plunge toward the earth, the pilot fought to restart the engines and regain control of the aircraft. After a fall of some 32,000 feet in two minutes, the engines finally restarted, and the pilot was able to fly into San Francisco and land safely.

We have already explained how the Soviets are able to track the aircraft's jet engines. Later in this Appendix we show just how accurately an actual "scalar EM missile" may be focused by the Soviets on a hapless target. If a negatively biased pulse or continuous wave scalar EM "energy extraction" beam hits the engines, the extraction of energy will result in engine flameout. (No heat energy, no combustion of the fuel.). This is apparently what happened to this aircraft. In the presence of "splatter" from the extraction beam targeted at the engines, the aircraft instruments were seriously affected. Different instruments have different responses to such an anomalous scalar EM kindling effect. Thus a signature would be that the instruments disagree with each other, and need not record what actually occurred. This appears to have been the case, constituting a signature that scalar EM was targeted against the aircraft. The pilot's instruments apparently indicated that the control system had failed, while the flight recorder apparently indicated that it had not.

Let us assume this was a Soviet test. When the distant Soviet operator turned off the extractor beam, the engines returned to normal state after a "discharge time constant" period. They normalized before the plane struck the ground,

so the pilot was able to restart the engines and proceed.

Notice that this was a limited test to cause engine flameout only. If the scalar EM missile had been used against the aircraft in the "pulse" mode, it would instantly have exploded in mid-air.

The crash of an India jet aircraft outside Great Britain may have been a test of the same weapon in the pulsed "destroy aircraft" mode, since there are indications that the aircraft suffered an anomalous midair explosion. Another candidate for such a possible "shoot-down" of a jet aircraft is an (Italian) Itavia DC-9 that crashed into the Mediterranean in June, 1980. Both Itavia and the Italian Transportation Minister Salvatore Formica believed that a missile struck the jetliner and was the likely cause of the crash. It may have been a scalar EM missile and a full-up test by the Soviet Union. See "Plane was probably hit, judge says," Birmingham Post-Herald, Jan. 17, 1981.

Also the present author has knowledge of at least one instance in the early 1980's when an American-made tactical ballistic missile was anomalously destroyed shortly after being launched by troops in Europe. The destruction was anomalous and a large hole was inexplicably burned through the side of the missile -- exactly as if it had been struck by a scalar EM missile test in the anti-tactical missile (ATM) role.

8. As another example of airborne scalar EM activity in the Woodpecker grid, in January 1985 a U.S. Navy-dispensed chaff cloud, dispensed well-offshore from San Diego, California was caught by an unexpected wind and blown toward the city. ([See figure 8](#)). As the chaff cloud moved in, significant failures of electrical systems and electrical components resulted. Power was disrupted to as many as 60,000 homes by the incident.

The sudden, unpredicted wind was suggestive of a wind blowing toward an artificially created low pressure area. Under certain conditions, a specialized structure such as that of a piece of sophisticated chaff will reflect scalar waves of frequencies within its cut bandwidth. If scalar modulation frequencies within the chaff bandwidth were present on the Woodpecker carrier grid above and surrounding San Diego, a myriad of reflecting bits of chaff in the moving chaff cloud would produce myriads of random, invisible "fireflies" of EM energy kindled at a distance, from random scalar interferometry, in a zone surrounding the cloud. As these invisible "firefly" pulses of

EM energy pulsed inside components of the electrical systems and electrical controls in San Diego and vicinity, extensive and random internal electrical interference occurred. This led to widespread, anomalous electrical failures throughout the city.

Note that this activity preceded the huge Soviet scalar EM exercise of April-May 1985. The grand exercise would certainly have been scheduled well in advance by Soviet strategic forces controlling the scalar EM howitzers and Woodpecker grid weapons, and adjustments and smaller tests would have been being made for some months before the tests.

9. Other anomalous "electrical strikes" certainly exist, suggesting Soviet testing may occur widely throughout the world, yet be reported as ordinary but anomalous phenomena. An example which comes readily to mind is the anomalous blast (or blasts) that struck Bell Island, off the east coast of Newfoundland, on April 2, 1978. Persons on the shore of Conception Bay reported seeing fireballs coming down out of the sky and hitting the island, according to Royal Canadian Mounted Police. Highly anomalous atmospheric electrical activity preceded the blast. This may have been Soviet testing of scalar-created electromagnetic missiles. Extensive information on this incident can be obtained from P.A.C.E., 100 Bronson Ave., Apt. 1001, Ottawa, Canada T1R 6G8.

As another possible example, villages in an area of West Donegal in Ireland have been terrorized by freak "lightning bolts" for over two years. Roofs have been literally stripped off, windows smashed, telephones and television sets blown up, and pipelines wrecked. On Dec. 25, 1984 a mighty blast caused a three-day blackout: it accompanied a snowstorm, the first "white Christmas" in the area in 20 years. See "Bolts from the blue," Fortean Times, Issue no. 45, Winter 1985, p. 5.

10. Scalar spikes or pulses from the Soviet testing may also cause other anomalies, including deaths of unsuspecting persons using the telephone. For a candidate event of this type, see "Killer Phones," Fortean Times, Issue no. 45, Winter 1985, p. 8-9; also AP release, Huntsville Times, May 30, 1985; AP newswire June 2, 1985; and New York Times, Sep. 11, 1985.

On May 21, 1985, five days after passing a complete physical examination, 17-year-old Jason F. Findley of

Piscataway, New Jersey was on the phone at his grandmother's house, talking to his girl friend. An odd click occurred on the line, followed by a gasp from Findley and then only the TV playing in the background. His grandmother found him unconscious, still clutching the phone in his hand. Rushed to Muhlenberg hospital, he was pronounced dead shortly afterwards. An autopsy could not determine the cause of death, and the telephone company found the phone working properly, properly grounded, and no evidence of excess electrical charge. Findley was lying on a wooden bed which would not conduct electricity. He had a hemorrhage of the inner ear. There had been an electrical storm over Scotch Plains, New Jersey the night Findley died.

AP wire services were told by the special forensic investigator with the New Jersey medical examiner's office that about six people had died in the U.S. in similar circumstances. Others had reported being knocked unconscious by "high voltage shock" from their telephones. Several weeks before Findley's death, another man from Whitehouse Station, New Jersey had been found unconscious with a telephone in his hand. According to the Consumer Product Safety Commission in Washington, D. C., in 1984 nearly 12,000 people in the U. S. were taken to emergency rooms with injuries related to telephones. A hundred of them died, although exact details were not revealed.

Note that the giant Soviet scalar exercise of May 1985 had been detected and verified by Golden. Substantial activity in the Soviet weapon complex, and in the Woodpecker grid over the U.S, continued throughout May and beyond. A phone line may by chance detect one or more atmospheric scalar EM pulses, just as occurred in the blackout in Ventura County, California on Nov. 8-9, 1985. These scalar pulses can travel along a phone line and be broadcast into a person's ear and brain from the telephone earpiece. The proper scalar EM pulse can induce both "acoustic shock" in the inner ear and "electrical shock" conditions in the nervous system. The pulse may also interrupt the body's electrical timing pulses to the heart, causing the heart to stop without physical damage. The scalar EM shock to the brain and nervous system can knock the person unconscious or, if sufficiently strong, kill him instantly. The condition is worsened if the person is ungrounded, since then he acts as a large, open-ended capacitance in series with the telephone instrument's

inductance. In such case, the scalar resonance of the equivalent series LC circuit can be sharply excited and resonated. By the nonlinearities of the body and nervous system, the scalar resonance can be translated into an ordinary electrical pulse or resonance. Since the scalar power is not translated into ordinary power except inside the nonlinearities of the human capacitor/nervous system, no damage to the telephone or phone lines need happen. [At the ComTec exhibit in Las Vegas in 1984, John Bedini demonstrated powering a 200-watt speaker system through a 100-foot length of #40 magnet wire, using scalar EM means. He put some 200 "watts equivalent" of scalar energy through the tiny wire to the speakers, where a small Bedini translator translated it back into ordinary electrical "force field" energy, powering the speakers. This was much to the astonishment of the technical audience, since the wire was quite cool and exhibited no evidence of heating, even though by conventional thinking it should have been instantly melted.]

The bottom line is: With increased Soviet scalar weapons activity over the U.S., the telephone system is likely to become more hazardous to humans using it, when the instrument is connected to the external wire. A radio phone is much safer against anomalous scalar EM "spiking."

11. The metal-softening detected and verified by Frank Golden on Jan. 1, 1986 is certainly indicative of a new mechanism or effect added to the Woodpecker grid. The highly specialized nature of the particular detector/amplifier which Golden was using provides strong evidence that the signal was actually derived by recording the scalar EM signals produced by a human cerebrum (two cerebral hemispheres connected by the corpus callosum, forming a scalar interferometer) when the human was successfully performing psychokinesis (metal-bending). The fact that Golden was able to nullify the signal locally by special methods worked out by him lends further credence to this hypothesis. In any event, three hours of very objective experimental data strongly support this thesis. It is therefore indicated that (1) the metal-softening signal had been added for a purpose, and (2) something made of metal was going to be softened, leading to its failure. Certainly the Challenger would have been an ideal target; softening the metal on its boosters and fasteners by even a small percentage would significantly reduce the vehicle's ability to withstand the

stress during launch. This of course is circumstantial evidence only, but the finger of suspicion is there nonetheless. It is a fact that the metal-softening signal was and is in the Soviet Woodpecker-repertoire; it is a presumption that it was intended for use against the Challenger.

- FINAL DRESS REHEARSAL BEFORE THE BIG
SHOW -

12. The shuttle launch from Cape Canaveral on the evening of Nov. 26, 1986 seemed smooth as silk to the army of official observers and onlookers. In reality the Soviet Union clandestinely conducted one or more Launch Phase ABM System tests against the vehicle, using it as a convenient target.

Figures 9, 10, 11, and 12 are included to give the reader some preliminary background on the highly significant events which occurred in conjunction with this flight, and previous to it. These figures are newspaper articles from the News Tribune, Fort Pierce, Florida. The articles are used by permission.

Anomalous atmospheric "booms" and airquakes had occurred in the Florida area for over three and a half years prior to the launch. Sixteen counties, most of them on the northern Gulf coast or close to it, had reported booms during the two-year period preceding April 1984. State and local emergency preparedness officials and U.S. Air Force Base representatives met but could not resolve the mystery of what was causing all the anomalous booms.

In fact, many booms had occurred in and around the gulf coast of Florida, particularly offshore from St. Petersburg, starting from several years earlier.

These anomalous booms were caused by the Soviets adjusting and testing the Woodpecker scalar EM grid for weather engineering and potential weapons use. The booms and airquakes were certainly not confined to Florida alone, but also occurred at many other locations throughout the U. S. and Europe.

Mysterious, highly localized seismic microquakes also had occurred at widely scattered locations throughout the U. S.

On at least two shuttle flights prior to the Nov. 26, 1985 launch, large anomalous "booms" had occurred over or around the launch site after launch. No one in NASA knew what they were or what caused them.

So prior to Nov. 26, the Soviets had already prepared and tested the Launch Phase ABM system mode of the grid against at least two U.S. shuttle launches. However, so eerie and strange are the scalar EM weapons that they had been able to do so without the U. S. government even becoming aware of what was going on. In the Kremlin, they must have marveled at our continued ignorance.

At any rate, they tested the Launch Phase ABM system again on Nov. 26, and this time private U.S. citizens happened to capture at least some evidence of what was going on. It still would have died there without surfacing, except for a curious chain of events. Let me briefly recount those events.

Lucius Farish publishes a fine little monthly newsclipping collection called UFO Newsclipping Service (Route 1, Box 220, Plumerville, AR 72121). In it she includes clippings on all sorts of anomalies, including UFO's, strange light phenomena, etc. Because of my long work in UFOs (for some time now, placed on the back burner due to the press of my work in Soviet scalar electromagnetic weapons), I've subscribed to Farish's service for several years.

And this time my unorthodox interests certainly paid off. Farish published a clipping of the article, "NASA officials stumped by strange light, boom," by Susan Burgess, News Tribune writer (see figure 10). The moment I read the article, I realized that the Soviets had actually tested the Launch Phase ABM System's area mode against the shuttle launch of Nov. 26, 1985. Further, George Suchary had taken a picture of the marker beacon as it was slewed away at the conclusion of the test.

With alacrity I contacted Ms. Burgess and, through her, George Suchary. Both were very helpful, and Mr. Suchary gave me permission to use his important photograph of the light moving away after the test. Ms. Margery Brill, the kind librarian at the News Tribune, sent me four clippings.

After reading the article by Julie Enders, Showcase Editor of the News Tribune, I contacted her also. Although extremely busy, Ms. Enders kindly gave me additional details, including the fact that Bob Gladwin had taken a series of eight stills of the launch itself, and in one frame an anomalous, curving line of light with a splash on the end

appeared.

At first I thought it might be the answer to a dream. Very tentative information suggested that the "curved light with a splash on the end" might have occurred in one of the pictures taken during the launch sequence itself, with the light striking directly under the shuttle shortly after it lifted off. I was positive the Soviets could strike at the shuttle (or a missile) with a "scalar EM pulse" missile, but hardly dared hope someone could have actually been lucky enough to get a photograph of it.

From my acquaintance with two masters of paranormal photography -- the indomitable Trevor James Constable and a close friend, Joe Gambill -- I understood how one could possibly get a picture of such a strike -- assuming it occurred -- at night, when the same picture could not have been taken in the daylight. I also understood why the camera might catch it when the human eye would not see it.

It seemed that, between them, these friendly, cooperative persons just might have gathered together the positive evidence to prove that the Soviets had struck at the shuttle with an offset test of a scalar EM missile, using a marker beacon for adjustment. (As it turned out, it was not to be as definite as that!) However, time was of the essence.

The Soviet tests had definitely included a test in the "area burst" mode, which can catch and destroy several missiles fired from a deployed silo complex at once. The clinching evidence I had needed for so long on a Soviet test of the pulse mode -- the scalar EM pulse missile -- just might be there in one of Bob Gladwin's photographs. But there was no time to lose; such evidence is fleeting, and unless I moved quickly, it was likely to fade away and disappear forever. With persistence, the rest followed swiftly. Mr. Suchary graciously gave me permission to use his photographs. These of course prove that the marker beacon was there. (In addition, it was seen by numerous persons.). The News Tribune gave me permission to print the articles. Mr. Gladwin furnished his negatives and gave me full permission to analyze and use his photographs. Personal friends, Everett and Shirley Edwards, printed the photographs in their private darkroom so the negatives would not be out of safe hands for even a moment.

At the time, this book was almost finished. If the photo of the candidate Soviet use of the electromagnetic missile was accurate, quick work would be necessary if it was to be included. My friend and publisher, John Ratzlaff, had

already agreed to swiftly publish this large output as soon as I could get it to him. At Omni Video Publishing, Ms. Electra Briggs was alerted to the potential importance of what was coming. She and Mr. Glenn Shoemaker swung by my house from New Orleans, and a quick, informal videoclip was taped, announcing the book. (Murphy's law -- if anything can go wrong, it will -- got me there.

Inexplicably, in my near-total fatigue from months of 19-hour days and 7-day weeks on this project, I spoke the date of the Titan explosion as April 19th, knowing full well it was the 18th! It happens. Electra suggested she slap a correcting statement over the video. Done. Be ready to get it out. It's too important; don't sweat the small stuff.)

Zerox copies of the photos were received. There in the fifth photo (or so it seemed) was an unequivocal strike of the scalar EM missile, in the launch sequence itself. The assumed strike seemed to have occurred right under the shuttle, a few seconds after liftoff.

The evidence seemed complete. All that was left was to receive the actual negatives and verify the sequence. At last we seemed to have the smoking gun. The Soviets would have been caught redhanded.

Based on the advance zerox copies, the manuscript was altered. Everything was ready. And then the negatives came in.

In this business, you learn to meet and accept a lot of failures. Things often go astray, and don't wind up as they seem at first blush. This time was no exception. Murphy got us again! The photos on the negative were in a different order than they had been on the zerox copies.

There's no mistaking the order in which the pictures were taken. There they are on the negatives, one right after the other, and clearly numbered. And the curving light with a splash at the end did not occur during the launch sequence at all. Instead, it was taken before the launch -- just how long remained to be seen. Everett and Shirley took the photo and developed it at both extremes: very dark and very light, to bring out all the details possible.

The results were most interesting. As shown on the lighter print ([figure 13](#)), the light does not curve down out of the sky and strike toward the ground, it turns up toward the sky and strikes above the distant treeline. Further, as shown on the darker print ([figure 14](#)), it does consist of a little ball of light, just like a scalar EM missile would appear. No apparent structure to hold the light appears in either picture, though one could not positively rule this out completely

without microdensitometer tests. (One can inadvertently get artifacts like this by focusing on a ball-like light bulb, for example, and then moving the camera while the shutter is still open. On the other hand, there is no evidence that this happened at all, and no street lamp post or other foreign object in the photo.)

(The remaining photos of the liftoff sequence are shown in figure 15.).

We called Mr. Gladwin. He verified that the photos had been taken in order, one right after the other. He had not had the camera on a tripod, but had steadied it on a railing. In other words, the "light streak with a burst on it" had been taken just before the liftoff. Also, Mr. Gladwin had not observed 'the marker beacon, and had not attempted to photograph any such "light in the sky." In fact, visually he had not observed any such streak and burst of light in any scene he was photographing.

So the question is, exactly what did Mr. Gladwin photograph in that photo, just prior to the shuttle's liftoff? The answer is. we just don't know for sure.

Let's run through the two possibilities:

(1) He may have snapped an artifact while moving the camera. If so, the camera was definitely quite still at least most of the time the lens was open, for the treeline is quite clear in the lighter photo, which reduces light saturation and shows details more clearly. Further, there is no evident support or structure attached to the light itself; it seems to be a "disembodied" light. So this possibility is ambiguous, though reasonable. Mr. Gladwin does not recall any such movement of the camera; it was steady while he was shooting.

(2) He may still have snapped a scalar EM missile. If so, it means the Soviets fired a "small test" of the exothermic pulse or scalar EM missile in advance of the actual shuttle launch. Let's pursue that for a moment, and suppose it to be true.

The Soviets already had the marker beacon up in the sky -- that's certain. Many persons saw it. Soviet trawlers off shore and Soviet satellites could also have given the actual position of the marker beacon. Thus the Soviet LPABM System would have had (a) the actual parameters the computer had used to transmit the beacon, and (b) the actual location at which the beacon emerged. Comparison of (a) and (b) is much like having a "meteorological data message" in field artillery: One has the corrections to apply for specific conditions of the medium that cause deviation.

These corrections can then be applied to calculated or "table" data to adjust firing for real-world conditions.

So far so good. The Soviets had the exact position of the registration beacon, and could apply corrections for a shot of the scalar EM missile. They certainly would know the exact position of the shuttle on its launch pad.

If a fairly substantial offset for the scalar EM missile shot were used, "mett corrections" could be applied and a small scalar missile could be zinged in, stopping momentarily at the final offset "strike" position so that a track could be obtained by the scanner extraction beam. Then by comparing the detected offset position of the "burst" of the scalar EM missile to the detected offset position of the marker beacon, the difference could be applied to the beacon's true position to get the true strike position of the missile. The offset used could then be subtracted to give the location where the missile would have struck without the offset, had it actually been fired at the rising shuttle after liftoff. This "adjusted final strike position" could be compared to the shuttle's expected early trajectory (which varies only slightly from standard for the first few seconds) to determine the expected combat success of the shot. It's a little roundabout, but it's a very safe way to do it if one wants quite positive assurance that the missile will not strike the shuttle and destroy it. Since the Soviets delayed the "area burst" and its concomitant atmospheric "boom" to $T + 12$ minutes, it is evident that a large offset was used for the area strike -- probably about 10 extra minutes -- to positively assure that there would be no actual damage or threat to the shuttle.

It seems logical, then, that they might fire the small scalar EM missile well offset from the shuttle, and just before its launch, to prevent any possibility of actual damage to the shuttle.

So there you have it. Mr. Gladwin's photograph is consistent with such a careful, safe scalar EM missile test by the Soviets, prior to the actual liftoff of the shuttle. On the other hand, it's not possible to say with certainty that that is what it is. It may simply be a very peculiar artifact. In fac, if it were not for the other indicators, one would most certainly not consider such a bizarre possibility as an offset Soviet scalar EM missile strike at the shuttle.

If the "streak" photo is examined as a candidate for a scalar EM missile test, then one other thing must be explained: Why did the film capture the test when observers did not see it at all? That, of course, we can explain!

So back to our presentation. Here I'm going to assume -- and accent that this is a postulation -- that the Gladwin photo actually represented a scalar EM missile test. We will run through a possible sequence of events, based on that assumption. We will hypothesize the LPABM system operation and the Soviet conduct of the test. The major events here in the U.S. may be quite real; those assumed to occur in the Soviet Union, of course, are "author's license" -- but hopefully realistic.

The evening of Nov. 26, 1985 is perfect. At Cape Canaveral, the shuttle Atlantis is poised on its launch pad waiting to move majestically into the heavens on its impending journey. As launch time approaches, everything is as smooth as a cat's whisker. There is, however, just one small anomaly.

A mysterious light is hanging up in the sky, staying still for awhile, then gently rocking back and forth. The light is a Soviet marker beacon for a scalar EM howitzer. The howitzer, employed in a special scalar EM channel contained in the Woodpecker transmitters and interference grid, will shoot through the EM carriers at an aiming point offset from the shuttle.

Since this is still to be a nondestructive test, no chances will be taken. The pulse mode will be used, and a "scalar EM missile" -- a bundle of energy buried in hyperspace around its moving zero-point in this world -- will be fired directly at an offset aiming point prior to launch of the shuttle. A substantial offset in distance will be used to prevent posing any danger of inadvertently hitting the shuttle on its launch pad.

The marker beacon is necessary for precision. Its desired position will be calculated and the beacon will be placed on station. By placing this source of continuous EM energy in the area, it can be detected by the scanning "energy extraction beam" and tracked by the distant Soviet operator. Soviet trawlers and satellites monitoring the test will report the true position of the marker beacon, which will deviate from the calculated location due to conditions of the channel medium (the Woodpecker beams) at the time. Comparison of the beacon's true position to its desired, calculated position "registers" the marker beacon and yields the "meteorological corrections" which must be applied to standard firing table calculations. These corrections can be

applied to any further shot into the area to correct its aim, just as standard field artillery applies registration corrections in the target area.

When the shuttle boosters ignite, an additional track will be obtained from it. The offset from the received track of the marker beacon and the received track of the shuttle booster flame thus will give the exact correction or "shift" from the marker beacon settings that should be used to set the howitzer's aim. In other words, a "relative" firing, offset from the marker beacon registration track, will automatically compensate for any vagaries of the medium experienced by the beams in transmission.

The Russians, being excellent artillerymen, have simply applied the standard artillery technique of shifting from a known registration point.

The Soviet Launch Phase ABM System is cocked and ready. This is the last test in the "wet run" series in which an offset will be used. If everything goes as planned, future shots will move into the next phase, where actual U.S. targets will be destroyed. The two great powers are already at war, but one of them does not know it yet. Because of the importance of this last test before the next step in hostilities commences, Gorbachev himself is monitoring the test.

The countdown begins. In Florida a great many persons are observing the event. George Suchary has already spotted [a strange light hanging in the sky](#), where none ought to be. Bob Gladwin, resting his camera on a railing, prepares to snap his first picture so that he will be sure to have a sequence completely across the launch.

Deep within the Soviet Union, a large display screen is illuminated. The marker beacon's track is clearly shown on the display, as are synthetic symbols for the shuttle on its launch pad, several Soviet ships off the coast of Florida, and several Soviet satellites.

The control officer barks, "Missile test! Proceed!" The simulation officer presses a switch, and a simulated shuttle launch track appears.

The operator responds immediately, "Launch detected!" The identification officer, scanning the frequency components and the signature of the energy extracted from the launch, calls out, "Missile! Target hostile!" He presses a button, and a light illuminates on the panel, marking the target as a hostile missile. The launch track begins to blink.

The control officer announces, "Prepare to fire!" "Pulse mode!" "Strength one!" "Test!" "Apply burst

offset!" The operator rapidly flips switches, setting the mode of fire and the offset. Instantly lights light to show that the computer has computed the shift and offset, and corrections. A red "Ready to Fire" light illuminates and a low siren begins its wobulating growl.

The control officer orders, "Fire!" The operator presses the fire switch. A "Fire" light appears. A slight, deep shudder is felt briefly as the howitzer fires its scalar EM pulse missile of deadly energy. On the screen, the path of the scalar EM missile is traced out as it speeds toward its target far over the horizon.

In Florida, George Suchary is getting more and more curious about [that pesky light](#). Bob Gladwin is preparing to snap his first photo as the final seconds of the countdown tick away.

On the distant Soviet screen, a sudden small burst appears, superposed over the synthetic shuttle track. The operator yells, "Burst!" On a smaller screen, a vertical profile shows the strike directly underneath the target. Immediately a blinking "Target Killed" light appears as the computer assesses the shot a kill.

The operator excitedly calls out, "Kill !" "Direct Hit!" Cheering breaks out from the firing team and the onlookers. Gorbachev and his entourage are smiling broadly and clapping. The cheering quickly hushes as the crew and participants continue to watch the track of the rising shuttle, and prepare for the launch and the next test.

Bob Gladwin has snapped his first picture ([figures 13 and 14](#)) leaving the shutter open a bit to allow for the nighttime conditions. As luck would have it, the scalar EM missile strike Occurs during the time the shutter is open. The film has captured the strike by a special process, even though human eyes have not seen it. (We will explain that shortly.).

At 7:29 the Atlantis's boosters ignite and the vehicle begins to rise smoothly off the launch pad. She will continue to rise, then pitch over to a 45 degree angle and proceed down range..

Bob Gladwin is snapping pictures regularly, one after the other.

In the local Florida area, hundreds and hundreds of persons are watching the flawless launch. The tip-off of the Indian River Community College basketball game and the St. Lucie County School Board meeting are held up while participants watch the Atlantis begin to rise serenely upward.

In the Kremlin, another track has appeared on the

control screen display. Once again the sharp-eyed operator snaps, "Launch detected!" The identification officer, scanning the frequency components, tersely rasps "Missile! Target hostile!" Again he presses a button, and a light lights on the panel, marking the target as a hostile missile.

The control officer orders, "Simulate multiple firings!" The simulation officer acknowledges, "Multiple firings simulated!" and presses a button to cause the computer to simulate multiple launches on the display.

Immediately other synthetic target tracks begin to appear on the display screen, one by one, clustered around the shuttle launch at various separation distances, pre-arranged to represent multiple firings from a missile silo complex for this exercise. A special audio alarm sounds as each track appears.

The operator immediately calls out, "Multiple tracks! Missile launches!" and then "Identified hostile!"

The control officer orders, "Prepare to fire!" "Area pulse mode!" "Test!" "Apply time offset ten!"

The operator flips switches rapidly, acknowledging. Lights illuminate on the console, showing status of preparation for firing. The "Ready to Fire" light illuminates and the low siren begins again.

Back in Florida, Bob Gladwin has stopped snapping photographs. George Suchary has gone into his house to find his Polaroid camera and take a picture of that pesky light still hanging up there in the sky.

Back in Russia, the fire control officer orders, "Fire!" The operator presses the fire switch. The "Fire" light illuminates, immediately blinking, and the siren changes tone. On the display screen, all target tracks are blinking. A large light on the console comes on, showing that an "exercise time offset" of 10 minutes has been applied. A digital clock starts ticking off the minutes.

Minutes pass as the offset time ticks down.

Back in Fort Pierce, George Suchary is coming out to take photographs of that darn light, which is still hanging up there!

Folks are streaming back into the Indian River Community College gymnasium for the basketball game. Attendees at the St. Lucie County School Board meeting are wandering back inside, to get ready for the meeting.

More minutes pass.

Back at the control console in the Kremlin, the offset clock ticks down to zero. The siren ceases its wobbling tone and holds a steady note. The "Fire" light ceases

blinking and illuminates with steady brilliance. A deep shudder is felt as the howitzer fires again. On the screen, the rapid trace of the mighty scalar EM serpent is shown as it races toward its target.

Suddenly it reaches the target area, and a large blossoming light appears, covering all the target tracks. The operator announces, "Burst!"

All the target tracks flare brightly, then dwindle and die. The "Targets killed" light illuminates and the operator yells, "Kill! All targets killed!"

Wild jubilation breaks out. Everyone is grinning and clapping. Gorbachev personally congratulates the fire control officer and pumps his hand. The tension relaxes visibly. In the noise, the operator touches a joystick and slews away the marker beacon, preparing to shut down the system.

The final test has been a crowning success. Now the real first phase of active combat begins. "And the fools don't even know it yet!" a grinning Gorbachev delightedly announces.

Back in Fort Pierce, precisely 12 minutes after liftoff, high in the atmosphere above the launch site and a little downrange, a tremendous rumbling boom suddenly rocks the coast for hundreds of miles in each direction. The blast is heard as far north as Charleston and as far south as Key West.

George Suchary is taking pictures (figure 10) as the hanging light in the sky suddenly begins to move away, obeying the controls of a Russian operator thousands of miles away. Bob Gladwin has already finished snapping his photographs ([figures 13, 14, and 15](#)) of the launch and taken down his camera.

The anomalous light disappears rapidly in the distance, moving faster than any jet aircraft.

People gradually resume their normal activities, talking about the beautiful evening and the perfect launch. Many of them have noticed the strange light that hovered and bobbled in the sky, then sped away.

The final Soviet registration of their eerie weapons for World War III has been completed. A totally different kind of Pearl Harbor -- more akin to a Trojan Horse -- has been prepared for the unsuspecting United States.

Countdown toward Armageddon begins.

[George Suchary's photograph of the marker beacon](#), just after it had started slewing away, is shown in figure 10, as printed in the [News Tribune](#).

Bob Gladwin's photographs of the shuttle launch are shown in [figures 13, 14, and 15](#).

Figures 13 and 14 show two developments of the same shot, one light and one dark. The light one shows the treeline in focus in the distance, with the light streak and burst.

Figure 15 shows liftoff of the shuttle and its rise and tilt over on the first part of its trajectory.

Figure 16 shows a possible detailed interpretation of the first Gladwin photo. The simulated aim point was offset from the shuttle, and the strike was directly at the offset point. The computer computed the burst strike of the scalar EM missile from the adjusted registration data, and determined whether or not the target was killed.

The control precision is shown by the small size of the scalar EM missile.

The strike of the weapon is caught by the camera, but not seen by the naked eye. None of the many hundreds of onlookers saw the strike, though all of them saw the shuttle launch.

There is a very good reason for that, though it is not commonly known.



Constable

The reason is that Bob Gladwin's camera was utilizing a form of photography pioneered -- to the best of my knowledge -- by Trevor James Constable. At least I learned about it from Constable's books and articles. I then told it to my good friend, Joe Gambill, and Joe applied and adapted it to the unusual photography which he performs. Both Constable and Gambill are masters of this type of photography. Once I got deeply into scalar electromagnetics, I finally figured out what was going on in this methodology.

Briefly, here's the way it works. Scalar energy, of course, has to be detected by some sort of interference phenomenon. There exists a very special way to get a camera to perform such interference for you.

In the EM spectrum, the infrared and the ultraviolet have a special relationship to each other. The ultraviolet is exactly twice the frequency of the infrared, if the two zones are properly chosen. In other words, the UV is the first

harmonic of the IR.

The scalar EM energy, since it operates in the Kaluza hyperspace surrounding every point in ordinary space, may be considered to be composed of pure spin. (That is, it's moving in a dimension where each particle of that dimension is spinning). Harmonics there are spin harmonics.

In this photon-interaction produced level of reality (the ordinary world), the IR and UV bands are more closely connected to the "shadow world" in which scalar energy moves. Thus there is a sort of shadowy "swirling" of the scalar energy near the IR and the UV. Entry of the scalar energy into this world, through the IR and UV windows by a kind of "harmonic interferometry," is normally prevented by the presence of visible light. That is, visible light "squashes" the "paranormal channel" that lurks beneath the IR and UV zones.

To make use of the IR and UV interference source zones, Constable covered his camera lens with a special filter (18A) which is opaque to the visible light spectrum and transparent to the IR and UV. Note that the film is sensitive to the IR and UV region we are talking about, but the human eye is not.

When pointed at a sufficiently strong source of scalar energy, such a specially filtered camera has unique characteristics. It strips out the visible spectrum, but still admits the IR and UV spectrum. The scalar energy surges through these two source windows, and phaselocks harmonically. That is, the scalar energy entering through the UV window fits twice neatly in the scalar energy entering through the IR window. This interference, on the film, is (recall) swirling in frequency. The net result is that the film records the interfering scalar energy as visible spectrum energy.

Infrared film can be used to increase the response in many circumstances.

Both Constable and Gambill have rigorously proven this technique in literally thousands of "paranormal" photographs. (They do not necessarily use my scalar EM terminology, but the technique is rigorous and works, regardless of terms.)

Under nighttime conditions, sometimes the particular lens and film combination will phaselock between IR and UV for incident scalar EM energy. This is particularly true when a relatively strong source of IR is in the vicinity.

While Bob Gladwin was taking his photographs, there

was no suppression of the IR/UV phase-lock effect by visible light because it was night and there was hardly any visible light entering his lens.

Thus his camera lens and film formed an IR/UV phase-locked interferometer that detected and recorded the strike of the scalar EM missile underneath the shuttle, even though human eyes did not detect it.

At this point it would be interesting to know whether NASA may have had IR cameras focused on this shuttle launch (which was at night). If so, it would also be interesting to know whether any of them may have developed the IR/UV phaselocked interferometer effect, and captured the strike of the weapon.

Note that daylight shots would automatically break the IR/UV phase-lock possibility, by jamming out the effect with visible light, unless a special filter is used to filter out the visible light but leave both the IR and UV.

One would hope that both NASA and the U.S. Air Force will take note and discreetly add a specially filtered camera to the instrumentation observing and recording all future daylight launches.

To recapitulate the major events at the shuttle launch on Nov. 26., 1985, see figure 17. A marker beacon was placed in the vicinity, high over the area, for precise registration and location of tracks relative to it. A scalar EM missile strike may have occurred just prior to launch, and offset from the shuttle.

Then the shuttle lifted off. The exercise called for simulating multiple launches from a missile field. The area code was computed, and the fire order given. A substantial time delay -- say, 10 minutes or more -- was used to absolutely assure that the actual shuttle was well away from the engage blast.

Twelve minutes after launch, the delayed firing in an area "multiple missile kill" mode occurred, producing a massive boom heard for hundreds of miles up and down the east coast. After the boom, the marker beacon was slewed away, and photographed by George Suchary just as it moved.

The shuttle moved on downrange and went merrily on its way, blithely unaware of the jaws of the tiger that had snapped shut behind it.

To the Soviets, this final test of the preparation phase was highly successful. They were now ready to increase the risk level and fire the first round of World War III.

- THE SHOW BEGINS -

13. On Dec. 12, 1985 the same Soviet weapon tested against the previous NASA shuttle launches and against various aircraft may have deliberately interfered with the controls of an Arrow DC-8 taking off from Gander Air Force Base, Newfoundland. At an altitude of 100 feet, the aircraft -- carrying over 250 U.S. soldiers and civilian crew members -- lost power and sank into the ground tail-low, killing everyone on board. It was a tragedy of enormous proportions to the U.S., and especially to the families and friends of the brave servicemen and crewmembers who lost their lives.

Three Canadian witnesses to the crash were interviewed over the Canadian Broadcast network television news on April 8, 1986 at 10:00 p.m. No flame or smoke issued from the plane before its descent and crash.

However, witnesses reported seeing the aircraft mysteriously glowing with a yellow halo. That is a signature of the use of a scalar howitzer in the "continuous EM emergence" mode, similar to the manner in which several F-111's were downed in Vietnam.

In short, the DC-8's electrical systems were interfered with by electromagnetic energy and noise created throughout each increment of spacetime occupied by the aircraft. A powerful charge was rapidly created in and on the aircraft structures and skin. The "yellow glow" seen by the witnesses was a corona due to the skin of the aircraft acquiring a high electrical charge.

Something also apparently caused the rapid loss of two engines, one after the other. This indicates that the distant Soviet operator may have struck at the engines, one after the other, with a scalar "energy extractor beam." Thus he apparently tracked the aircraft as it moved down the runway, then used two modes against it: one to create serious EM interference with the electrical systems of the aircraft, and one to disable the engines.

With its controls ineffective and power drastically reduced, the doomed aircraft sank to earth, still in its "tail down" configuration from takeoff, and crashed and burned.

Admittedly other factors may also have contributed to the crash. These included reduced lift due to poor engine maintenance, increased weight of the aircraft due to icing, and heavy loading. However, normally the aircraft could still have taken off and flown to its destination. (See "Arrow Air was absolutely safe, FAA official says," UPI release,

Birmingham Post-Herald, Apr. 17, 1986.)

To date, no official seems to have recognized the sinister significance of the "yellow glow" or what it implies. No one seems to have connected the loss of this aircraft, the mysterious booms over U.S. shuttle launches, the Woodpecker interference grid, the anomalous loss of the U. S.S. Thresher, the high altitude "booms" off the east coast of the U.S. some years back, the puzzling loss of two critical Titan launch vehicles in a row, anomalous engine flameouts of civilian jetliners, etc.

Certainly officialdom has not recognized that a Soviet Launch Phase ABM System is being tested directly over its collective head, to include actual destruction of U.S. aircraft, missiles, and space vehicles with concomitant severe loss of American lives.

Direct and diabolical acts of war have been committed upon us by the Soviet Union, but in a fashion that still eludes our erstwhile pundits.

However, it is not as simple as that. To even energize giant scalar EM weapons is to run a risk -- to all mankind -- so horrendous that it boggles the imagination. Truly it deserves Brezhnev's 1975 phrase, "...more frightful than the mind of man has ever imagined."

Shortly we will reveal exactly what he meant.

- Apr. 18, 1986: Death of a Titan -

14. As this book goes to press, the last two U.S. Air Force Titan 34-D missiles fired from Vandenberg Air Force Base in California have blown up shortly after launch. The first one blew up on Aug. 28, 1985 just after lift-off. That loss has been attributed to failure of a high-powered fuel pump, causing a massive oxidizer leak and a smaller fuel leak. The second Titan loss occurred on April 18, 1986 when the Missile blew up 5 seconds after lift-off. Its loss is still under investigation and no determination of cause has been made. Apparently the shuttle and the Titan presently provide the only viable launch vehicles for launching U.S. "spy" satellites. The loss of these sensitive satellites -- if indeed they constituted the payloads -- cannot help but be damaging to our strategic surveillance capability. According to the Los Angeles Times, the single remaining KH-11 satellite was launched in December 1984 and, with an expected life of two to three years, it could stop functioning later this year.

Whether or not significant Woodpecker grid activity existed in the vicinity of the Titan launch of August 1985 is

unknown at this time. However, significant activity in the grid definitely occurred before the April 18 Titan disaster and on the same day.

On Easter Sunday, 30, 1986 engineer Ron Cole observed significant cloud signatures of grid pattern activity, correlated with Soviet Woodpecker measurements. On April 18, the present author observed traces of a cloud radial over Huntsville, Alabama and took photographs of it. Preliminary reports from Thousand Oaks, California indicate extensive grid activity again on April 18, the day the second Titan exploded.

At least the second of these two missile destructions shortly after launch is highly suspicious, since the grid positively was active during that time. Also, a clear trail of Launch Phase ABM system indicators exists back to the massive scalar exercise of April/May 1985. The first Titan explosion in Aug. 1985 thus falls within the Soviets' "now let's test them against U.S. launch vehicles" period.

The second Titan loss follows highly suspicious losses of the Arrow DC-8 on Dec. 12, 1985 and the Challenger on Jan. 28, 1986. The same Soviet weapon system that destroyed those targets probably also destroyed one or both of the critical Titans.

At least, on the second Titan explosion, the Soviets left another signature. In one of the videotapes taken of the explosion, the marker beacon can be seen well , above the exploding debris, moving away from the explosion site.

See for yourself! Refer to "Titan Explosion Cripples U. S. Launch, Surveillance Capability," Aviation Week & Space Technology, 124(17), Apr. 28, 1986, p. 16-19. Specifically, look at the color photo of the explosion on p. 18.

Look well above the explosion (about one inch on the page) and to the left (about one inch on the page) of the center of the top of the fireball portion. There you will see a little light, caught in the very act of moving away.

At my rather frantic urging, engineer Ron Cole sought out a copy of the original videotape. He and a team spent two hours, going through this portion of the tape frame by frame. The light is there. It's real. And it moves on out of there, well above the explosion and independent of it.

It's the Soviet marker beacon, caught in the very act. Here I want to express my sincere appreciation to Ron Cole for his untiring efforts to nail this light down. Without his dedication to supporting this investigation, it would have been impossible to say for sure that the light was there.

So we have caught the bear red-handed, with his fingers in the cookie jar. If the marker beacon is there, you may rest assured that the Soviets destroyed that Titan missile, with very high probability. [See also "Investigators Search for Clues to Cause of Titan Blast," Aviation Week & Space Technology, 124(17), Apr. 28, 1986, p. 19-20; also "Titan Accident Prompts Funding, Technology and Policy Questions," AW&ST, 124(17), Apr. 28, 1986, p. 21.].

[Continue](#)

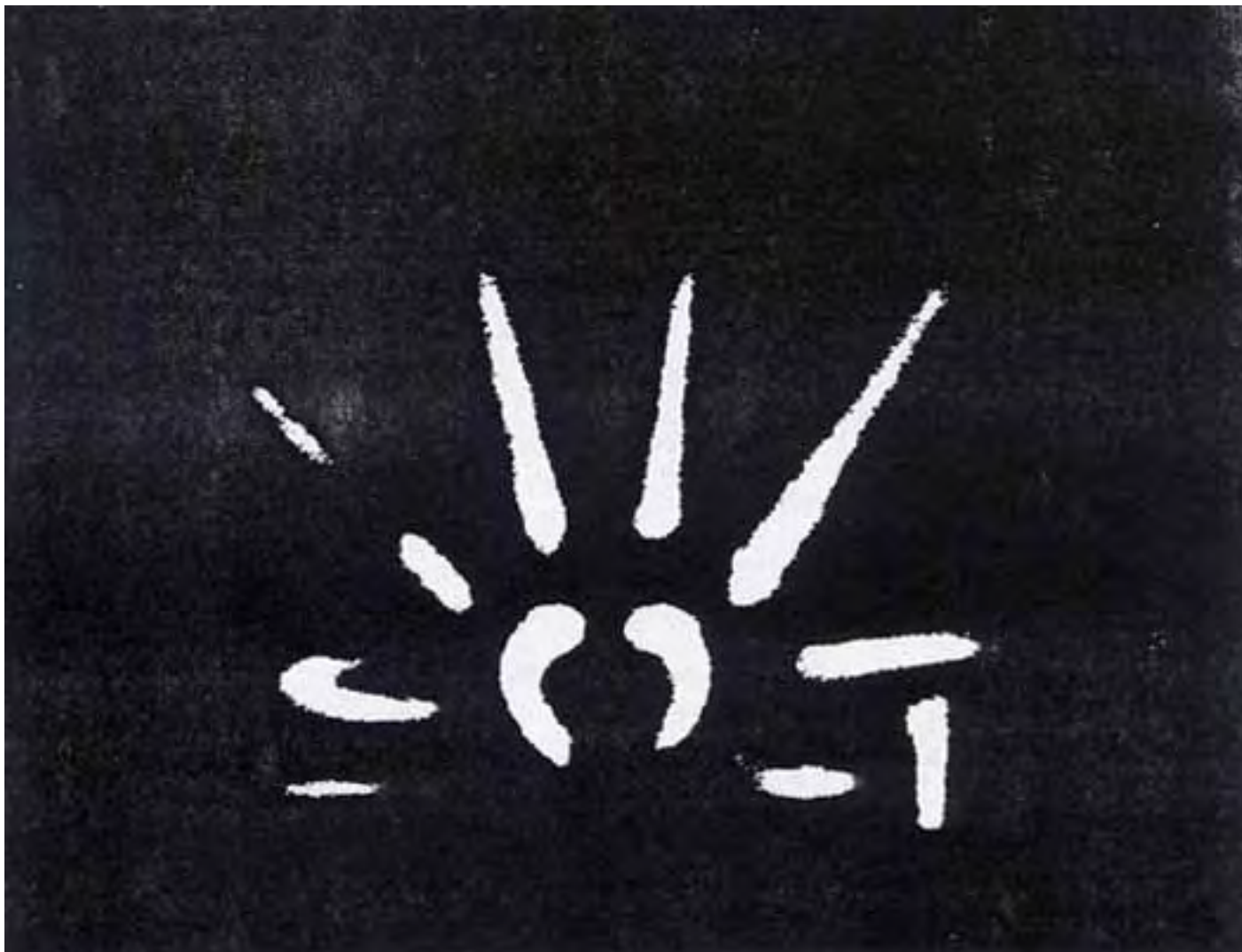


Figure 1. Wilson's first cloud radial



Figure 2. Wilson's second cloud pattern



Figure 3. Wilson's third cloud radial

Figure 4.

PLACEMENT OF WILSON'S THREE RADIALS

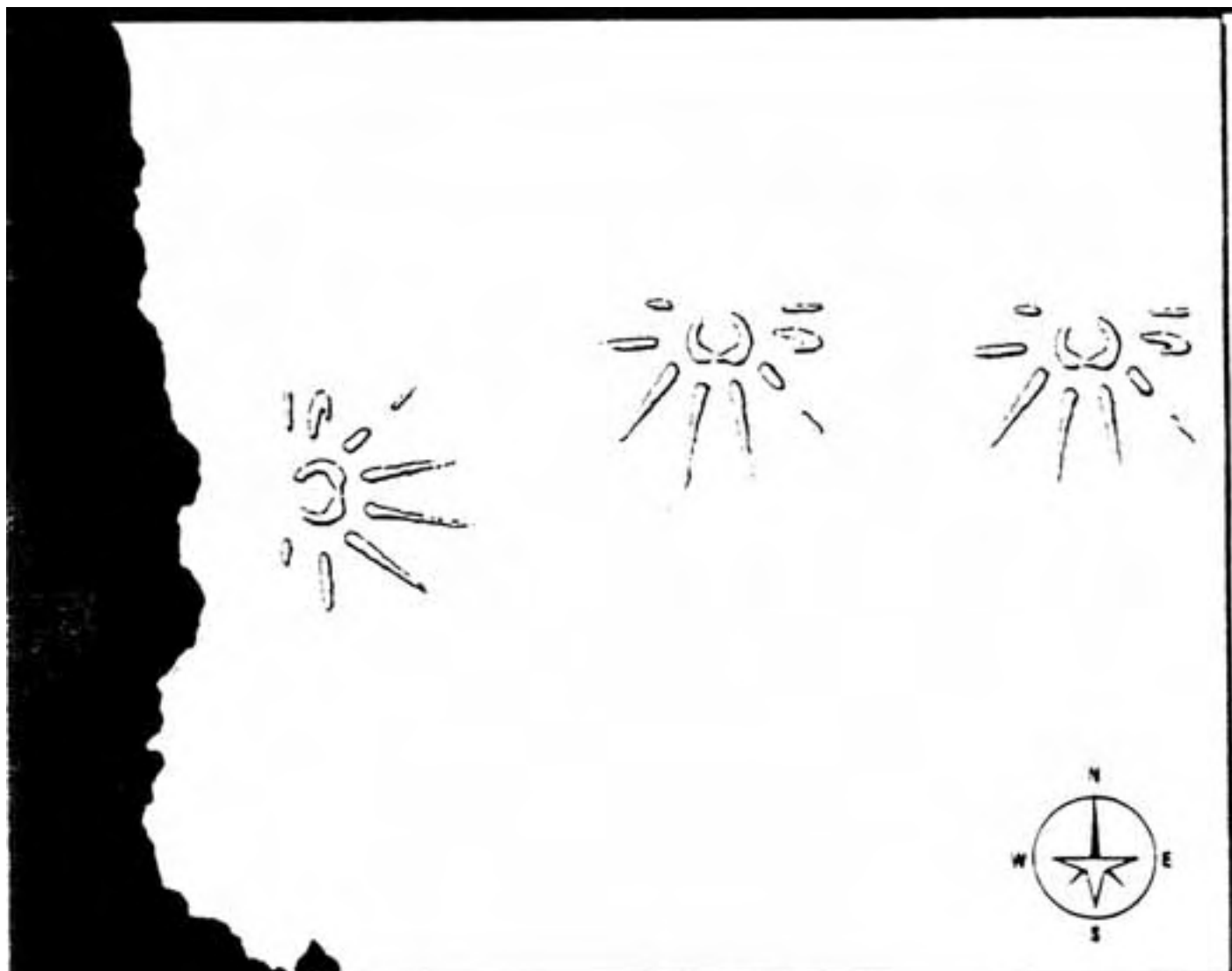


Figure 5.

VIEW FROM WESTLAKE OVER VENTURA COUNTY, CA
1-24-86, 280° WEST/NORTH-WEST
11:45 AM PST

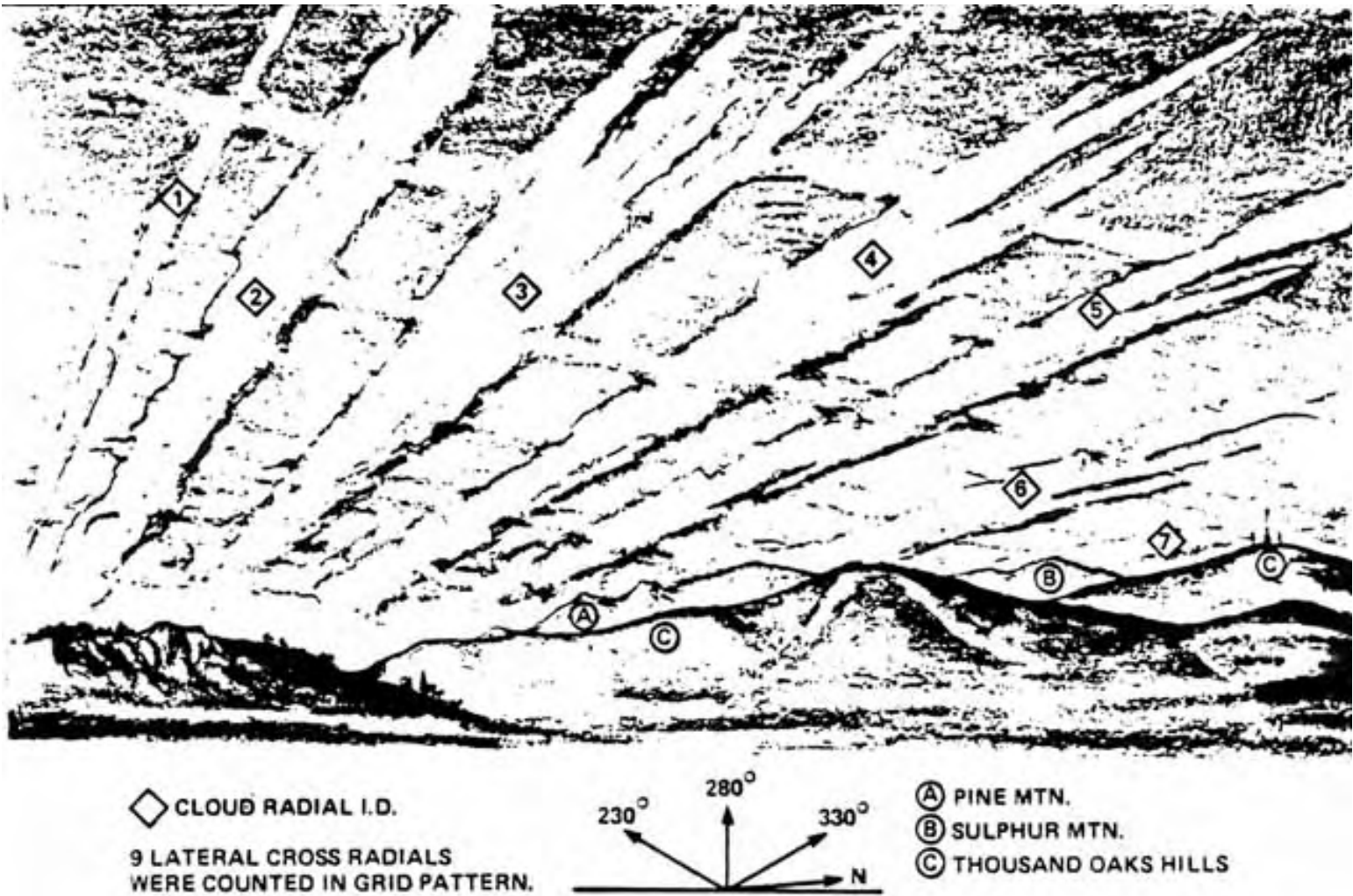
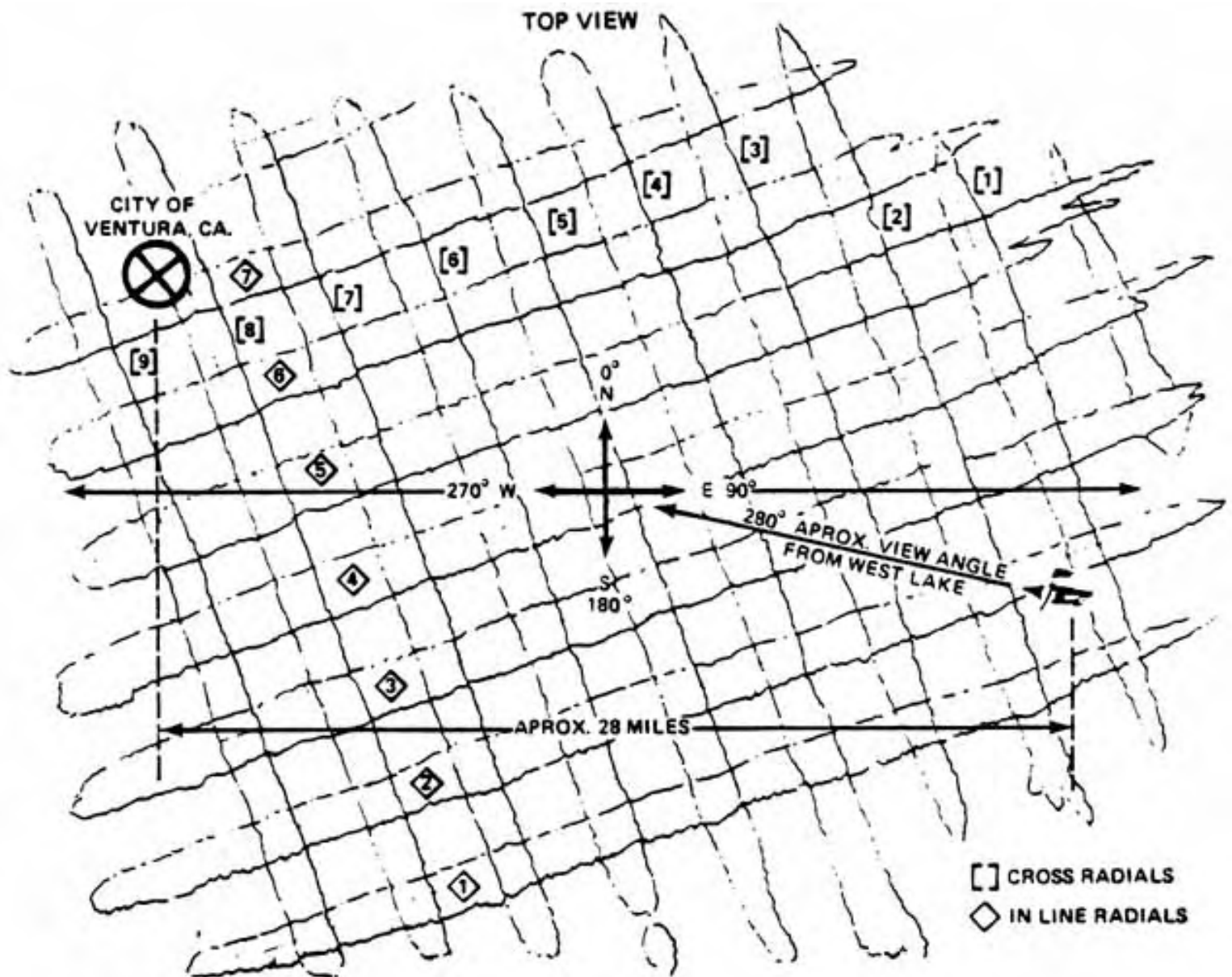


Figure 6.

GRID VECTOR APPROXIMATION 1-24-86 VENTURA COUNTY, CA



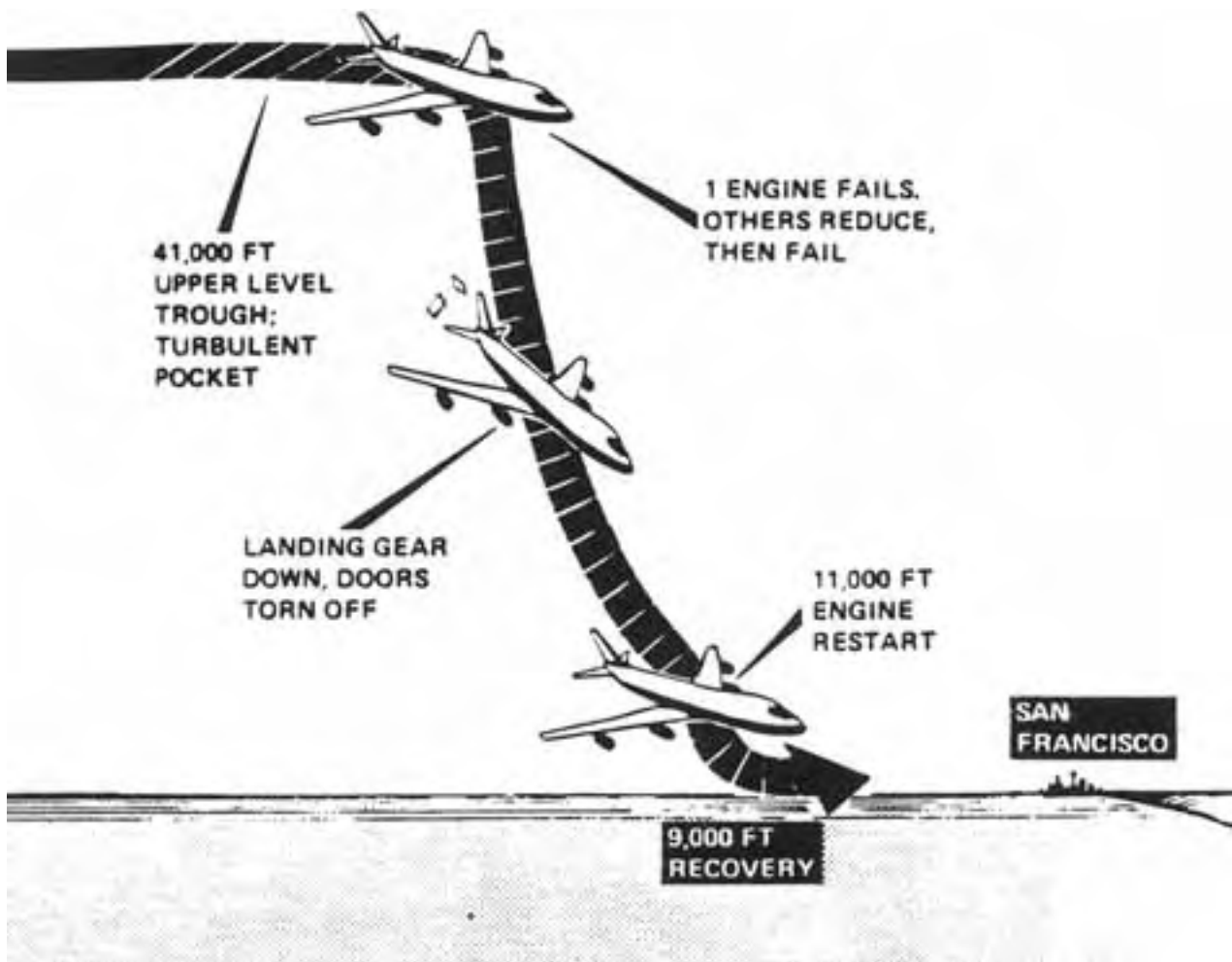
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Figure 7.

SIX-MILE DROP IN TWO MINUTES

CHINA AIRLINES FLIGHT 006 - TAIPEI TO LOS ANGELES - 19 FEB 1985



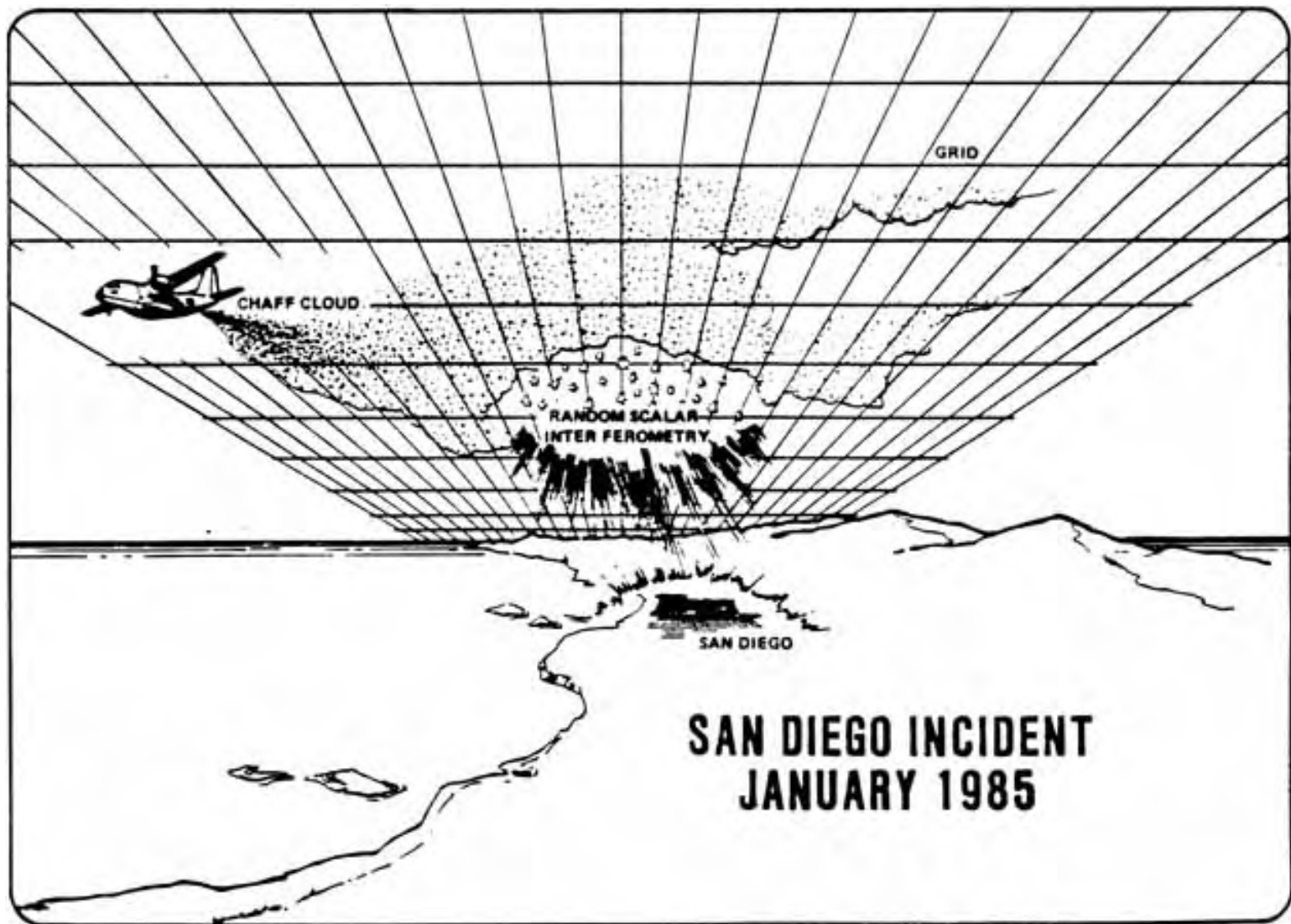
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Figure 8.

SAN DIEGO CHAFF INCIDENT, JAN. 1985

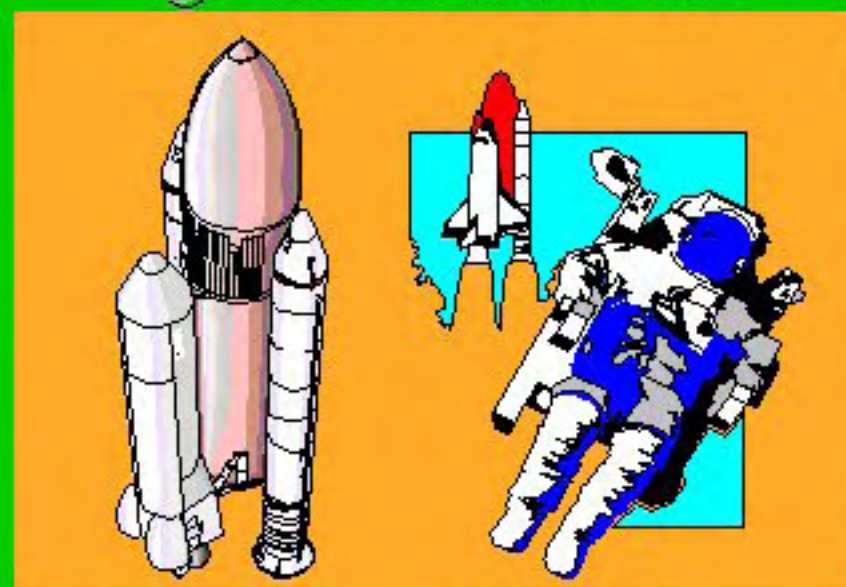
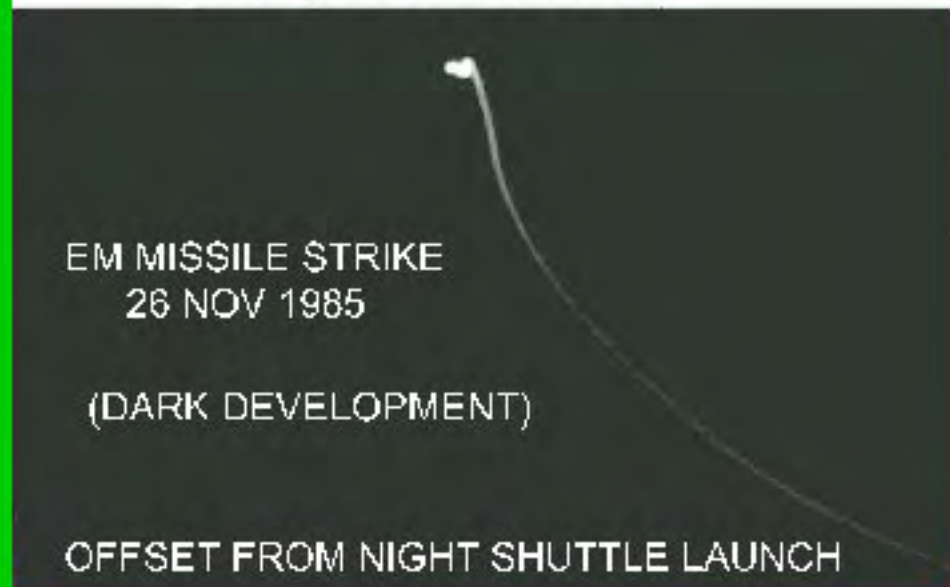


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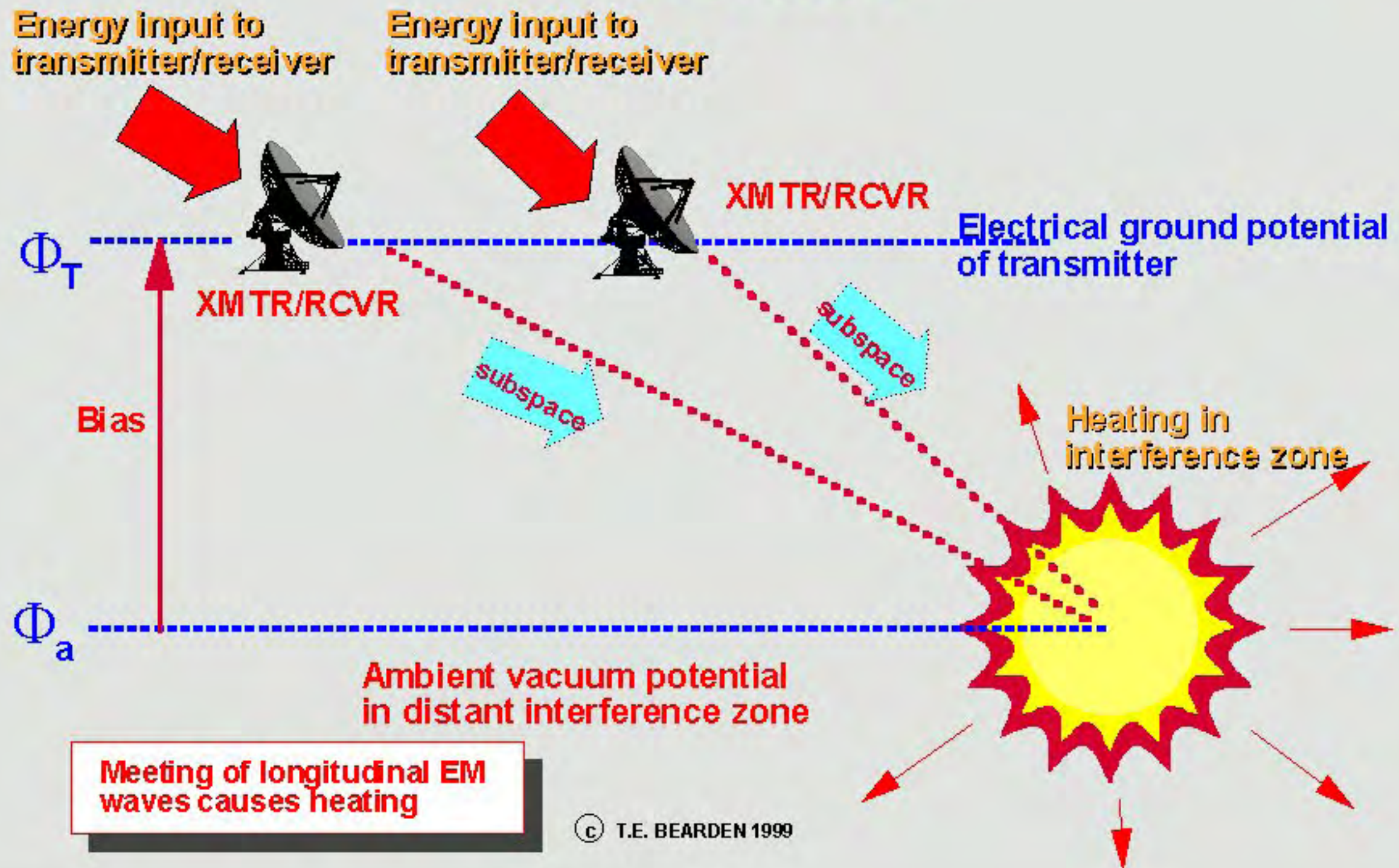
EM Missile Strike, Offset from Night Shuttle Launch

Cape Canaveral, Florida



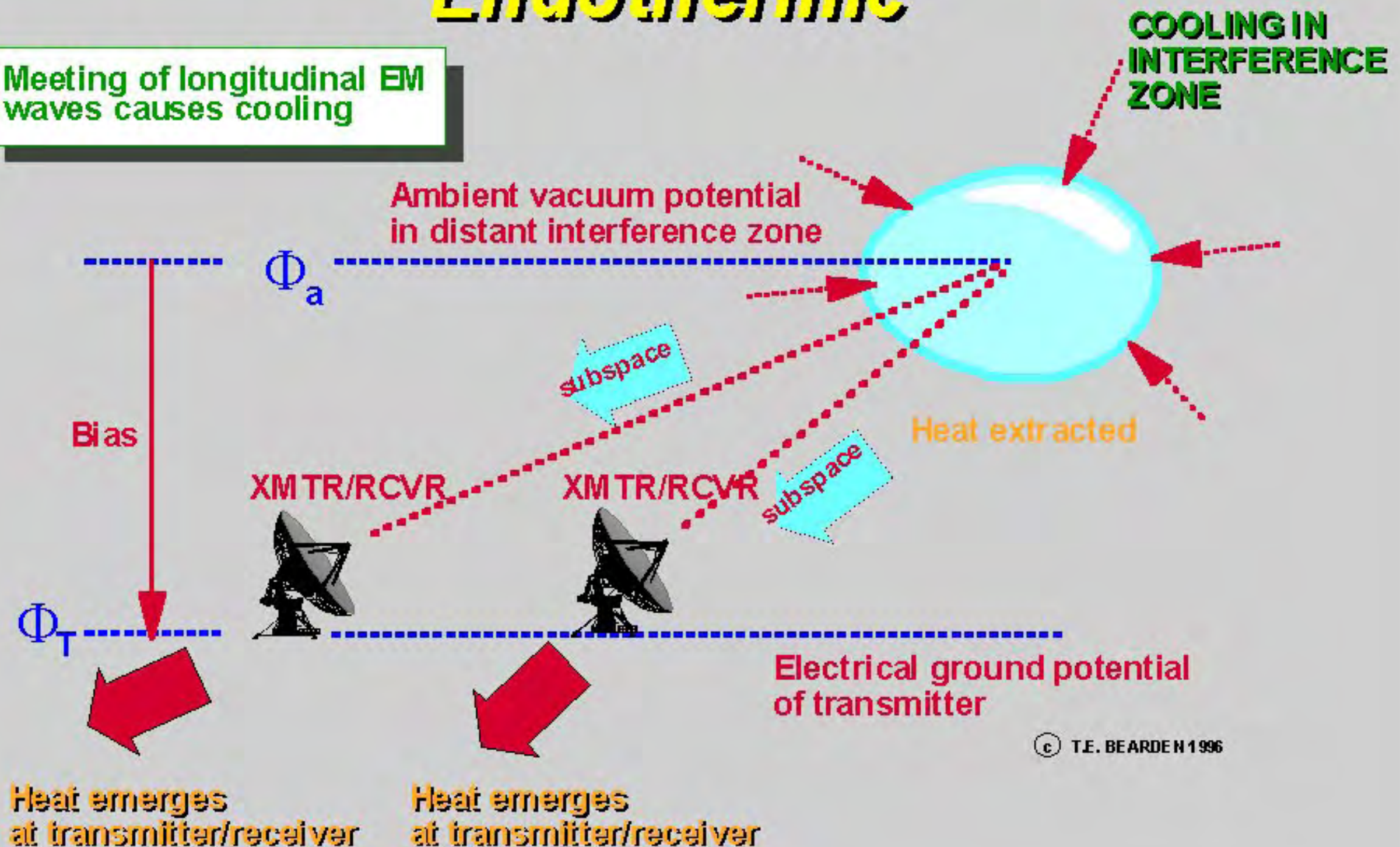
The Smoking Gun on 26 Nov. 1985

Longitudinal EM Wave Interferometry: Exothermic



Longitudinal EM Wave Interferometry: Endothermic

Meeting of longitudinal EM waves causes cooling



- More Frightening Than the Mind of Man Has Ever Imagined -

Brezhnev's unheeded 1975 characterization of these weapons as "more frightening than the mind of man has ever imagined" has very real justification. In a moment we shall explain what he meant. We shall also explain why the Russians may be serious about substantial nuclear disarmament.

There is now a "balance of terror" loose in the world that makes the old MADmen's MAD concept look like a sunny day in Hawaii.

Let me explain just a little of what I mean.

The scalar EM can and does use an ordinary EM beam as a medium. Many, many scalar EM channels can be infolded into an ordinary carrier. Thus the amount of energy stored in the carrier as "electrogravitational" energy has little to do with the feeble amount of electromagnetic energy stored in the EM carrier signal.

Thus in one sense, when the Soviets are employing the big "continent buster" weapons, literally hundreds of millions -- or even billions -- of watts of energy may be infolded into the seemingly weak carrier beams. All this energy is in the scalar EM channels established in the carriers.

Plus which, the scalar beams are employed in a "standing wave" node. Each scalar standing wave is like a gigantic "capacitor": It is highly charged. Under normal conditions, it has a charge and discharge time constant as well. If something were to "short circuit" one of these huge standing waves -- say, one with a thousand megawatts in it -- all that stored electrogravitational charge would discharge through the short circuit into whatever is on the other end of the short, and into the ground itself. In other words, the earth itself in that location would receive a mighty electrogravitational pulse (EGP). The ground in a region surrounding the discharge point would "charge up" just like a capacitor, and would transmit the EGP as a hemispherical current into the earth and spreading around it. This is where the real problem cores in.

The problem, as originally discovered by Wilhelm Reich [orgone energy was and is real, and is simply one form of scalar electromagnetics], is that radioactive material has a very great affinity for this EGP and undergoes a drastic reaction to it. Crudely, it works like this:

Imagine the vacuum as a virtual particle gas. This gas is under extremely high "pressure" or, more correctly, internal Stress. This stress is a gravitational potential.

However, the stress of the ambient vacuum is normally about the same in most localities. So a chunk of radioactive material doesn't experience a difference in vacuum potential across itself or throughout itself. In other words, the scalar EM fluxes in and out of every part of the nucleus are very high, but of equal magnitudes. The radioactive nucleus, however, is "unbalanced"; that is, it has an extra bit of unresolved EG potential which it would very much like to get rid of or discharge, by spitting out one or more particles. That is, it would like to "decay" to a more stable configuration. A nucleus that is trying to decay to a more stable configuration is a radioactive nucleus.

Remember, the radioactive nucleus is involved in a tremendously dynamic virtual particle flux exchange with the vacuum potential. And a part of it isn't quite in balance in that flux. Sooner or later the right "bobble" in the input flux will come along, and the nucleus will decay and emit a particle and/or radiation. By measuring the level of decay activity in a certain amount of the radioactive material, we can determine a "decay constant," or basically the probability that a nucleus will decay in one second. We can then determine how long it will take that chunk of material to decay away to a stable, relatively inert material. Some materials only require a few minutes to decay, while others may require thousands of years.

Now if you suddenly and drastically change the stress of the vacuum in which a radioactive nucleus is imbedded, you change the potential placed on the unbalanced nucleus. You hit it, in other words, with a strong EG potential pulse -- an EGP. That instantly unbalances the nucleus and it decays explosively. That is, it changes the decay constant and the probability of decay.

Basically that's what happens in a nuclear implosion weapon: You hit the radioactive hunk of material in the center with a very high, imploding pressure wave, which is carrying an EGP. The EGP causes all the nuclei to decay nearly instantly, producing a nuclear explosion.

The bottom line is: strong EGPs wreak havoc if they happen to hit anything radioactive. Such as nuclear warheads, in missiles or in storage. Such as nuclear reactors. Etc.

Now do you begin to see the problem? Let me spell it out.

Suppose the Soviets have activated some of their giant scalar EM transmitters, to place a giant weather engineering grid over the U.S., or to knock down a Challenger or a Titan. They've got their scalar EM beams all charged up. One of the giant Woodpecker transmitters has -- let's say -- 500 megawatts in its infolded scalar EM standing waves. Everything is going good. They're socking it to the Americans and the Europeans.

All those multiple scalar EM frequencies they're using to form the patterns, etc. have to all be absolutely phaselocked. Therefore all the transmitters have to be rigorously phaselocked, too.

And suddenly something goes wrong. A major amplifier/transmitter controlling or stabilizing the phaselocking malfunctions. The phaselock is disturbed, and begins to quiver.

Emergency circuits react instantly, trying to stabilize the situation and restore the quivering phaselock. Little "shorts" are being applied to the circuitry and to the "giant capacitor" that is the scalar EM standing waves. Dumps and discharges of EM energy are beginning to flash in the transmitter and associated circuits -- and into the ground. These make the situation more unstable. Feverishly the emergency circuits struggle to contain this thing -- and Wham! they cave in, all at once.

Now you get a mighty and continuing discharge of the scalar EM energy in that standing wave back into the transmitter and into the ground. It burns out the transmitter. And the discharge continues as the "capacitor" drains all its EG energy into the earth in a giant pulse.

Around the transmitter site, the EGP is transmitted radially away, still very much like a standing scalar wave. It reaches the first nuclear facility. Let's suppose it's a nuclear reactor. Specifically, let's suppose it's a nuclear reactor at Chernobyl.

If you'll check Soviet Military Power, DoD, 1986 you'll find that there's a big ABM radar site not far from Chernobyl. And Canadian sources verify that one of the large Woodpecker transmitters seems to be sitting in that general location. Now check "The Soviet Nuclear Disaster," The Wall Street Journal, Apr. 30, 1986, p. 24. Check the small drawing in the lower right corner of the bigger drawing. Here you can see that a Woodpecker transmitter located near Chernobyl would ideally transmit nearly due west to intersect over the U.S., entering across North America from its east. Other Soviet "over-the-horizon (OTH) radar transmitters" go over the north polar regions, to enter the U.S. from the North. The two then form a giant interference grid over the U.S. (You can see that in Soviet Military Power.).

Suppose you were in the field in the U.S., measuring the Woodpecker signals. Suppose the stronger beam was coming from the east. You would be able to see this with your instruments.

Now suppose the giant transmitter near Chernobyl got into the type of failure we're talking about. The emergency circuits panic and cut down the EM carriers, trying to drain away the standing scalar waves in a controlled fashion. Then your instruments would suddenly record the "new" direction as coming from the north, since the east carrier is gone.

That's exactly what engineer Bill Bise detected out in California, about the time it appears the reactor at Chernobyl began to get in trouble.

Let's continue with our scenario. Suppose the emergency circuits at the discharging Chernobyl transmitter contain things for awhile. The standing scalar waves are steadily draining into the earth. The EG potential starts to rise at the Chernobyl nuclear power plant.

In the nuclear reactors, the decay constant of the uranium in the fuel rods changes. Additional radioactivity begins to pour out of the uranium. The reactor alarms go off, and the crew takes measures to reduce the problem. The control rods go further in, to slow it down.

But the EG charge keeps increasing. The radioactivity of the uranium continues to increase. The control rods go further in to counteract this. The electrical controls begin to act up, showing anomalous indications. The radioactivity increases. In panic, the controls are fought until the control rods go all the way in. The reactor should in fact now be shut down completely, in normal circumstances.

Things settle and hold a bit. The scalar EG charge increases. Finally the "shutdown" reactor starts to increase in radioactivity again. The control rods can't handle it. Everything is heating up, including the graphite moderator. Back at the transmitter, the emergency circuits finally are overwhelmed and give in. They fail all at once. The dreaded "uncontrolled short circuit" now exists between the collapsing standing wave and the earth. A gigantic discharge of EGP into the earth occurs at the

transmitter site.

In the desperate reactor, suddenly a great EGP appears. Instantly the uranium goes intensely radioactive. A gigantic pressure of heat, steam, graphite and radioactive materials bursts out of the reactor, breaching the building and erupting violently into the atmosphere. The core melts down. The graphite moderator ignites. You've got the realization of the nuclear engineer's worst fears: core meltdown and reactor out of control. It's afire and spewing deadly radioactivity out by the gobs. And the heat! It's like hell itself opened up for business in this spot.

At any rate, something very similar to that seems to have happened at Chernobyl.

This author believes something similar happened in 1957 in the Southern Urals. (See Zhores A. Medvedev, Nuclear Disaster in the Urals, Translated by George Saunders, W. W. Norton & Co., 1979, p. 150.). In the Kyshtym area, an explosion of nuclear wastes stored underground occurred in the winter of 1957-58. The area for miles around was contaminated, and is still contaminated to this day.

Recall, Khrushchev spoke of a fantastic weapon in development in January 1960. Early prototypes of the weapon would have been in development and testing in 1957. Probably at that time there were no emergency control circuits to handle standing wave collapse, or only primitive circuits at best.

If the failure of a transmitter occurred in full-power experiments, the unrestrained collapse of the standing scalar EM wave would most certainly have produced a large EGP in the ground, and instantly activated the nuclear wastes stored nearby. Eyewitness accounts reportedly stated that the wastes exploded, and that is totally consistent with our thesis. It is in fact a scalar EM accident signature.

Any nuclear facility at all is an incredible and monstrous risk whenever scalar EM weapons are active.

Of course, one's nuclear facilities are at risk if one's enemy has scalar EM weapons and fires at them, as we covered earlier in this book.

However, they are at terrible risk even from one's own scalar EM weapons. The consequences of a relatively simple electronic failure can be catastrophic; not only for the local nation, but for the earth as a whole.

To show what we mean:

Suppose a similar scalar EM accident -- such as seems possibly to have happened at Chernobyl -- occurs at some other giant Soviet "radar" facility. Further, suppose this particular transmitter is not too many tens of kilometers away from a Soviet missile silo complex. Just to really throw in the grit, suppose these missiles are the "big monsters" with--- say -- a 50 megaton warhead in each missile. Suppose there are 10 of them in the complex.

Let's say this accident occurs "catastrophically" -- that is, the emergency control circuits are

overwhelmed immediately and a discharge of all the scalar energy begins at once.

A giant EGP strikes the earth, spreads in all directions, and strikes the waiting monster missiles. In their implosion trigger warheads and in their fissionable and fusionable payload, everything goes at once. Actually, it goes better than when normally triggered. So each one goes at about 100 megatons.

You've just had a monstrous 1,000 megatons of nuclear explosion in the earth. You get a giant earthquake. If it's not too far from the ocean, you get a tidal wave also. You get incredible amounts of lethal dirt and debris, radioactive and deadly, hurled violently into the air.

This is just about the equivalent of a "normal all-out nuclear war!"

And what about the other side's detection and early warning systems? Who's going to alert whom, and for what? How many missiles get launched?

I think you see the point.

And I haven't even covered what a giant EGP can do to humans. If it's truly a catastrophic failure, you can get an EGP that can wipe out half a mighty nation in one burst!

And if the discharge happens to tickle the Sun and Moon's feedback loops the wrong way, you'll get convulsions of the earth, mighty burps of the sun raining fire and brimstone on the earth, and a violent increase in the interior heat of the earth's molten core, with a concomitant eruption of that core right up through the mantle.

In other words, it could be "back to the beginning" for the earth, and start all over -- if, that is, some semblance of an earth survived.

The Soviets know full well the implications of their giant scalar EM weapons. (Remember, I estimate they have over a hundred of these monsters, based on Frank Golden's detection of their full-up exercise in April/May 1985.).

Scalar EM weapons have added a totally new dimension to the meaning of the word "terror". If one develops them and his adversary does not, nothing on earth can stand against them. So in Man's present state, the temptation to develop them is nearly irresistible.

On the other hand, if one's adversary already has developed them, one is already totally defeated unless one also develops them. Again, the need to develop them is imperative.

Yet, whenever one activates a large scalar EM weapon, one immediately places the entire earth in deadly peril. The slightest misstep, and it's curtains for everyone. And it's curtains for the earth as well.

So one is damned if one does, and damned if one does not.

We have reached the final turning point in human history. The clock is ticking away the last years -- or days -- of the lives of all humans on earth. There has never been such a threat.

We simply have come to the crossroads. somehow, all Mankind has to change.

Infatuated with the thirst for ultimate power, we are facing two doors. Behind one is a beautiful lady, and the fulfillment of all man's dreams: control of physical reality itself. Behind the other is the deadliest tiger ever dreamed of in our wildest nightmares.

Which is it to be, the lady or the tiger?

SCALAR EM INOCULATION AND ITS IMPLICATIONS

My appreciation goes to Gary North for his openly sharing the above important information with the public. Human nature being what it is, one or more of his more dire scenarios is going to happen sooner or later.

The problem becomes enormously more compounded if the hostile agent or agents possesses sophisticated scalar EM technology.

With scalar technology, there exists the potential that the worm or virus can be implanted from a distance. If scalar scanning devices of sufficient precision can be developed, then major software residing in a chip, a computer, or on a disk can be read from a distance. With scalar EM methods, the ordinary software "guards" are totally ineffective. The scalar "reader" could simply read off the software directly as the disk or device goes about its normal operations.

After the software is read, a germ or a virus is designed to produce a particular problem as desired and upon special stimulus. Then a scalar "imprinter" device is used to produce the necessary digital pulses directly upon the media in which the software resides. The required code has now been implanted. In effect, the operating system has been injected from a distance, and contaminated with the desired "sleeping agent" -- germ or virus. From there on, it's just like Gary North's scenarios.

So the scalar EM technology can probably be used (at least eventually) to place "mines" in systems in advance, for damage or destruction at a future date. At least it's possible in principle.

However, it's not the injection of computers and equipment that bothers me. It's the injection of human beings. Here's generally how it can be done (and possibly is being done).

Basically, human brains have various rhythmic waves which represent "envelope pulsations" of the entire electrical system. However, it is not the EM force fields represented by these pulsations which are important: it is the summed-zero (scalar) patterning of the entire complex of neuron firings which represents the real activity of the brain -- and represents its thoughts and emotions. A storage system for these patternings exists, but it's a scalar pattern storage, not an E and B field storage. The storage system is in the nuclei of the tissues of the nervous system itself, not in electrical or electrochemical potentials.

At any rate, the human brain rhythms are also "riding along" relatively entrained to the Schumann resonance of the earth's magnetic field. So all the patterning of the brain is grouped together into giant overall orders, and one or more of these is normally synchronized to our natural environment.

If a varying magnetic signal of extremely low frequency -- say 10 hertz -- bombards the brain with greater power than the earth's magnetic field, it is possible for the brain's rhythm to be "forcibly entrained" to synchronize with that signal, rather than with the normal Schumann resonance. If a large number of brains are forcibly entrained to such a signal, and the signal is artificial, then a master coherent phasing of all the brains to the transmitted signal has been accomplished.

And that can be utilized -- and is utilized -- by the Soviet Union. On the Woodpecker signals, Bob Beck has detected up to 16 carriers, each with a 10 Hertz modulation, and with all the 10 Hz modulations in phase.

Let's stress what we're saying here. At times, the Woodpecker signals have shown 16 carrier frequencies which contain the same 10 Hertz modulation, and which are all kept coherently sync-locked.

If those signals and the modulations are strong enough, the brains in a targeted area demodulate the 10 Hertz signal and phase-lock to it -- actually, to them. At that point, the brains are entrained to

a 10-Hertz driver, and 16 channels of multimegahertz frequencies are locked-in to the brain.

Now if the Soviets have broken the genetic code of the human brain (which they have) and succeeded in developing the ability to implant thoughts, emotions, pictures, etc. (which at least to a degree they have), then they can simply record the proper signals from human guinea pigs, using scalar technology and instrumentation. They can tailor those signals and add them onto the Woodpecker carriers, using scalar EM techniques. By using most of the sixteen carriers as a means to express Fourier frequency expansions, specific areas and functions of the brain can be targeted.

Notice that the distant transmitters already "know" the correct phasing; just use the 10 Hertz modulation signal as a reference. In that case, phasing takes care of itself inside the captured human brains.

The brain has a unique characteristic. If a signal arises inside it, it interprets that it itself originated the signal. Thus for the first time in history, true unwitting "robot" actions and emotions can be engendered in masses of human beings.

But it's still worse. The Kaznacheyev experiments (see references) proved conclusively that electromagnetic signals can carry and transmit cellular disease and death patterns into a targeted biosystem. You can rest assured that the Soviets continued on to actually measure and determine a wide variety of death and disease scalar patterns. All of that can be added on to the Woodpecker carriers so that the population in the intersection grid area is devastated. One can even test it out in advance by producing a modified pattern of a disease in the targeted populace, and keeping the percentage of brains entrained down to a small level. This lowers the number of persons "injected" from a distance to a small percentage of the populace. Then the outbreak of the "new strain" of a familiar disease -- such as influenza, pneumonias, and something like AIDS -- can be monitored to provide targeting and effectiveness data. Notice that a series of diseases was experienced by U.S. personnel assigned to the U.S. Embassy in Moscow, probably as a result of the so-called "weak microwave radiation" of the Embassy by the Soviet Union.

But that's not all. Much more subtle effects can be produced in the targeted populace, without anyone getting wise. Cancers and leukemias should be relatively easy to induce. Also, the immune system can simply be attacked directly. If done slowly, a series of common, ordinary diseases will just seem to get "tougher and tougher to cure." Actually it's not the disease that got tougher, it is the immune systems that got weaker. It is my opinion that precisely that sort of testing -- against the immune system -- has been accomplished by the Soviet Union against the U.S. since about October, 1985. A great percentage of influenza patients during the period from then until now have had complications. So much so that multiple sessions -- as many as 3 to 5 -- of antibiotics are necessary before the patient recovers. At least in the Huntsville, Alabama "hinge pin" area, that seems to have been the case. This author personally experienced this, having influenza and follow-on complications for a period of seven months -- something quite different indeed for him.

But it's even worse.

The human scalar EM nervous system ("inside" the ordinary EM signals and functioning of the system) also has its own resident "software." It has special storage media contained in its brain, its cells, and its genetic material, and its actual nucleons. All of these storage media are continually telecommunicated with via scalar EM means. The "stability" of what each of us is, is largely conditioned by those recordings. As personalities we literally "are" what we have experienced, felt, thought, and did. Our whole "functioning conscious system" has been evolved by our experience, and it continues to be "us" by means of continual reference to the record base.

I hope you now realize that the actual record base itself can conceivably be altered by scalar electromagnetic means, even from a distance. Even by the hidden scalar EM content of 16

Woodpecker carriers, locked into a captured brain and pouring in their deadly content. It is conceivable that even what one is can be taken from him, and what someone decides he will be, he will be.

A totally new -- and ultimate -- form of "slavery" has emerged.

Also, look at all this scalar EM functioning of the human system as a special kind of cybernetics. A scalar EM computing software and hardware system.

What if scalar techniques are used to plant "worms" and "viruses" in this system? With hidden triggers? What about a series of them, so that a range of "eruptive software diseases" can be stimulated at will?

And guess what. Such scalar EM "worms" and "viruses" can even be induced by contact with or consumption of "contaminated" water and food. Or saliva. Or other body fluid.

So you can see the possibilities of "seeding" a population with a staggering variety of time-bombs.

I think you begin to see the point. Now you can change North's "Soviet blackmail" scenario drastically. In a new scenario, Gorbachev simply announces to Reagan that a graduated series of specific sweeping changes are going to happen in our population -- changes which we are absolutely powerless to stop. The last stages are various deaths. The master "trigger" for this series has already been initiated. Incidentally, the Soviet populace has been carefully "seeded" with the proper antidotes. The Russian leader demands certain things (very similar to what North's scenario utilized). Unless his demands are met, a "killer virus" will be activated by a special signal. If so, everyone dies. The first step change in the series will start to occur in a few hours. And it does.

In fact, this scenario could be added to North's scenario, and both used simultaneously. What do you think the President and the Congress would do? Or could do?

There are other even more diabolical possibilities, but these should be quite sufficient to illustrate the point.

Pandora's box has already been spilled, and the end of humanity is ticking away like a time-bomb. It's already nearly midnight, and the watchman hasn't even sounded the alarm yet.

I certainly can anticipate the next question: Have the Soviets already "seeded" the populations of the U.S. and other selected western nations with scalar EM viruses and germs"?

The answer is, I simply don't know. And just like Gary North, I don't know what if anything can be done about it if they have. This researcher certainly doesn't have all the answers. An immediate national crash program to develop scalar EM defenses is essential if we are not simply to be crushed beneath the hammer and sickle. It takes funding, people, facilities, and time.

In some 22 years of unrelenting struggle to convince the system we've got a terrible problem, I've hardly been able to move it off dead-center (no pun intended). This book, produced under extreme workload stress, is all I can do to raise the alarm. I've given it my very best shot.

What happens now remains to be seen. Other hands, hearts and minds are going to have to take up the task and carry it forward. This researcher has reached his limit, and has no more left to give.

1986 APPENDIX II



COMPUTER WORMS AND VIRUSES, AND THE IMPACT OF SCALAR EM

Source: - Gary North, "Electronic Aids (Parts 1 and 2)," Remnant Review, 12(20), Nov. 1, 1985, p. 1-8; 12(20), Nov. 15, 1985, p. 1-8. POB 8204, Fort Worth, TX 76124. Phone (817) 595-2691.

Annotation: - Two deliberately un-copyrighted issues to alert the public to software worms and viruses, and their implications for drastic interruption of society. Describes a hypothetical scenario in which drastic scrambling and destruction of banks' computer tapes, files, and records occur due to software worms and viruses. Written in first person by Gary North. [Slightly edited.]

Article: - "Worms." Earlier this year, I read a very interesting article on a major problem facing computer software (programs) development companies. A program comes on one or more 5.25-inch plastic discs. It takes only a few seconds to copy a program on one disc to a blank disc, which costs \$3. Yet these programs normally run at least \$250, and usually sell at \$495, and sometimes cost thousands. Very few are less than \$100. So you have a major temptation: make a \$500 asset out of a \$3 asset. Insert the \$500 program into drive A, write "COPY A:*.B:" and hit the "enter key;" sixty seconds later, you have a \$500 program in drive B.

There are ways to make this copying more difficult. The companies code the programs, and force you to have a control disc in drive A at all times. These "copy protected" programs are a hassle for users. We cannot put them on "hard (big) disc" easily, and sometimes the control disc dies for some reason. Then what? Your data are locked in your hard disc or on a floppy disc, but you can't get to the data because the control disc is not functioning. You order a replacement. Weeks go by.

Last year, several firms came up with a solution. It is called a worm. A worm is a command that is built deep into the complex code that creates the program itself. These are incredibly complex codes, and it is easy to bury a command in them. They cannot be traced.

What does the worm do? It "eats" things. Say that you are a software thief. You make a copy of a non-copy-protected disc, either to use on a second computer, or to give (or sell) to a friend. The program works just fine. But when the program is copied to a new disc, the worm is "awakened." It bides its time, maybe for many months, maybe for years. The program's user is blissfully unaware that a monster lurks inside his pirated program. He continues to enter data, make correlations, etc. He becomes completely dependent on the program.

Then, without warning, the worm strikes. Whole sections of the data disappear. Maybe the data storage disc is erased. Maybe it is just scrambled. Even his back-

up data discs have worms in them. Everything he entered on those discs is gone. Forever.

Can you imagine the consternation of the user? He has become dependent on a booby-trapped program. His business could simply disappear. For the savings of \$500(stolen program), he could lose everything he has.

Several firms threatened to insert worms into their programs. But then they backed off. They are afraid that lawsuits initiated against them might go against them in court. They could be hit for damages suffered by the thieving victims. Juries might decide that the punishment, a bankruptcy) was too much for the crime (a \$500 theft).

So far, no worms are lurking in any commercial software programs — as far as I know and the industry knows, anyway. But what if a disgruntled programmer was to hide one in a master copy of, say, Lotus 1-2-3, the most popular business program on the market? What if ten thousand copies a month go out for, say, three years? Then, without warning, every company that has started using them loses three years of data? They sue Lotus. Lotus goes bankrupt paying lawyers.

No company in the industry is willing to talk about this sabotage threat publicly. Obviously.

LARCENISTS

I just happened to stumble across an article on worms in a computer magazine. It occurred to me that it might be possible to use the worm technique as a form of deliberate sabotage rather than just as a copy protection device. But what did I know? I'm not a computer expert.

I know a computer expert, however. I mean, a real expert — one of those people you occasionally read about. In the world of business, they're called "space cadets." They operate somewhere in between the asteroid belt and Jupiter. But this one is different. He's a businessman, too.

I got him to sit down with me to discuss the problem of worms. It turned out that he has a real fascination for the topic. He tells me that there are advanced design worms, called 'viruses' by 'hackers' — computer freak programming geniuses.

"The software virus is the most terrifying thing I've ever come across," he told me. And then he showed me why. My initial scenario is based on only a portion of his estimation of the threat. It gets a lot worse.

He gave me a 90-minute FIRESTORM CHAT interview. He must remain anonymous. He used to be a software developer for programs that were used in the U.S. banking system, but is now employed in a highly sensitive job in a related industry. Therein lies his problem. If he were to tell the story of what he is capable of doing to these banks, his firm might lose a lot of sales. He can't "go public." Let's call him Tom.

Let me summarize briefly some of the details he gave to me. They floored me. They're going to floor you.

(1) Jackpotting. The rush is on in the banking world to get automated teller machines (ATM's) into shopping malls, supermarkets, and in front of every bank. We've all seen them. Just walk up, punch in your card number, ask for cash, and you get it.

In a busy location, one of these machines can hold as much as \$250,000 in cash, mostly small bills. These machines are controlled by computer. They are hooked up to the bank's computer system, usually by phone lines. This local line, Tom tells me, is what computer freaks call THE LOOP. The loop is wide open to tampering. He says that what computer thieves are doing is to hook up a cheap Apple II computer, tie into the phone lines, break into the ATM, and get it to empty itself. This is "jackpotting."

He tells me that ATM thieves are hitting banks continually, but nothing is getting to the press. The banks have yet to show a profit with the ATM's so far, which is understandable. They are hoping to get their machines placed in key locations, so "market share" is crucial to their plans. They are suffering horrendous losses in the short run in the hope that long-run profits will pay off, if and when a defense is developed.

The banks are saying nothing because of their fear that if the extent of the losses gets into the press, they will be forced by pressure from depositors — bank runs — to cancel the ATM's. The losses are horrendous, he says. At present, there is no known defense, given the communications technology.

(2) Rounding Off. This is the "preferred" computer bank theft system. Someone on the inside who has access to the software takes advantage of the banks' need to round off numbers. The programs carry numbers out to 13 places. Banks can't use all that space. So when they balance the books (interest rates at, say, 9.873), they just don't count every tenth of a cent. The program is assumed to round off the numbers randomly. What does the bank care? But the thief has set up bank accounts that absorb those random tenths or hundredths of a cent. In millions of dollars worth of transactions (federal funds, etc.), programmers in some cases have stashed away hundreds of thousands of dollars — maybe millions — over a few years. No one knows how much of this goes on.

How could a bank spot this? The books would always balance to the penny. How would the accountants ever know?

I think of a story that Adam Osborne tells in his paperback book, *Running Wild*. The president of a large firm was looking out his window one day, and he noticed two Rolls Royce cars parked next to each other. He inquired as to the owners. They were two men in the data processing department. He called in investigators, and the cars and the men disappeared. They fled to Brazil and took their cars with them; **Brazil** has no extradition treaty with the U.S. Years later, as

Osborne was writing the story, the firm still hadn't figured out what they had done.

ARSONISTS

These are the fearful ones, far more than the larcenists. These are the practical jokers who get into a major data bank and trash things. It's a kind of multimillion-dollar "Kilroy was here" graffiti.

How easy is it to get in? Incredibly easy. The boy in "War Games" really could have broken into most firms' telephone-connected computers. Computer programs exist that allow the user to hook up his computer to a phone line and randomly dial numbers until they hear the telltale whine of a computer line. It then notes the phone number and goes on its way, searching out more lines.

They can do it by long distance, free of charge. The telephone company has a tough time tracing those who use various sorts of electronic black boxes to call anywhere on earth at no charge. Some people get caught, of course. "The tip of the iceberg," says Tom.

How do they get in? Easy: few systems are protected, once you locate the line. If one is, he says, you create a deliberate error. Most programs then collapse the protective shell, and the hacker finds himself inside the heart of the system. Tom has designed a program that keeps this from happening to his company's programs, but few companies have anything like it.

It's very easy to get in if someone has "logged on," — opened his terminal's connection to the main computer — if the system is connected to phone lines. Or anyone in the company can just tap in, if someone has left his desk and left the computer on. It's common to forget and leave an open terminal.

He showed me. He says anyone can get fired for leaving a computer on. He demonstrated his point. With 40 computers on line, he ran a quick search and found two of them "logged on," despite the fact that it was after hours. All the security in the world can't do anything if a computer line is open. It's like a burglar alarm; it's worthless if you leave the door unlocked or leave the keys lying around. That janitor you hired. Is he a computer illiterate? Or a plant?

Once inside, what can you do? Steal a fortune? Yes, if you really know the system. He told me he could easily steal \$3 million from a local bank, even as an outsider. He would then offer to give it back and keep his mouth shut about how easy it was if the bank would pay him 10% the take. He thinks most banks would capitulate for fear of the publicity. In any case, he knows that he probably wouldn't get caught.

How about creating a new identity? The grade-changing scene in "War Games" is true. You could even create a new identity, give yourself high grades in any academic discipline, just by breaking into a university's database. There is very little security here, he says.

But for sheer vindictiveness, for sheer envy, consider the possibilities of a virus-implanter. He gets inside the computer for a major communications link: telephones, large information database, bank wire transfer, or whatever. Then he lays the egg: a tiny, untraceable brief instruction. Inside a huge database are just a few characters. These float inside a system, seeking to devour certain kinds of data, or executing certain routines.

There is a game played by computer freaks called "Core War." They try to implant these killer messages, which seek out each other and battle one another. If you find one morning that yours has been consumed, you lost the battle. That was probably the origin of worms and viruses.

TERRORISM

Say that a revolutionary terrorist group, or some anti-zionist group gets a "ringer" into a system. He might be a computer genius type. Everyone knows they are either oriental, dark-skinned people with accents, or teenagers. The firms don't hire teenagers, but they hire a lot of foreigners. They may even check the guy's credentials. Electronic credentials. (Ha!) Then they turn the guy loose in the system.

The virus is implanted deep inside the system. It can then be transferred to any other bank's computer by means of EFT (electronic funds transfer). Maybe it is triggered when someone with a peculiar name and address opens a bank account. Three days later: Bam! The data disappear. They haul out the back-up tapes. Bam! The virus is on them, too. It is a process of infection, contamination, and incubation. There is no known defense. Not yet. This is the bottom line.

ANTIBODIES

The designer of a virus can also design an "antibody." The antibody is a counter-virus agent that seeks out a virus and destroys it. But like other antibodies, it must be specific. The only way today that an antibody system can be created is to know what kind of a virus is involved beforehand.

Tom says that people are now selling antibodies at very high prices. Who is paying? Big companies that suspect that there is a virus present in their computers. In all probability, the guy selling the antibody created and injected the virus. But now can any businessman prove it? So he pays the blackmail.

NATIONAL DEFENSE

A Soviet agent or American spy working for the Soviets penetrates any of a dozen computers used by the military. He plants a virus. The computers talk to each other, and the virus spreads to all of them. It tells them to execute a certain routine when a certain command is entered at a missile-controlling terminal. That command might interfere with a routine that activates a missile or launches it. Upon reading that command, the virus shuts down the computer, or scrambles

the executing program, or scrambles the data. No more "launch on warning." No more launch at all. Dead metal.

Scenario: The President of the United States receives a telephone call on the "red phone" — the direct link to Moscow. He lifts the receiver and says, "Hello."

"Mr. President, this is Michael Gorbachev. You must recognize my voice. I have very little time. I will come directly to the point. You have refused to back down on your threat to implement your Strategic Defense Initiative. You intend to go ahead with space-based weapons. My military staff informs me that they think that the United States has the technology to implement it, and that it could place my nation's military strategy in jeopardy. We cannot allow you to do this.

"If we allow you to deploy the SDI, it will be too late for us to respond effectively. Therefore, we are taking the initiative today. I issued orders this morning to put Soviet military units on immediate alert. We are abiding by your biblical rule to announce the initiation of hostilities before striking. Neither the Japanese nor the Germans gave us this courtesy. If you do not come to terms with us, we will launch a first strike against your nation in three hours. We will delay for one day, if you agree to follow a precise procedure that I will outline shortly.

"At one time we feared nuclear retaliation. We no longer do. Within two hours, you will know why not. I suggest that you instruct your ballistic missile team to prepare your missiles for a strike. Then, to prove to yourself that we no longer are concerned about retaliation, launch one or two of them. As far as I am concerned, launch all of them. But please instruct your senior military commanders to report back to you concerning the effects of their instruction. I suggest that you try launching three or four as a test. We don't care which ones.

"Mr. President, let me tell you what is going to happen. As soon as anyone attempts to launch a missile, that missile's computer guidance system will shut down. It will lock up tight, and you will not be able to unlock it within the time you need to respond to our attack. Two hours and thirty minutes from now, your nation will have no remaining Minuteman III missiles to respond with, should you finally unlock your frozen computers.

"I suggest that you contact your senior officers now. You will have to mobilize them within 60 minutes. The test should take about 30 minutes. I will telephone you again in 90 minutes to present our terms of surrender." Click.

The President calls the Joint Chiefs. If he is lucky, he will be able to locate two of the three in time. They will be paralyzed. Who wouldn't be? But in all likelihood, they will at least test Gorbachev's theory. They will order one or (wo) missiles launched. The computer guidance system on both will shut down the system. They will try two or three more, with the same result. They will attempt to launch one from a submarine, with the same result.

The President brings in senior Congressional officials and the remaining Joint Chiefs member to the White House.

Exactly 90 minutes after he had hung up, Gorbachev telephones back. He presents his list of demands. First, the immediate removal of U.S. troops from Europe. Second, the withdrawal of personnel from Diego Garcia Island in the Indian Ocean. Third, the breaking of diplomatic relations with Red China and Taiwan. Fourth, the removal of all U.S. troops from Korea. Fifth, a moratorium on all debts owed to U.S. banks by the Soviet Union and its client states. Sixth, the removal of all Minuteman III missiles from their silos. Seventh, the return of all U.S. submarines to port. If he agrees, and the orders are delivered within two hours, the Soviet Union will delay launching a first strike. The President complies.

They might do it with our communications satellites, Tom says. You might do it with any aspect of U.S. data transmission. The virus could sit dormant in a system for years, and no one would know. Triggered, it would then strike.

THE WEST'S VULNERABILITY

The West has become increasingly dependent on computers. We can no longer function without them. The Third world hasn't. Neither has the U.S.S.R. Their technology is still pre-computer. They are inefficient, but they are far less vulnerable.

Tom says that the world of computers presumes that almost everyone is essentially honest, and that all the brightest programmers must be honest. They aren't. Thus, the members of the entire system — banks, national defense, large and small businesses, public utilities — have opened themselves to attack. The attackers are invisible.

"Nothing I have seen in all my years of computers scares me as much as this does," he says. "The system has been designed in terms of a far older set of standards, especially with respect to security. It is totally vulnerable."

He compares it to plague, or venereal disease. People copy each other's software to save a few bucks. They use public access databases. They use "loops" — the phone lines. Yet these transmission belts of information can become transmission belts of collapse.

This is what I have harped on for twenty years: the potential for a collapse of the division of labor. We become rich by means of a brilliant technology, yet we become dependent on it to an extent that no previous society ever has.

Centralized institutions are most vulnerable, but because we use public transmission lines, from microwave transmissions to cables in the ground, each local unit is vulnerable. Those who would choose to bring down the system need only plant electronic viruses in a handful of major common-use databases or transmission sources, and live years or ten years later, the disease hits.

It could bring down the system if technological defenses are not developed. Nothing on the immediate horizon points to a solution, he says. The silence of those who should know what to do indicates that they don't know what to do, but they don't want panic to spread.

Is this fantasy? Last summer a 23-person team broke in (by phone) to Chase Manhattan Bank's computer.

Break-in: - Continuation of part 1, a treatise on worms and viruses in cybernetic systems.

"Maybe you saw the article buried somewhere in your newspaper. I saw it in the New York Times (Oct. 19):

"A group of at least 23 teen-age computer users broke into a Chase Manhattan Bank computer installation by telephone in July and August and "significantly damaged" bank records, the Federal Bureau of Investigation said yesterday.

Chase officials insisted that no money was stolen or transferred out of customer accounts as a result of the break-ins, and said no intrusions have been detected recently. But Federal officials, in an affidavit, said that in several cases the youths changed passwords, preventing customers — and in one case a unit of the bank itself — from gaining access to their own computer files."

And where were these teen-agers located? In San Diego, across the continent! It gets even more ludicrous:

Federal officials said that most of the offenders were probably too young to be prosecuted.

Robert D. Rose, the assistant United States Attorney handling the case, said: "We're not yet sure what we are going to do. But these things can get out of hand — it did get out of hand — and we have to treat them seriously."

Treat what seriously! "These things?" What things? If they can't legally treat the electronic trespassers seriously, just what is the man talking about? He is talking about the topic, above all topics, that bank and government officials don't want to face: the vulnerability of their computer records.

I have seen no follow-up on this story in the conventional press. A brief article did appear in the computer-oriented tabloid, Info World (Oct. 28). It turns out that the students had broken into the files of Interactive Data Corp. of Waltham, Massachusetts, which maintains the bank's financial records. The break-ins were discovered in late July. They had obtained the toll-free 800 number which was restricted (Ha!) to Interactive Data subscribers. As late as October 9, an illegal entry was observed. In short, it took ten weeks after the break-ins were discovered to put a stop to them.

The response of the bank's bureaucracy was predictable. It will ever be thus: "Bank officials are claiming that the FBI exaggerated the nature of the activities of the suspected individuals. A spokesperson for Chase Manhattan said that Interactive's customers were not prevented from accessing their accounts and that none of Interactive's data was altered or manipulated in any way." In response, FBI supervisory agent John Kelso said that the FBI has sworn affidavits from bank officials that say data has been manipulated or damaged. "That sounds pretty serious to me," he volunteered.

Here is the capper: Interactive Data has 25,000 subscribers who are tied into that toll-free phone line. Try keeping tight security on a system with 25,000 users. Chase Manhattan couldn't. If they can't, who can?

And if Chase Manhattan Bank was vulnerable to 23 teenagers who are too young to prosecute, consider its vulnerability to just one envy driven genius who knows all about electronic viruses. The students that did this were apparently just goofing around. But what if just one malevolent computer freak decided to "get even" with Chase Manhattan? What if he had phoned in just once or twice, implanted a long-dormant data-killing virus, and quit? What if he had tied its detonation to, say, a calendar clock in the Interactive computer? If it took security forces from July until early October 15 to raid the 23 students' homes, they would never have spotted one break-in. They could not have traced it, either. Conclusion: we have a risk-free opportunity for electronic arson. We face a potential electronic epidemic. And when I say "we" I mean the entire financial system of the West.

Sure, all the bank "spokespersons" in the world will tell you, "No problem." But there is a problem. A horrendous problem.

At this point, it really gets interesting. Chase Manhattan Bank has just announced that we will be able to set up our own personal electronic banking facilities with them by buying an expanded version of *Managing Your Money*, Andrew Tobias' home financial management.

Citicorp and Bank of America have opted for *Dollars and Sense* a rival program. You will be able to pay monthly bills electronically, balance your "checkbook," monitor your net worth, buy and sell stocks, etc., etc., just by dialing Citicorp or Chase Manhattan. Fantastic! But despite all the assurances, I get nervous. Yes, I know no one will be able to break in and tamper with the numbers. But 23 teenagers shouldn't have been able to do it, either. And now we're talking about a lot more subscribers than 25,000.

Obviously, the master program used by the banks will prohibit easy entry. Unfortunately, someone has to write the program. Can you imagine the blackmail possibilities? Some hotshot programmer could build-in a bomb, and then threaten to detonate it. In fact, he could merely pretend to have inserted a virus. Who would want to call his bluff? Not Chase Manhattan, I would bet.

CORE WARS REVISITED

In May of 1984, A. K. Dewdney published an article in Scientific American's "Computer Recreations" column. It was a light-hearted-piece on how computer experts can get involved in playing this exciting game of "blow up your opponent's defenses." You know: recreation! In the March 1985 issue, he wrote a follow-up. It begins:

"When the column about Core War appeared last may, it had not occurred to me how serious a topic I was raising. My descriptions of machine-language programs, moving about in memory and trying to destroy each other, struck a resonant chord. According to many readers, whose stories I shall tell, there are abundant examples of worms, viruses and other software creatures living in every conceivable computing environment. *Some of the possibilities are so horrifying that I hesitate to set them down at all.*"(emphasis added.)

It turns out that the French have been enjoying a novel on the international implications, *Softwar: La Guerre Douce*, by Breton and Beneich. A translation is scheduled for publication here by Holt, Rinehart & Winston. The study revolves around the sale of a high-power computer to the Soviet Union. The U.S. allows its export because it has a "software bomb" in it. When the U.S. Weather Service announces a certain temperature at St. Thomas in the Virgin Islands, the program proceeds to subvert every piece of software in the Soviet Union.

A pair of Italian programmers was "inspired" by the translation of Dewdney's original article to dream up a virus (a virus is a computer-to-computer killer, whereas a worm is resident in one man's computer). They figured out that by infecting a disk operating system disk (these start computers and tell them what to do with programs and electronics), and then installing it on disks used by the biggest computer shop in the city, they could create an epidemic. They decided not to do it. In short, the only restraint is self-restraint.

A high school student in Pittsburg wrote a virus that was subtler than a data-destroying virus, which at least tells us that we have a problem. His virus created a plague of very subtle errors in the disk operating system. "All of this seems pretty juvenile," he wrote, but "Oh woe to me! I have never been able to get rid of my electronic plague. It infested all of my disks, and all of my friends' disks." He wrote a program to destroy the virus (an "antidote" to it) but it is not anywhere near as effective as the virus is.

Warning: do not copy disks from your friends' copies. This act of piracy could cost you plenty.

A COMMERCIAL WORM

Just a few days after I wrote "Electronic AIDS, Part 1," I read a column in the Washington Times, the conservative (Moonie-owned) daily newspaper. One of the reporters has a computer. He had purchased a newly released program from

Microsoft Co., called "Access." Understand that Microsoft supplies the disk operating system that is used by the IBM PC, the most popular microcomputer. In other words, this is no backyard company. It is one of the two or three software giants in the U.S. (Its owner is under age 30, which tells you something about who is pioneering the microcomputer revolution).

As he was setting up his computer to take advantage of this telecommunications program, a warning flashed on his screen: "The weed of crime bears bitter fruit. Now trashing your program disk." Wham! He lost all his files — probably a couple of year's worth of work. Sure, he was probably smart enough to have made back-up copies, but think of the risk. And what if it had been a worm that kept silent for a few years, infecting all of his back-up disks?

He called Microsoft, and they gave him the runaround. They told him that they were not responsible. Some programmer had put in the worm in order to zap program pirates, but the journalist insisted that he was an original buyer. Tough luck, they told him. Obviously, they didn't know that he was a reporter.

Then he published his article. All of a sudden, the victim was not some average buyer. He was big trouble. Things started moving. InfoWorld (Oct. 28) reports that Microsoft has admitted that a programmer put in the worm, but without permission. The offending text has now been removed, we are assured. But what if it had sat in the master for three years? Here is the premier firm in the software.

This is not idle speculation. It has already happened, verifying my hypothetical scenario within a few days after I published it.

Can you imagine the absolute havoc that a dormant worm or virus could create if it were imbedded in all updates of Microsoft's masters of PC DOS and MS DOS, the operating systems for all IBM microcomputers and IBM-compatible microcomputers? It could cost the U.S. economy billions, and some microcomputer-dependent firms wouldn't survive. Any Microsoft spokesman who says, "It's impossible; it could never happen," has to explain how it already did happen to "Access."

ADAM OSBORNE'S WARNING

You may know the name Adam Osborne. He invented the revolutionary portable computer, the Osborne 1. Before there was an Osborne 2, the company went bankrupt. Compaq, the most successful first-year firm in U.S. history (over \$100 million in sales in its 12 months of operations) and others built imitations that were far superior.

That isn't my point, however. Adam Osborne was "present at the creation" of the microcomputer industry. He created Osborne publications, and then sold out to McGraw Hill. He knows what is going on. In his delightful paperback book, *Running Wild*, which is a history of the microcomputer (desk top) revolution,

1975-82, he offers this warning. He says that three areas should not be allowed to be computerized: 1) bank money transfers; 2) the stock market; 3) elections.

All three are just about fully computerized. Another ten years, or maybe five, and they will be 100% computerized. Several firms allow microcomputer buying and selling of stocks (e.g., Charles Schwab), and New York Stock Exchange floor transactions eventually will be fully computerized, at which time it will be pressured to get rid of the "specialists" who make (and sometimes manipulate) the market, short-term — Richard Ney's hated "Wall Street Gang" — but the price of getting rid of them may turn out to be horrendously high.

"The great fortunes of the 21st century," Osborne predicts, "will be the legacies of the great computer thieves of the 20th."

Three years ago, I used a firm to supply computer services I needed. The head of it was a former businessman, quite young, and a true "space cadet." I've quoted him in the last issue. I call him Tom. He operated in a world far removed mentally from the rest of us. He is a nice fellow, a Christian, and a moral philosopher of sorts.

He ran the operations of the local elections. He did it fairly inexpensively. He told me why: "I want to keep these elections honest. It would be incredibly simple to rig the program to produce whatever outcome I wanted in close races. If I can do it, anyone with enough skill to set up the system could do it."

I asked him if he thought Osborne was correct in his predictions about bank theft. "It would be a piece of cake for me to steal three or four million from any local bank. I could go in the next week, offer to give the money back, keep 10% as a finder's fee, and promise not to tell the press how easy it was to steal. They would probably pay me my 10% just to keep me quiet."

Look, These people are geniuses. Worse, they are geniuses in a very narrow field technically, which is now being used to control darned near everything. This unique intellectual-technical skill is the possession of literally a handful of people, mostly under 35 years of age. They are "fooling around" with Chase Manhattan Bank's computers. What happens when a few of them stop fooling around and get deadly serious?

Computer program designers keep telling us that there is no 100% secure way to defend data banks. Maybe there will be a 98% secure system someday, but not now. To defend itself, the system relies on the integrity of youth. In short, self-government is the major defense.

And where have they learned self-discipline? In the public schools?

"NOW YOU'VE DONE IT!"

About four years ago, I read an article in the *Rolling Stone*, the tabloid aimed at rock music fans. It was the only article I ever read in that periodical. It was a gem.

It described a subculture of students at Stanford University, "hackers." These people are computer freaks. The mainframe computer at Stanford was cheaper to use after midnight, so from midnight to 6 a.m., the hackers gathered at their terminals. They lived on candy bars, junk food, and high-technology dreams.

One of the games they played was breaking into each other's programs. It was considered the mark of a master hacker to be able to crack another hacker's defenses. They would spend hours trying. They were "hacker-crackers."

One bright fellow then designed a classic booby trap. He wrote a program that warned trespassers not to tamper with it. This, of course, alerted every would-be electronic safe cracker to the challenge. It was a complex program, and it took days to crack it. Then, after repeated warnings, the successful trespasser got a surprise. Japanese letters appeared on his screen. Roughly translated, the words proclaimed, "Now you've done it!"

At that point, the victim's computer screen went blank. Then the names of all his own computer files appeared on the screen — files that may have taken years to assemble. One by one, they blipped off the screen. In horror, the victim would stare at the screen, unable to stop the process.

As it turned out, the booby trap was only a practical joke. It really didn't erase all the victim's files. It only listed the names, and then erased them. But for a horrifying few minutes, the victim wouldn't know this.

Hackers play games. Very interesting games.

The kind of people who spend six hours, midnight to 6 a.m., trying to break into each other's programs are different from the rest of us. Among their ranks are some highly individualistic people. Some of them are libertarians. I mean anarchists. They are electronic "don't tread on me" sorts of people. They do not appreciate bureaucracy. They appreciate being pushed around even less.

The folks at Chase Manhattan really do have a problem. Do you attempt to prosecute a legally un-prosecutable kid? A kid who has already cracked your computer system? I don't think you do. You play the role of stern but appreciative banker. "Son, I am impressed by your ability to break in. But understand, we are honest people. There is a code of honor here. You wouldn't want to break that code — of honor, I mean — would you?" Because if this kid gets angry, he can do it again. Quietly. And next time, he deposits a virus.

Of course, Chase may hire a programming team to create an unbreakable system. Sure. "Hire fox A. Give him chain link fence B. Hire him to build fence B around chicken coop C."

TEEN CHALLENGE

Suppose that the public gets wind of the threat to the whole banking system that is posed by viruses. What do the bankers (or anyone else) announce to the

public? "We want to assure you that our computer program is impenetrable. No one can break in. It is foolproof."

Here is the challenge — rather like the Stanford program that announced: "Do not trespass." These kids see breaking-in as a challenge, a kind of sport. They do not regard it as theft. They do not regard it as vandalism, even if it costs a company millions of dollars to unscramble. They may be ethical in other respects, but they think of "core wars" as a game.

How would you like to be the 60-year-old banker who doesn't know a byte from usury, but whose public relations department tells him to inform the public that nobody can crack his bank's code? To cite Mr. T in "Rocky III," that bank is dead meat. So are its depositors.

But if he keeps quiet, and the story still gets out about the vulnerability of the system, one or two small "virus-demolished" banks could trigger a collapse of the system, as people do the only smart thing: run for cash. The whole fractional reserve banking system would deflate; only the FED's printing presses could "save the day," in a wave of fiat money.

What I am saying is this: I think that we will see the end of fractional reserve banking in our day. At the very least, I think we will see it subjected to tremendous shocks. People will lose faith in electronic promises made by bureaucrats who do not know anything about the monsters that their efficient computers can be turned into.

Attack on Martinsburg. Now, let's take it a step farther. Some day some state or Federal bureaucrat is going to step on the toes of some genius entrepreneur who has created a software development firm. The bureaucrat will try to wrap this entrepreneur in red tape. Or maybe — just maybe — he will try to sock him with a tax bill that the entrepreneur regards as unfair.

In Martinsburg, West Virginia, there is a large computer. It is owned and operated by the Internal Revenue Service. Into it, over the next five years, the I.R.S. apparently intends to deposit all the records it can assemble on every U.S. taxpayer. This computer database will be the biggest in the world. It is the tool by which the I.R.S. hopes to increase taxpayer compliance. And it may succeed. For a while.

This is one reason for saving all letters to and from the I.R.S. If the I.R.S. becomes dependent on its computer system, which is likely, then any short-circuiting of its database could create havoc for tax collecting. If word gets out that a major failure has hit the I.R.S., the tax revolt could multiply overnight. You would see the deficit become astronomical. If the I.R.S. continues to tie its "voluntary" compliance program to the myth of the "all-seeing computer," then news of the computer's scrambling could backfire.

It is possible that the story of the I.R.S. database is a myth. Maybe they aren't going to build it. But if the public believes that such computer power is at the

disposal of the I.R.S., and taxpayers then learn either that the system has been blown, or that it was mythical from the start, the tax revolt could spread like an epidemic. The electronic epidemic-could trigger a tax revolt epidemic.

He who lives on the cutting edge of technology eventually dies on the cutting edge of technology.

"PEOPLE ARE BASICALLY GOOD"

Let's return to my taped interview with "Tom." In a 90-minute interview, we covered a lot of ground. But one topic that stands out in my mind is our discussion of the pre-supposition that goes into the creation of a computer-based society. The computer people have all adopted the assumption that undergirds modern science, namely that, participants are well meaning, that they will not fake their experiments, and that they will play fair. If scientists had to check every aspect of every article, science could not advance very fast.

What about the computer industry? The whole system rests on faith: "Men are not malevolent. They are not envy-driven. They will not deliberately seek to destroy the work of some random victim." Tom says categorically that this assumption is false. There are bad people with tremendous computer skills, and modern society has not restructured its economic institutions to protect itself.

Here is one example of a break-in technique. Someone phones in to a computer, which has been left open temporarily by some user. The lock is unlatched; he needs no key to get in. He then seeks to penetrate the inner core of the program, such as a bank's program. He creates a deliberate error, which all too often triggers a kind of electronic explosion. The protective shell self-destructs, and the invader now finds himself inside the system, where far fewer defense mechanisms exist.

Tom designed his own firm's defense against this tactic. His program automatically records the source of the error, and throws the user out of the program. The program has protection against deliberate errors, but most of them don't, he says. A major error simply collapses the program's outer shell.

In my previous issue, I speculated that a Soviet spy or agent could penetrate U.S. computers. Note: I did not assume that he would simply phone in; I assumed that a disloyal programmer, or a team, could plant the virus as insiders. From there, the virus would spread through the system through normal telecommunications. Several people have written in to tell me that a wrecker cannot destroy the system by penetrating it from the outside. They may be correct. But when informed that I am assuming an inside job by someone with access to a major computer, the critics have admitted that this might be possible.

The weed of crime bears bitter fruit: for honest, computer-dependent people.

FEDERAL FUNDS

The Federal Funds bank transfer lines allow banks to borrow money overnight. Hundreds of billions of dollars go across these lines every working day. The bank's computers communicate with each other by means of this telecommunications hook-up. What if someone were to plant a long-delay virus in the software that operates these transfers? And what banker has even thought about this problem?

What if this scenario was to take place: a virus triggers the disruption of bank records — not a total breakdown initially, but disruptions in the data? It might be weeks or months before auditors recognized the extent of the problem.

As rumors begin to leak out about complex accounting or other data-management problems of major banks all over the U.S. (including off-shore branches), the various banking regulatory agencies would be swamped with crises and outside rumors. Then, all at once, bank computers begin breaking down.

The rumors then explode. The lines appear in front of banks. The only answer at this point is to print up paper money. It would be printed by the hundreds of billions in order to offset the deflationary effects of bank runs (paper money that is pulled out but not re-deposited in another bank).

You could topple the fractional reserve banking system all over the world. The entire payments system could easily become engulfed in chaos. Debits and credits would no longer be meaningful. A pure paper money inflation would replace the manipulated, "fine-tuned" monetary inflation of modern central banking.

All of a sudden, market-created alternative currencies would be revived. It would then be metallic cash that talks loudest. Silver dimes are not electronic. "They can't be infected electronically." They still circulate when banks are "temporarily closed, due to circumstances beyond our control."

The loss of efficiency would be initially horrendous, I would guess. The division of labor would break down. You could then have the crash that lurks in the minds and suspicions of average depositors. Who says it cannot happen? A lot of public relations firms hired by the banks — computer illiterates in high places?

What we have is an internal bank money wire system that is totally vulnerable to some vindictive programmer. There is little doubt in my mind that the bankers are desperately fearful of this sort of vandalism. It could topple people's confidence in the fractional reserve banking system, and confidence is the only thing that keeps it going.

Conclusion. Technologically, there is no solution at this point. I have no heartening message. Maybe later; not now. Keep precious metal coins. Don't

assume that it can't happen here. It can. The only thing holding it back is the restraining hand of God, through the temporary self-restraint of a technological priesthood.

[Reviewer's comment: I was unaware of the problem of computer worms and viruses until I read Gary North's two articles. His open release of this important information is appreciated.]

SCALAR EM INNOCULATION AND ITS IMPLICATIONS

My appreciation goes to Gary North for his openly sharing the above important information with the public. Human nature being what it is, one or more of his more dire scenarios is going to happen sooner or later.

The problem becomes enormously more compounded if the hostile agent or agents possesses sophisticated scalar EM technology.

With scalar technology, there exists the potential that the worm or virus can be implanted from a distance. If scalar-scanning devices of sufficient precision can be developed, then major software residing in a chip, a computer, or on a disk can be read from a distance. With scalar EM methods, the ordinary software "guards" are totally ineffective. The scalar "reader" could simply read off the software directly as the disk or device goes about its normal operations.

After the software is read, a germ or a virus is designed to produce a particular problem as desired and upon special stimulus. Then a scalar "imprinter" device is used to produce the necessary digital pulses directly upon the media in which the software resides. The required code has now been implanted. In effect, the operating system has been injected from a distance, and contaminated with the desired "sleeping agent" — germ or virus. From there on, it's just like Gary North's scenarios.

So the scalar EM technology can probably be used (at least eventually) to place "mines" in systems in advance, for damage or destruction at a future date. At least it's possible in principle.

However, it's not the injection of computers and equipment that bothers me. It's the injection of human beings. Here's generally how it can be done (and possibly is being done).

Basically, human brains have various rhythmic waves, which represent "envelope pulsations" of the entire electrical system. However, it is not the Et, force fields represented by these pulsations which are important: it is the summed-zero (scalar) patterning of the entire complex of neuron firings which represents the real activity of the brain — and represents its thoughts and emotions. A storage system for these patternings exists, but it's a scalar pattern storage, not an E and B field storage. The storage system is in the nuclei of the tissues of the nervous system itself, not in electrical or electrochemical potentials.

At any rate, the human brain rhythms are also "riding along" relatively entrained to the Schumann resonance of the earth's magnetic field. So all the patterning of the brain is grouped together into giant overall orders, and one or more of these is normally synchronized to our natural environment.

If a varying magnetic signal of extremely low frequency — say 10 hertz — bombards the brain with greater power than the earth's magnetic field, it is possible for the brain's rhythm to be "forcibly entrained" to synchronize with that signal, rather than with the normal Schumann resonance. If a large number of brains are forcibly entrained to such a signal, and the signal is artificial, then a nester coherent phasing of all the brains to the transmitted signal has been accomplished.

And that can be utilized — and is utilized — by the Soviet Union. On the Woodpecker signals, Bob Beck has detected up to 16 carriers, each with a 10-Hertz modulation, and with all the 10 Hz modulations in phase.

Let's stress what we're saying here. At times, the Woodpecker signals have shown 16 carrier frequencies that contain the same 10-Hertz modulation, and which are all kept coherently sync-locked.

If those signals and the modulations are strong enough, the brains in a targeted area demodulate the 10-Hertz signal and phase-lock to it — actually, to them. At that point, the brains are entrained to a 10-Hertz driver, and 16 channels of multimegahertz frequencies are locked-in to the brain.

Now, if the Soviets have broken the genetic code of the human brain (which they have) and succeeded in developing the ability to implant thoughts, emotions, pictures, etc. (which at least to a degree they have), then they can simply record the proper signals from human guinea pigs, using scalar technology and instrumentation.

They can tailor those signals and add them onto the Woodpecker carriers, using scalar EM techniques. By using most of the sixteen carriers as a means to express Fourier frequency expansions, specific areas and functions of the brain can be targeted.

"Notice that the distant transmitters already "know" the correct phasing, just use the 10 Hertz modulation signal as a reference. In that case, phasing takes care of itself inside the captured human brains.

The brain has a unique characteristic. If a signal arises inside it, it interprets that it itself originated the signal. Thus for the first time in history, true unwitting robot actions and emotions can be engendered in masses of human beings.

But it's still worse. The Kaznacheyev experiments (see references) proved conclusively that electromagnetic signals can carry and transmit cellular disease and death patterns into a targeted biosystem. You can rest assured that the Soviets continued on to actually measure and determine a wide variety of death

and disease scalar patterns. All of that can be added on to the Woodpecker carriers so that the population in the intersection grid area is devastated. One can even test it out in advance by producing a modified pattern of a disease in the targeted populace, and keeping the percentage of brains entrained down to a small level. This lowers the number of persons "injected" from a distance to a small percentage of the populace. Then the outbreak of the "new strain" of a familiar disease — such as influenza, pneumonia, and something like AIDS — can be monitored to provide targeting and effectiveness data. Notice that a series of diseases was experienced by U.S. personnel assigned to the U.S. Embassy in Moscow, probably as a result of the so-called "weak microwave radiation" of the Embassy by the Soviet Union.

But that's not all. Much more subtle effects can be produced in the targeted populace, without anyone getting wise. Cancers and leukemia should be relatively easy to induce. Also, the immune system can simply be attacked directly. If done slowly, a series of common, ordinary diseases will just seem to get "tougher and tougher to cure." Actually it's not the disease that got tougher, it is the immune systems that got weaker. It is my opinion that precisely that sort of testing — against the immune system — has been accomplished by the Soviet Union against the U.S. since about October 1985. A great percentage of influenza patients during the period from then until now have had complications. So much so that multiple sessions — as many as 3 to 5 — of antibiotics are necessary before the patient recovers. At least in the Huntsville, Alabama "hinge pin" area, that seems to have been the case. This author personally experienced this, having influenza and follow-on complications for a period of seven months — something quite different indeed for him.

But it's even worse.

The human scalar EM nervous system ("inside" the ordinary EM signals and functioning of the system) also has its own resident "software." It has special storage media contained in its brain, its cells, and its genetic material, and its actual nucleons. All of these storage media are continually telecommunicated with via scalar EM means. Those recordings, largely condition the "stability" of what each of us is. As personalities we literally "are" what we have experienced, felt, thought, and did. Our whole "functioning conscious system" has been evolved by our experience, and it continues to be "us" by means of continual reference to the record base.

I hope you now realize that the actual record base itself can conceivably be altered by scalar electromagnetic means, even from a distance. Even by the hidden scalar EM content of 16 Woodpecker carriers, rocked into a captured brain and pouring in their deadly content. It is conceivable that even what one is can be taken from him, and what someone decides he will be, he will be.

A totally new — **and** ultimate — form of "slavery" has emerged.

Also, look at all this scalar EM functioning of the human system as a special kind of cybernetics. A scalar EM computing software and hardware system.

What if scalar techniques are used to plant "worms" and "viruses" in this system? With hidden triggers? What about a series of them, so that a range of eruptive software diseases can be stimulated at will?

And guess what. Such scalar EM "worms" and "viruses" can even be induced by contact with or consumption of "contaminated" water and food. Or saliva. Or other body fluid.

So you can see the possibilities of "seeding" a population with a staggering variety of time-bombs.

I think you begin to see the point. Now you can change North's "Soviet blackmail" scenario drastically. In a new scenario, Gorbachev simply announces to Reagan that a graduated series of specific sweeping changes are going to happen in our population — changes which we are absolutely powerless to stop. The last stages are various deaths. The master "trigger" for this series has already been initiated. Incidentally, the Soviet populace has been carefully "seeded" with the proper antidotes. The Russian leader demands certain things (very similar to what North's scenario utilized). Unless his demands are met, a "killer virus" will be activated by a special signal. If so, everyone dies. The first step change in the series will start to occur in a few hours. And it does.

In fact, this scenario could be added to North's scenario, and both used simultaneously. What do you think the President and the Congress would do? Or could do?

There are other even more diabolical possibilities, but these should be quite sufficient to illustrate the point.

Pandora's box has already been spilled, and the end of humanity is ticking away like a time bomb. It's already nearly midnight, and the watchman hasn't even sounded the alarm yet.

I certainly can anticipate the next question: Have the Soviets already "seeded" the populations of the U.S. and other selected western nations with scalar EM viruses and germs?

The answer is, I simply don't know. And just like Gary North, I don't know what if anything can be done about it if they have. This researcher certainly doesn't have all the answers. An immediate national crash program to develop scalar EM defenses is essential if we are not simply to be crushed beneath the hammer and sickle. It takes funding, people, facilities, and time.

In some 22 years of unrelenting struggle to convince the system we've got a terrible problem, I've hardly been able to move it off dead-center (no pun intended). This book, produced under extreme workload stress, is all I can do to raise the alarm. I've given it my very best shot.

What happens now remains to be seen. Other hands, hearts and minds are going to have to take up the task and carry it forward. This researcher has reached his limit, and has no more left to give.

APPENDIX III: CONTINUING THE SCENARIO

On May 3, 1986 a stunning loss of a U.S. Delta rocket carrying a critically-needed weather satellite occurred. The rocket suffered a shutdown of its main engine during launch and began to veer off course, causing the range safety officer to destroy it.

The takeoff of the blue and white Delta "workhorse" from launch Pad A at Cape Canaveral at first appeared picture-perfect. About a minute later, six of the nine booster rockets were expended and the remaining three switched on. Shortly after that, the rocket seemed to lose power. The main liquid-fueled engine had suddenly shut down, with the three strap-on boosters still burning. The rocket then had no stability and started to slowly drift off course, creating an increasing angle of attack. Within a few seconds, the nose cone snapped off under the severe stress. The U.S. Air Force range safety officer then sent a destruct command to the stricken rocket, which exploded in a ball of flame.

The Delta, built by McDonnell Douglas, had previously piled up a continuous string of 43 successful launches. Since 1960, 177 launches have occurred, and the success rate has been 94%. The Delta is one of the most reliable rockets ever built.

The unexpected shutdown of the main engine was perplexing. At a news conference following the mishap, William Russell, NASA's Delta project manager, stated: "It was a very sharp shutdown, almost as if it were a command shutdown."

Preliminary data, such as turbine speed and temperatures in and around the engine, "all appeared to be very normal." Russell said.

It may well have been a "command shutdown," unknown to Bill Russell and his NASA engineers.

Preliminary runs of the videotapes of the incident, aired by the national TV news media, show that during liftoff, a mysterious light approached the rocket from below and from the side, rising and striking the vehicle. This light and its path are strongly reminiscent of the first anomalous "light streak and ball" photo taken by Bob Gladwin just prior to the shuttle launch on November 26, 1985.

Let's suppose that on May 3 the Soviet scalar EM grid was in the launch Phase ABM system mode and was tracking the launch of the Delta rocket.

If the anomalous light that moved up and contacted the rocket was a small ball of continuous electromagnetic energy formed by a distant Soviet scalar EM howitzer, then the rocket's main engine control circuits would have received a sudden and continuous pulse of EM power. This would probably have shutdown the engine by an actual "command" signal, artificially delivered. *

*Engineers have now determined that such a shorting of the engine circuitry occurred, causing engine shutdown.

Certainly such mysterious switching of satellite circuits has occurred before, probably due to Soviet scalar EM precision testing. For example, the British Ariel VI satellite has exhibited very strange anomalies in its command and control circuitry -- in fact, with very precise control switching

being exhibited as if from an external source.

Thus a very small scalar EM missile may have been utilized by the Soviets to disrupt the control circuits in the rocket. A resulting pulse of power in the engine shutdown command circuit could have "ordered" the shutdown of the main engine -- just as it appeared.

It remains to be seen whether or not the Soviets used a "marker beacon" associated with the disruption of the Delta launch. One news photograph seems to contain a suggestion of such a light, but the videotapes must be studied frame by frame before it can be ascertained exactly what if anything is really there.

If a marker beacon was not used, the distant Soviet operator could simply have "popped out" the continuous EM ball of energy, tracked it and the ascending rocket exhaust, and "joysticked" the scalar EM missile up into the rocket.

Analysis of this incident is continuing, so nothing is certain as we go to press.

However, if this incident was indeed another Soviet kill, then it will have served the Russians well. Much of the world's media attention will now be focused on NASA's launch difficulties, and away from the recent Chernobyl nuclear reactor disaster in the Soviet Union. It's bound to take some of the media pressure off the Soviets.

In addition, it further cripples the U.S. satellite program. Loss of this critical weather satellite payload seriously reduces U.S. weather monitoring capabilities.

Further, the U.S. space program now appears to be all but grounded by the Challenger, Titan, and Delta explosions. For example, it will require about 18 months for the U.S. to redesign the shuttle so that America's shuttle program can get going again. So things are delayed until summer of 1987 at the earliest.

Meanwhile, the Russians are set to grasp the lead in the space race. In 1985 they launched about 100 rockets, five times as many as the U.S. They have a shuttle program of their own, well underway, with a flight expected within months. Earlier this year, they launched Mir, a second generation space station; a U.S. version is still some eight years away.

Charles Vick, of Huntsville, Alabama's Space and Rocket Center, summed it up: "They have their standard military program, a shuttle program and the equivalent of an Apollo program, all within a 10-year period. It's awesome."

An experienced propagandist like Gorbachev certainly understands the advantages of a strong Soviet push into space, such as (1) military advantage, (2) national prestige, (3) scientific achievement, and (4) projecting an image in the world's news media that the Soviets are first in space exploration.

So the failure of the Delta rocket provides many benefits to the Soviet Union.

It also continues to exercise and demonstrate Soviet mastery of the skies over North America itself.

Meanwhile, two U.S. nuclear submarines have "inadvertently" run aground in the last month or so.

Gorbachev again seems disposed toward a summit meeting soon.

If it's held, the agenda may be quite different from the one President Reagan is prepared for.

The clock ticks on toward midnight.

2002 ENDNOTES

1. It is actually a unified field theory since the infolded electrodynamics inside all EM potentials, fields, and waves is utilized—and the internal electrodynamics forms spacetime curvatures and dynamics of those ST curvatures.
2. M. W. Evans, "0(3) Electrodynamics," *Modern Nonlinear Optics*, 2nd Edition, M. W. Evans (Ed.), Wiley, New York, 2001, Vol. 2, p. 79-267.
3. David J. Bohm, "A Suggested Interpretation of the Quantum Theory in Terms of 'Hidden' Variables, I and II." *Phys. Rev.*, 85(2), Jan. 15, 1952, p. 166-179 (Part I); 180-193 (Part II); — "Quantum theory as an indication of a new order in physics." A: *Found. Phys.*, Vol. 1, 1971, p. 359; B: "Implicate and explicate order in physical law," *Found. Phys.*, 3(2), 1973, p. 139-168.
4. Mendel Sachs, *General Relativity and Matter*, Reidel, 1982; — "Symmetry in Electrodynamics: from Special to General Relativity, Macro to Quantum Domains," *Modern Nonlinear Optics*, 2nd Edition, Wiley, New York, Vol. 2, p. 677-706.
5. M. W. Evans, P. K. Anastasovski, T. E. Bearden et al., "On Whittaker's Representation of the Electromagnetic Entity in Vacuo, Part V: The Production of Transverse Fields and Energy by Scalar Interferometry," *J. New Energy*, 4(3), Winter 1999, p. 299-301 gives a basic mathematical expose of scalar interferometry.
6. James Clerk Maxwell, "A dynamical theory of the electromagnetic field," *Phil. Trans. Roy. Soc.*, Vol. 155, 1865, p. 71, 459. Orally presented in 1864. This was Maxwell's definitive presentation of his theory, with 20 quaternion and quaternion-like equations in 20 unknowns. Also in *The Scientific Papers of James Clerk Maxwell*, edited by W. D. Niven, Dover, New York, 1952, Vol. 1, p. 526-604.
7. In T. E. Bearden, *Gravitobiology: A New Biophysics*, Cheniere Press, Santa Barbara, Ca. www.cheniere.org, 1991 we first exposed the quantum potential weapon and some of its uses and characteristics.
8. A negative energy EMP weapons strikes the target or target area with an extreme pulse of negative energy empty Dirac Sea 4-holes. As a result, the free electrons flowing in electrical currents in the struck target instantly disappear by re-absorption into the Dirac Sea. A living body struck by such a blast is totally and instantly dead in every smallest part, since all its brain and nervous system currents, cellular currents, etc. are instantly and totally extinguished. The Russians tested this weapon in the 1980s in their war in

Afghanistan, against two Afghan villages. I spent two hours in Washington D.C. with the then-representative of the Mujahedin to the U.S. Government, verifying the incidents and going over the exact characteristics of the instantaneous deaths of those villagers. With such a sudden death, the mind-body interconnection loop is instantly severed, so that the mind is instantly snapped loose from its connection to the body—hence my use of the term "MindSnapper." The struck body usually emits longitudinal EM waves for an extended period, so that vultures and other predators will not approach the bodies and eat them. All bacteria, viruses, etc. in the body are also killed instantly, and the body does not decay, even in 30 or 60 days.

9. As can be seen, the negative energy EMP weapon is an all-purpose weapon extremely effective against every kind of target: missiles, aircraft, communications, satellites, ships and particularly aircraft carriers, personnel, generators, power systems, the electronics of nuclear warheads, submarines, tanks and vehicles, and the electrical and electronic controls of any kind of machinery or equipment. Such weapons are the second most powerful weapons on earth. In the first part of 2002, a U.S. 2-carrier task force maneuvered in the South China Sea as a precautionary warning to the Chinese that we would defend Taiwan. Unknown to that fleet, tracking it and trained on it were the newly deployed Chinese negative energy EMP weapons, which could have destroyed the entire task force—everything in it—with a few shots in less than 10 minutes.

10. T. E. Bearden, *Energy from the Vacuum: Concepts and Principles*, Cheniere Press, Santa Barbara, CA, 2002. Chapters 1 and 2 give a deeper coverage of this and similar foundations principles.

11. As is well known, Russian theoreticians have always been the best nonlinear scientists on Earth, since the beginning. They still are.

12. See T. E. Bearden, "Giant Negentropy from the Common Dipole," *J. New Energy*, 5(1), Summer 2000, p. 11-23 for solution of the source charge problem. On DoE restricted website <http://www.ott.doe.gov/electromagnetic/> and on www.cheniere.org. The problem of the source charge can be solved by treating (with the modern quantum field theory viewpoint) the "isolated" observable charge and its cluster of virtual charges of opposite sign as a composite dipole. Because of the broken symmetry of its opposite charges, any dipole or dipolarity continuously receives virtual energy from the seething vacuum, transduces it into real observable EM energy, and pours out observable photons in all directions at the speed of light. See also E. T. Whittaker, 1903, *ibid*. There is a scalar potential between the ends of each dipole. The scalar potential may be decomposed into a bidirectional set of longitudinal EM phase conjugate energy from the time dimension (from the imaginary plane) and outputs that EM energy in the real 3-space. 3-space conservation of energy flow

is violated, but 4-space conservation of energy flow is upheld. This rigorously follows from the discovery of broken symmetry of opposite charges in 1957—one of the types of asymmetry for which Lee and Yang received the Nobel Prize.

In classical electrodynamics, the charged particle itself is *assumed* to be the source of its own fields and potentials. In other words, the charge is implicitly considered to be *creating*—right out of nowhere—the Poynting energy flow it continuously pours out across the universe in all directions. That makes the charge a perpetual motion machine of the grossest kind, violating the maxim that energy can neither be created nor destroyed.

So the greatest perpetual motion advocates of all times are our own classical electrodynamicists and electrical engineering departments and professors who still ignore the active vacuum interaction that is missing from the classical model. They thereby ignore that the charge is a broken 3-symmetry in its violent exchange of virtual energy with the active vacuum, and merely organizes and emits in observable form a fraction of the energy it continuously receives from the imaginary plane (from the time domain). Yet, that broken symmetry has been known in particle physicists, both experimentally and theoretically, for 45 years.

When Maxwell wrote his theory, neither the electron, the atom, nor the nucleus had been discovered. There was no knowledge of the Drude electron gas, electron spin, etc. There was no knowledge of the nucleus of the atom, and even the atom itself was still contentious. A thin material ether (fluid) was believed to fill all space, so that no point in all the universe was empty of mass. Consequently, E and B were conceived as physical force fields in a material medium—the luminiferous ether. All Maxwell's equations—including the subset selected and modified by Heaviside that today are called "Maxwell's equations"—assume this material ether to this day.

Electricity was thought to be a "thin material electric fluid" running through wires like water through a pipe. The magnitude of the potential was not used; its reaction cross-section was calculated and erroneously used as its magnitude, as it is today (although a good electrodynamicist does know that it is only the *intensity* of the potential, not its magnitude).

Faraday believed that his "lines of force" were taut physical "strings" in this material ether, and that EM perturbations were the vibrations of these taut strings. As he clearly states in his 1873 *Treatise...*, Maxwell sought to capture Faraday's work exactly. He simply *assumed* Faraday's "plucked taut string" waves. Later the measurement in instruments of what was actually the lateral gyroprecession of electrons in receiving wires was thought to prove that the incoming ether vibrations were transverse, like those string waves, because the detected electric **fluid** (**electron** precession) waves in the receiving wire were

transverse. The drift velocity of electrons longitudinally in a wire (in a typical case, several inches per hour) was unknown. A charge q was just a piece of electric fluid, much like a cubic centimeter or other volume of fluid; it had no connotation of "charged particle." There was no concept in all of physics of EM energy flowing through space. There was no knowledge that the same fields created in the transmission wire, which perturbs the Drude electrons laterally, also perturbs the positively charged nuclei laterally, in the opposite direction, highly damped but with equal energy.

There was no way to realize that the energetic perturbation of the curvature of spacetime around the sending wire antenna, by the Drude electron perturbation energy, is simultaneously accompanied by an equal and opposite perturbation of the curvature of spacetime in the opposite direction (energy density, not amplitude of the disturbing wave, determines the degree of curvature of the surrounding spacetime). Hence Maxwell omitted precisely one half the EM energy, one half the EM wave, and one-half the electrodynamics. As a consequence, the "Newton's third law recoil" of the nuclei today is thought to spontaneously arise as if some mystical demon observes the Drude electron perturbations, and simultaneously kicks the positively charged nuclei in the equal and opposite direction. Hence Newton's third law, so to speak, is erroneously still omitted from classical electrodynamics, and the better texts say so.

In the 1880s, the Michelson-Morley experiments falsified the material ether. Not a single one of the Maxwell-Heaviside equations were ever changed to this day. Instead, the electrodynamicists eventually announced that, since there was no longer an ether, they were not using one! Then a total non sequitur was incorporated: that in massfree space, the same E and B fields (defined as material entities and thus existing only in mass) still remain but the forces go to zero. Simple algebra reveals this clever, insidious faux pas, using the E -field as an example: First, $F = d/dt(mv)$, so mass is a component of force. (This reveals the great error due to the hoary old notion that a separate force acts upon a separate mass; the mass is a component of the force, and the force is a coupled system of a curvature of spacetime and a charged mass.). Then $E = F/q$, which rigorously holds when mass is present.

Now for whatever reason, let $F = 0$. Then $F/q = 0$ and $E = 0$ also, else we must discard algebra. What actually remains is easily explained in general relativity terms (available since before 1920). The couplet of a curvature of spacetime and a charged mass is broken up by absencing the mass. What remains is that specific curvature of spacetime. GR assures us that curved ST acts upon mass, and that any force involves a curvature of ST. Yet in more than 80 years, this erroneous old "material ether remnant" in electrodynamics has been fiercely defended. Every textbook today uses and confuses the E and B fields in two dichotomous fashions: (1) as massive force fields existing only in the presence

of mass, and as "massless force-free fields" existing only in the absence of mass. This of course is a non sequitur.

13. E. T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," *Math. Ann.*, Vol. 57, 1903, p. 333-355. The "scalar" potential itself is not even a *scalar entity*, as shown rigorously by Whittaker. Instead, it is a harmonic series of bidirectional EM longitudinal phase conjugate wavepairs, and it decomposes into that series. Hence it is a *multiwave, multivectorial entity*.

14. C. N. Yang and R. L. Mills, "Conservation of Isotopic Spin and Isotopic Gauge Invariance," *Phys. Rev.*, Vol. 96, 1954, p. 191.

15. The term "energetics" simply means *energy as the primary thing in the universe*. Rankine first used it. G. Helm in 1887 revived Rankine's term "energetics" and factored energy into an *intensity* factor and an *extensity* factor (which today we would call potential and kinetic energies). William Ostwald in 1893, 1895, and 1901 raised the concept of "energetics" (energy as the primary thing in the universe) to the forefront. Thus when the Russians developed new extensions and principles in weapons physics, they simply used the historical notion of "energy as the primary thing in the universe" and adopted the earlier name for it: *energetics*.

16. Later when Khrushchev demanded a 100% antimissile defense, famed Russian Nobelists Petr Kapitsa answered, "*Ifa means of total neutralization of foreign missiles is to be found, it can only come from a group of new principles in physics, called energetics*".

17. See T. E. Bearden, "Mind Control and EM Wave Polarization Transductions, Part I", *Explore*, 9(2), 1999, p. 59; Part II, *Explore*, 9(3), 1999, p. 61; Part III, *Explore*, 9(4,5), 1999, p. 100-108. It appears that Sachs' unified GR and EM approach is perhaps the best Western physics model to apply to analysis of the KGB energetics weapons. However, because of the third branch (*psychoenergetics*: engineering the mind directly), Sachs' work would appear to need further extension along the lines indicated by the present author in the cited paper.

18. See T. E. Bearden, "EM Corrections Enabling a Practical Unified Field Theory with Emphasis on Time-Charging Interactions of Longitudinal EM Waves," *J. New Energy*, 3(2/3), 1998, p. 12-28; — *Energy from the Vacuum*, 2002, *ibid*. For nuclear transmutation at a distance (e.g., dudding all nuclear weapons by transmuting U235 and weapons grade plutonium), extension is required along the lines indicated by the present author in these references.

19. See M. Sachs, *ibid.*, also M. Sachs, "Relativistic Implications of Electromagnetic Field Theory," in T. W. Barrett and D. M. Grimes, eds., *Advanced Electromagnetism*, World Scientific, 1995, p. 551. The Sachs theory

already expresses the greatest generalization possible of electrodynamics, and fully justifies the preceding view.

20. See Whittaker, 1903, *ibid.*; — "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," *Proc. Lond. Math. Soc.*, Series 2, Vol. 1, 1904, p. 367-372. The latter paper was published in 1904 and orally delivered in 1903. Per these two Whittaker papers, it is known that (i) ordinary EM fields and waves are the result of interference of two or more scalar potential functions, (ii) scalar potentials are comprised of harmonic sets of bidirectional EM phase conjugate wavepairs, (iii) all ordinary EM fields and waves and potentials have LW EM dynamics internally, and (iv) in theory, this "infolded" electrodynamics can be engineered. Sachs' theory dramatically extends the richness of that internal electrodynamics ignored in the West, and highlights the general relativity (sets of spacetime curvatures, or "engines", involved).

21. E.g., *Marine Observer* was a rich source for Russian energetics weapons testing in remote ocean areas, sighted by ships' captains and crews and entered into the ships' logs.

22. Portions of Khrushchev's statements to the Presidium are given in Max Frankel, "Khrushchev Says Soviet Will Cut Forces a Third; Sees 'Fantastic Weapon'," *New York Times*, Jan. 15, 1960, p. 1.

23. See Whittaker 1903 and 1904, *ibid.*, for the original basis of scalar interferometry and its creation of any kind of EM field, potential, and wave in the interference zone.

24. Also see M. W. Evans, P. K. Anastasovski, T. E. Bearden et al., On Whittaker's Representation of the Electromagnetic Entity in Vacuo, Part V: The Production of Transverse Fields and Energy by Scalar Interferometry, *J. New Energy*, 4(3), Winter 1999, p. 76 for mathematical proof of scalar interferometry. There are several other AIAS papers in the same issue of *JNE*, dealing with interferometry and with the implications of the Whittaker papers.

25. As an example, the U.S.S. Skylark, surface companion of the Thresher, was beset by mysterious "jamming" of multiple types of EM systems in multiple bands. So bad was it that it required more than an hour to get an emergency message to Naval headquarters that the Thresher was in serious difficulty. Later, as the scalar interferometry died away, all the EM systems aboard the Skylark resumed normal functioning. The Skylark was in fact in a "splatter zone" of the underwater interference zone around the Thresher.

26. Circa the end of 1989, the earlier longitudinal EM wave weapons on site in Russia were leased to a rogue Japanese group comprised of Aum Shinrikyo and Yakuza, who have been operating those weapon systems—on site in Russia—since then. Senator Sam Nunn's investigations revealed the presence

of the Aum Shinrikyo in Russia, to include establishing a university there. His investigators missed the Yakuza involvement and also missed the exotic weaponry aspects as one might expect.

27. I concluded from this remark that TEMPEST techniques are probably used at some nearby site not too distant from my home here in Huntsville, to read and record my work as I write it on the computer. That appears to be a good assumption.

28. As a small example of what can be done, see a series of papers by M. W. Evans, P. K. Anastasovski, T. E. Bearden et al, published in *J. New Energy*, 4(3), Special Issue, Winter 1999. The papers are: (a) "On Whittaker's Representation of the Electromagnetic Field in Terms of Two Scalar Potentials, Part I"; (b) "An Experimental Test of the Existence of Whittaker's g and Fluxes in the Vacuum"; (c) "On Whittaker's Representation of the Classical Electromagnetic Field in Vacuo, Part II: Potentials Without Fields"; (d) "On Whittaker's F and G Fluxes, Part III: The Existence of Physical Longitudinal and Timelike Photons"; (e) "Representation of the Vacuum Electromagnetic Field in Terms of Longitudinal and Time-like Potentials: Canonical Quantization"; (f) "On Whittaker's Analysis of the Electromagnetic Entity, Part IV: Longitudinal Magnetic Flux and Time-Like Potential Without Vector Potential and Without Electric and Magnetic Fields"; (g) "On Whittaker's Representation of the Electromagnetic Entity in Vacuo, Part V: The Production of Transverse Fields and Energy by Scalar Interferometry"; and (h) "On Extending Whittaker's Theory, Part VI: Photons Without Fields and Vector Potentials".

29. As an example, one part of the strategic deception plan was devoted to convincing the West that Soviet psychoenergetics was nothing but a technical wrinkle upon the rather harmless Western parapsychology. This part of the program was completely successful for decades. Another very clever use of deception is to allow release of some real scientific advances that lead the West, but are not too important to the KGB in the weapons arena. The increasing emphasis on torsion fields is an example of this "deception by giving good information that directs the adversary upon a path one wishes him to take", effectively steering him away from the path one wishes him to avoid. Lately, however, there is an uproar amongst the academicians in the Russian Academy of Sciences over this very point, that torsion fields being presented as the "end all, be all" is simply disinformation.

30. With their deployment of QP weapons in 2002, the Chinese are also on the way to having this capability.

31. The multiply connected spacetime (MCS) or quantum potential weapons went on site circa latter 1989. A laboratory prototype had been tested against the U.S. air attack on Libya in April 1986. For details of the extremely anomalous jamming **of aircraft** and missile guidance and control systems in that

attack on Libya, see Mark Thompson, "Mixed signals may have misguided U.S. weapons," *The Washington Post*, Jan. 22, 1989, p. A-4.

32. One or more QP weapons also apparently induced the Gulf War Disease in MidEast forces in the Gulf War. We have previously explained the peculiar anomalies, how it was done, why the endemic natives did not contract the disease, why the French forces did not contract it but U.S., British, and Canadian forces did, etc. We briefly discussed quantum potential weapons in T. E. Bearden, *Gravitobiology: A New Biophysics*, In T. E. Bearden, *Gravitobiology: A New Biophysics*, Cheniere Press, Santa Barbara, Ca. www.cheniere.org, 1991.

33. (a) Yossef Bodansky, "Soviets testing chemical agents in Afghanistan," *Jane's Defence Weekly*, 1(3), Apr. 7, 1984, p. 508 gives something of the two Soviet tests of this weapon in Afghanistan. In addition to the fierce blast of empty Dirac Sea 4-holes, these weapons produce a powerful time-polarized EM pulse in the area, producing a very sharp "jerk" in the rate of flow of time, (b) The mind-body coupling mechanism—which cannot withstand such a sharp jerk in the rate of flow of time—has been given by T. E. Bearden, "Mind Control and EM Wave Polarization Transductions," *Explore*, 1999, *ibid*. This sharp "jerk" in time-flow instantly snaps the mind-body coupling mechanism for any living thing in the struck area. A very small version of this weapon was tested twice in Afghanistan, where the bodies in the "mind-snapped" zone died instantly, fell like limp rags, never twitched, and did not decay or get molested by insects or scavengers for the 30 days it required the Mujahedin to fight their way back into the two struck villages. The Mujahedin thought it was some new, extremely fast acting nerve gas, which they dubbed "smerch" or "death wind".

34. Two Ph.D. scientists were working closely with me on this entire effort, as was another close colleague. There was much more involved in the effort that is so briefly mentioned here.

35. Secretary of Defense William Cohen at an April 1997 counterterrorism conference sponsored by former Senator Sam Nunn. Quoted from DoD News Briefing, Secretary of Defense William S. Cohen, Q&A at the Conference on Terrorism, Weapons of Mass Destruction, and U.S. Strategy, University of Georgia, Athens, Apr. 28, 1997.

36. T. E. Bearden, *Energetics: Extensions to Physics and Advanced Technology for Medical and Military Applications*, CTEC Proprietary, Mar. 21, 1998, 200+ page inclosure to CTEC Letter to Gen. (Ret.) Walter Busby, Deputy Secretary of Defense for Counterproliferation and Chemical and Biological Defense, March 21, 1998. Copies were sent to various other U.S. government agencies, including to NIH, CDC, the USAF, etc.

37. See Vlail Kaznacheyev and L. P. Mikhailova, *Ultraweak Radiation in Intercellular Interactions*, [in Russian], Novosibirsk, 1981. An English exposition of much of the Kaznacheyev material is given in Vlail Kaznacheyev, "Electromagnetic Bioinformation in Intercellular Interactions," *Psi Research*, 1(1), Mar. 1982, p. 47-76. The work of Vlail Kaznacheyev led to the understanding of how to electromagnetically transmit cellular death and disease into targeted cells (or bodies) at a distance, and involved thousands of lab experiments. Highly sanitized work revealing the results but not the mechanisms, were permitted in order to stimulate the West to see if it knew about energetics.

38. See Stanislov Lunev and Ira Winkler, *Through the Eyes of the Enemy: Russia's Highest Ranking Military Defector Reveals Why Russia Is More Dangerous Than Ever*, Regnery, Washington, D.C., 1998. The Red Chinese also were able to decipher the Russian EM disease transmission methodology, early on. As a strange kind of "poetic justice" action the Chinese induced cancer into many Russian spies stationed in the Russian Embassy in China. Quoting Lunev, p. 160: "...I was not the only person who was stationed in Beijing to come down with cancer...Almost all of the GRU officers stationed in China with me have been diagnosed with cancer. People assigned to the embassy had told me that they were picking up high levels of radiation from the apartment building around the embassy compound. Whether it was a form of high-tech monitoring or a conscious effort to harm our health, it seems to have been successful. So much so that in 1992 the GRU was asked to investigate the high rate of cancer among embassy officials. The findings, however, have never been made public; in part, no doubt, because of the rapprochement between Russia and China."

39. See my "Porthole Briefing", on www.cheniere.org. Also see "Le Probleme Priore," *Rapport de la Commission de l'Academie des Sciences a Monsieur le Ministre d'Etat charge de la Recherche et de la Technologie*, France, 1982, p. 1-22; J. B. Bateman, "Microwave Magic," Office of Naval Research London Conference report, ONRL C-14-77, 1977; — *A Biologically Active Combination of Modulated Magnetic and Microwave Fields: The Priore Machine*, Office of Naval Research, London, Report R-5-78, Aug. 16, 1978; — "Staging the Perils of Nonionizing Waves," *European Scientific Notes*, ESN 32-3-85-88, 1978; T. E. Bearden, "Energetics Update and Summary," Parts 1, *Explore More*, No. 1, 1996, p. 13-18; Part 2, *Explore*, 8(1), 1997, 53-56; Part 3, *Explore*, 8(2), 1997, p. 42-45; Christopher Bird, "The Case of Antoine Priore and His Therapeutic Machine: A Scandal in the Politics of Science," *Explore*, 5(5-6), 1994, p. 97-110; R. Cambar, "Rapport general des travaux de la Commission de Controle constituee en vue de verifier l'un des effets biologiques obtenu par l'utilisation de l'appareillage de Priore A. Bordeaux," [General findings of the work of the control commission formed to verify one of the biological effects obtained by use of the apparatus of A. Priore at Bordeaux],

1969; R. Courier, "Expose de M. le professeur R. Courier Secetaire perpetuel de l'Academie des Sciences fait au cours d'une reunion a l'Institut sur les effets de la machine de M. A. Priore 26 Avril 1977" [Presentation by Professor R. Courier, Perpetual Secretary of the Academy of Sciences, made at the meeting of the Academy on the effects of the machine of M. A. Priore.]; Jean-Michel Graille, *Dossier Priore: A New Pasteur Affair*, De Noel, Paris, 1984 [in French]; Antoine Priore, "Apparatus for producing radiations penetrating living cells," U.S. Patent No. 3,368,155, Feb. 6, 1968; — "Method of producing radiations for penetrating living cells," U.S. Patent No. 3,280,816, Oct. 25, 1966; — "Procede et dispositif de production de rayonnements utilisables notamment pour le traitement de cellules vivantes," [Procedure and Assemblage for Production of Radiation Especially Serviceable for the Treatment of Living Cells], Republique Francais Brevet d'Invention P.V. No. 899.414, No. 1,342,772, Oct. 7, 1963; A. Priore, *Guerison de la Trypanosomiasse Experimentale Aigue et Chronique par L'action Combinee de Champs Magnetiques et D'Ondes Electromagnetiques Modules* [Healing of intense and chronic experimental trypanosomiasis by the combined action of magnetic fields and modulated electromagnetic waves], thesis submitted in candidacy for the doctoral degree, 1973—rejected when the project was suppressed.

40. Eric Perisse, *Effets des Ondes Electromagnetiques et des Champs Magnetiques sur le Cancer et la Trypanosomiasse Experimentale* [Effects of Electromagnetic Waves and Magnetic Fields on Cancer and Experimental Trypanosomiasis], Doctoral thesis, University of Bordeaux No. 83, March 16, 1984. Although Priore's own thesis was suppressed in 1973, Pautrizel nevertheless finally succeeded in getting this doctoral thesis by Perisse approved on the work, at the University of Bordeaux which had rejected Priore's thesis, after eleven more years had passed. Considering the viciousness of the suppression, this was a major accomplishment.

41. The photo was taken by George Suchary of the registration point (ball of light) high over the Nov. 1985 night shuttle launch from Cape Canaveral. For a photo of the same kind of "ball of light" registration point above the kill of a Titan missile launched from Vandenberg AFB in early 1986, see reference 39 below.

42. The picture by Canadian investigators showing the hole burned through the right fuselage ahead of the engines of the Arrow DC-8 is shown in T. E. Bearden, *AIDS: Biological Warfare*, Cheniere Press, Santa Barbara, Ca. www.cheniere.org, 1988, p. 52.

43. See T. E. Bearden, *Gravitobiology: A New Biophysics*, Cheniere Press, Santa Barbara, Ca. www.cheniere.org, 1991, p. 82. Two sensors on-board the Arrow DC-8 independently recorded the sharp electrical spike generated by the strike of the EM missile.

44. "Titan Explosion Cripples U.S. Launch Surveillance Capability," *Aviation Week & Space Technology*, 124(17), Apr. 28, 1986, p. 16-19. Specifically see the picture of the explosion on p. 18. It clearly shows the Soviet marker beacon (little ball of light) well above the missile explosion. General background on the Titan explosion and investigation is given in "Investigators Search for Clues to Cause of Titan Blast," *Aviation Week & Space Technology*, 124(17), Apr. 28, 1986, p. 19-20. I persuaded NBC engineer Ron Cole with a team of engineers to examine the videotape of the explosion, frame by frame. In 17 frames the ball-of-light (registration point) is visible, and moves away completely independent of the explosion. No "bogies on the range" were reported at Vandenberg AFB.

45. Dr. Evans is co-discoverer with Vigier of the B(3) field, now well established but still not in the textbooks. He is the Director of the Alpha Foundation's Institute of Advanced Study (AIAS) and has over 600 papers and books in the literature.

46. M. W. Evans, P. K. Anastasovski, T. E. Bearden et al., "On Whittaker's F and G Fluxes, Part III: The Existence of Physical Longitudinal and Timelike Photons," *J. New Energy*, 4(3), 1999, p. 68-71; — "Representation of the Vacuum Electromagnetic Field in Terms of Longitudinal and Time-Like Potentials: Canonical Quantization," *ibid.*, p. 82-88; — "On Extending Whittaker's Theory, Part VI: Photons Without Fields and Vector Potentials," *ibid.*, p. 79-81.

47. Terence W. Barrett, "Electromagnetic Phenomena Not Explained by Maxwell's Equations," in Lakhtakia, A. (ed.): *Essays on the Formal Aspects of Electromagnetic Theory*, World Scientific Publishing, River Edge, NJ, 1993, p. 6-86; — "On the distinction between fields and their metric: the fundamental difference between specifications concerning medium-independent fields and constitutive specifications concerning relations to the medium in which they exist," *Ann. Fond. Louis de Broglie*, 14(1), 1989, p. 37-75; — and D. M. Grimes. [Eds.] *Advanced Electromagnetism: Foundations, Theory, & Applications*. World Scientific, (Singapore, New Jersey, London, and Hong Kong), Suite 1B, 1060 Main Street, River Edge, New Jersey, 07661, 1995. In the latter book see T.W. Barrett, "Sagnac Effect: A Consequence of Conservation of Action Due to Gauge Field Global Conformal Invariance in a Multiply-Joined Topology of Coherent Fields," p. 278-313.

48. But see Craig F. Bohren, "How can a particle absorb more than the light incident on it?" *Am. J. Phys.*, 51(4), Apr. 1983, p. 323-327. By *resonating* the intercepting charged particle, its reaction cross section increases, and more EM energy is collected and re-radiated by the charge than is input to it by the conventional accounting (which only accounts the input Poynting energy that would be intercepted by a *static* charge). The conventional input energy

calculation therefore ignores the huge nondiverged Heaviside component surrounding the Poynting component and wasted. The resonant particle sweeps out past the usual Poynting component into the unaccounted Heaviside input component, and collects excess energy. The Bohren experiment with resonant charged particles produces $COP = 18$. Metallic particles at ultraviolet frequencies are one class of such particles and insulating particles at infrared frequencies are another. For independent confirmation of the Bohren experiment, see H. Paul and R. Fischer, {Comment on "How can a particle absorb more than the light incident on it?"}, " *Am. J. Phys.*, 51(4), Apr. 1983, p. 327.

49. E. T. Whittaker, 1903, *ibid*.

50. A beneficial use, e.g., would be to use such CSRs to investigate and report the interior of the sun and planets, including the Earth and its core. Since a CSR can also travel "through" the interior of a light beam, in theory such could be dispatched back into some of the nearer stars to also explore and report their interior.

51. This is no more curious than stating that sets of waves and their dynamics can exist in space, without interacting with mass, and that they can then later interact with a mass system to change it in specifically designed manner. Since longitudinal EM waves and their dynamics are "infolded" inside ordinary EM waves, fields, and potentials, they are also infolded "inside" the ambient vacuum potential, which itself is a part of the local vacuum potential. In short, one forms highly complex LW wavesets and functional dynamics, in essentially a sort of "subspace" as popularized by the Star Trek television series. The LW "engines" are identically ST curvature engines. A close colleague of the present author has in fact already invented and rigorously demonstrated such a communication system, but his former funding by several very large communications companies collapsed before he could develop and employ this system for the commercial market.

52. This is easily understood if one shifts one's vision from "space" to "subspace." Subspace is filled with (literally is composed of) longitudinal EM waves and their dynamics. The CSR's are quite unique, enormous systems "singing away" with longitudinal EM waves. So a longitudinal EM wave interferometer can easily locate them by sweeping its beams through subspace, as a radar sweeps to track aircraft in space. Once the CSR target "pings", the system automatically hits it with a profusion of interacting LWs, completing disrupting and destroying its dynamics. Scratch one system. Probably several million such systems were destroyed throughout the West (command centers, power grids, submarines, nuclear bombers, etc.) in rapid fire order, all without any external "spatial" sign other than perhaps a wee bit of very low level "EM noise" briefly as a struck CSR fractured.

53. See M. Sachs, *Quantum Mechanics from General Relativity*, Reidel, 1986. Sachs' unified field theory, e.g., applies equally to the quarks and gluons, as it does to the nucleons, the atoms, molecules, and macroscopic objects and phenomena. See also M. Sachs, "Symmetry in Electrodynamics: From Special to General Relativity, Macro to Quantum Domains," in *Modern Nonlinear Optics*, Second Edition, 3 vols., M. W. Evans (ed.), Wiley, 2001; vol. 1, p. 677-706.

54. G. M. Wang, E. M. Sevick, Emil Mittag, Debra J. Searles, and Denis J. Evans, "Experimental Demonstration of Violations of the Second Law of Thermodynamics for Small Systems and Short Time Scales," *Phys. Rev. Lett.*, 89(5), 29 July 2002, 050601.

55. The tragic death of Captain Hess was also very probably such a test. Hess, perfectly normal and happy, laid out his uniform in the early morning and then went for his customary morning jog. He suddenly veered aside, sat down in a path and stabbed himself 26 times, all deep stab wounds, four of which would be totally incapacitating (two right through the heart) to any normal individual experiencing normal shock, etc. To a psychoenergetically controlled individual where shock does not occur nor does emotion or pain, this is understandable. Add this to the incidents involving Captains Button and Svoboda, and one begins to see the picture.

56. W. Heitman and G. Nimtz, "On Causality Proofs of Superluminal Barrier Transversal of Frequency Band Limited Wave Packets," *Phys. Lett. A* 196, 1994, p. 154-158. Aichmann and Nimtz and co-workers at the University of Cologne have transmitted 8.7 GHz microwaves (free space wavelength 3.4 cm) traveling in a rectangular wave-guide that contains a "barrier" section of reduced dimensions. They have recently transmitted Mozart's 40th Symphony as frequency modulated microwaves through a barrier wave-guide at an FTL group velocity of 4.7 c, receiving audibly recognizable music from the microwave photons that survived their barrier passage. The transit time through the barrier was about 81 picoseconds and was observed to be constant for barriers with widths varying from 4.0 cm to 11.4 cm.

57. Quantum mechanics in fact requires instantaneous transmission of effects. A mishmash of learned contention would have us believe one can "transmit" energy instantly, but not intelligence. This argument has essentially stymied our scientific establishment so that it has not really funded strong investigation in this area. It is a stupid argument: Simply transmit one change, then a second one, then a third one, in serial order, where the "order" contains the intelligence. No different from Morse code. Somehow the pundits so certain that intelligence cannot be superluminally transmitted seem to have forgotten what "intelligence" is. They also seem to have assumed that one superluminal change can be **transmitted** on order, but a second, third, and fourth cannot.

58. Feynman and Wheeler tried very hard to formulate a new absorber theory of electrodynamics to eliminate many of the fierce foundations problems. Wheeler described the effort this way: "...we may summarize the account of radiation reaction given by Wheeler and Feynman in 1945. In it every charged particle is envisaged as coupled to every other charged particle by a field that is symmetric in time: half advanced, half retarded. Interconnections run forward and backward in time in such numbers as to make an unbelievable maze. That weaving together of past and future seems to contradict every normal idea of causality. However, when the number of particles is great enough to absorb completely the signal starting out from any source, then this myriad of couplings adds up to a simple result: the familiar retarded actions of everyday experience, plus the familiar force of radiative reaction with its familiar sign." [John Archibald Wheeler, "Law without law," in *Quantum Theory and Measurement*, preprint, p. 39].

Unfortunately, when the foundations of any science are closely examined in their roots, one runs into the age-old bane of the philosopher: ultimately opposites are identical, at least prior to the observation (separation) action to separate them. It follows that all scientific reasoning is circular at its most primary basis.

59. See Charles W. Misner, Kip S. Thorne and John Archibald Wheeler, *Gravitation*, W. H. Freeman, San Francisco, CA., 1973, p. 71. Wheeler spoke of that inescapable fact in this manner: "*Here and elsewhere in science, as stressed not least by Henry Poincare, that view is out of date which used to say, 'Define your terms before you proceed.' All the laws and theories of physics, including the Lorentz force law, have this deep and subtle character, that they both define the concepts they use (here B and E) and make statement about these concepts. Contrariwise, the absence of some body of theory, law and principle deprives one of the means properly to define or even to use concepts. Any forward step in human knowledge is truly creative in this sense: that theory, concept, law, and method of measurement—forever inseparable—are born into the world in union.*"

60. Also see T. E. Bearden, *Energy from the Vacuum: Concepts and Principles*, 2001, *ibid*, for a rework and extension of Aristotelian logic to eliminate its present fatal flaw, extending it into a 5-law logic.

61. The very notion of "propagation of energy through space" is radically extended in the extended unified EM and GR being pursued by AIAS and Sachs. Time-like EM energy currents dominate in the vacuum. E.g., see M. W. Evans et al., "Representation of the Vacuum Electromagnetic Field in Terms of Longitudinal and Time-like Potentials: Canonical Quantization," *J. New Energy*, 4(3), Winter 1999, p. 82.

62. Multiwave interactions (between transverse EM waves) produce time-reversed EM waves (phase conjugate replicas of the signal wave input). That method time-reverses EM energy in waveform. To time-reverse EM energy in mass form, simply pump that mass with time-polarized EM waves. As an alternative, it may be pumped with longitudinal EM waves (which are always accompanied by time-polarized EM waves anyway), and the pumped mass is also pumped in the time-domain because of the presence of the time-polarized EM waves in the pumping. We previously filed an invention disclosure with the U.S. Patent Office dealing with how to do that.

63. Mostly studied by Becker. See (a) R. O. Becker, "The control system governing bone growth in response to mechanical stress," *J. Ark. Med. Soc.*, Vol. 62, 1966, p. 404; (b) — and David G. Murray, "The electrical control system regulating fracture healing in amphibians," *Clinical Orthopaedics and Related Research*, Vol. unk, No. 73, Nov.-Dec. 1970, p. 169-198. This latter paper is the definitive technical exposition by Becker of his electrical control system ideas and findings. Good references for the educated layperson are (c) R. O. Becker, "A technique for producing regenerative healing in humans," *Frontier Perspectives*, 1(2), Fall/Winter 1990, p. 1-2; (d) Robert O. Becker and Gary Seldon, *The Body Electric: Electromagnetism and the Foundation of Life*, William Morrow and Company, New York, 1985; and (e) Robert O. Becker, *Cross Currents: The Promise of Electromedicine, the Perils of Electropollution*, Tarcher, St. Martin's Press, New York, 1990.

64. A provisional patent application has been filed on the process, and an overview of the method can be seen as the "porthole briefing" on my website www.cheniere.org.

65. (a) C. A. L. Bassett; R. O. Becker, and R. J. Pawluk, "Effects of electric currents on bone in vivo," *Nature*, Vol. 204, Nov. 14, 1964, p. 652-654. The complete electrical control system (conventional EM theory) for the healing of bone fractures is given in (b) R. O. Becker, *Clinical Orthopedics and Related Research*, Vol. 73, 1970, p. 169. A paper "putting it all together" is (c) R. O. Becker, *J. Bioelec.*, Vol. I, 1982, p. 239.

66. F. Mandl and G. Shaw, *Quantum Field Theory*, Wiley, 1984, Revised Edition 1993, under the heading "5.2 Covariant Quantization" and "5.3 The Photon Propagator" in Chapter 5. The longitudinal and scalar photon polarizations are not directly observable, but only in combination, where they manifest as the instantaneous Coulomb (i.e., electrostatic) potential interaction, "which emerges as an exchange of longitudinal and scalar photons." So the common old electrostatic scalar potential is actually comprised of longitudinal EM waves and time-polarized EM waves.

67. With the MidEast increasingly set to explode, we may be facing the unleashing of weapons of mass destruction, a vast shortage and curtailment of

available oil and energy, and a total collapse of the Western economy and therefore most of the world economy, in as little as three or four years, if the impending energy crisis worldwide is not resolved quickly. See T. E. Bearden, ADAS position paper, "The Unnecessary Energy Crisis: How to Solve It Quickly," *ibid.* As this is written, we have already had a warning shot across our bow: the vicious terrorist attacks on September 11, 2001. We are in Afghanistan and elsewhere in a war against terrorism, and anyone can see the escalation in the MidEast toward war between the U.S. and Iraq, and almost certainly a resulting explosion in the MidEast and unleashing of the hostile terrorists assets and mass destruction weapons already inside the United States. Since modern economies are based on cheap energy, and cheap energy is largely based on cheap oil, then with surging energy demands worldwide we shall see "oil wars" erupt and rage worldwide, with terrorist retaliations and attacks—using weapons of mass destruction—occurring in U.S. cities. Unless energy from the vacuum is quickly developed and deployment begun at high speed, we risk the coming collapse of the world economy, great destruction of populaces, and a new Dark Ages.

68. E. T. Whittaker, 1903, *ibid.*

69. Daniel A. Walker, Charles S. McCreery, and Fermin J. Oliveira, "Kaitoku Seamount and the Mystery Cloud of 9 April 1984," *Science*, Vol. 227, Feb. 8, 1985, p. 607-611; Daniel L. McKenna and Daniel A. Walker, "Mystery Cloud: Additional Observations," *Science*, Vol. 234, Oct. 24, 1986, p. 412-413.

70. Superpotential theory was initiated by E. T. Whittaker, extending earlier concepts advanced by G. Johnstone Stoney. See E. T. Whittaker, *Proc. Lond. Math. Soc.*, Series 2, Vol. 1, 1904, p. 367-372. Nisbet extended the Whittaker and Debye two-potential solutions of Maxwell's equations to points within the source distribution. This is a full generalization of the vector superpotentials (for media of arbitrary properties) together with their relations to such scalar potentials as those of Debye. See A. Nisbet, *Physica*, Vol. 21, 1955, p. 799. Also, A. Ricci in 1901 introduced what might be called the magnetization potential, satisfying a certain equation, as an alternate to the Hertz vector. This was a part of early vector superpotentials. For an excellent overview discussion of superpotentials and related things, see Melba Phillips, "Classical Electrodynamics," in *Principles of Electrodynamics and Relativity*, Vol. IV of *Encyclopedia of Physics*, edited by S. Flugge, Springer-Verlag, 1962. Phillips discusses, for example, that Whittaker 1903 (note: oral delivery; paper was published in 1904) was the first to prove that one can derive a general electromagnetic field from two scalar functions, which are really components of the vector superpotentials, with proper choices of the gauge functions. Whittaker's method is well known in the treatment of transverse electric and transverse magnetic modes of a cylindrical cavity or a waveguide. Nisbet has shown that this result may be extended within the source distribution (assumed

given) by a suitable choice of stream functions. The Debye potentials and the Bromwich potentials are essentially radial components of the vector potentials of which Whittaker potentials are the real parts. So in general the particular integral (the stream potentials) of the inhomogeneous Maxwell equations may be so chosen that the complementary function can be expressed in terms of only two scalars, which are components of the vector superpotentials. The Whittaker and the Debye-Bromwich potentials are special cases of two vector superpotentials.

71. David Jones, *Vancouver Sun Times*, Weekend Magazine, Dec. 17, 1977, p. 17.

72. For more specific information on the production of practical antigravity and an experiment demonstrating it, see T. E. Bearden, *Energy from the Vacuum: Concepts and Principles*, Cheniere Press, Santa Barbara, CA, 2002, Chapter 8. Approach to Antigravity.

73. T. E. Bearden, *Energy from the Vacuum: Concepts and Principles*, Cheniere Press, Santa Barbara, CA, 2002, Chapter 10. Cold Fusion: Low Spatial-Energy Nuclear Reactions at High Time-Energy. By inadvertently using highly compressed time-energy, cold fusion researchers are actually using—on the tabletop—higher energy density than our present high-energy physics uses in its largest accelerators. The conventional scientific community does not have a single scientific program dedicated to using time as energy, even when one's physics model can legitimately be made of a single fundamental unit. When the joule is chosen as that unit, then time becomes totally a function of energy, just as is mass. The use of mass-energy gave us the nuclear age; the use of time-energy will give us a far greater age, if we can ever get the scientific community off its duff and moving.

74. Further, the second law of thermodynamics has long been known not to apply to a single charge, atom, or molecule or to a small group. For such microscopic phenomena, there will occur reversed reactions a certain small fraction of the time. But also see G. M. Wang, E. M. Sevick, Emil Mittag, Debra J. Searles, and Denis J. Evans, "Experimental Demonstration of Violations of the Second Law of Thermodynamics for Small Systems and Short Time Scales," *Phys. Rev. Lett.*, 89(5), 29 July 2002, 050601. These researchers have experimentally proven that the second law can be and is violated for much larger scales—up to micro (colloidal) size—and for much longer times (up to two seconds). Hence it is now proven that such "reversed zones" where reactions run backwards for quite a bit, can and do in fact occur on the colloidal scale, sufficient for the formation of large clusters of like charges. Evans and his colleagues have pointed out that these results dramatically affect chemistry.

75. Shoulders has been creating and using such charge clusters for years. See Kenneth R. Shoulders, "Energy Conversion Using High Charge Density,"

U.S. Patent # 5,018,180, May 21, 1991; — "Energy Conversion using High Charge Density," U.S. Patent No. 5,123,039, 1992; — "Method and Apparatus for Production and Manipulation of High Density Charge," U.S. Patent #5,054,046, 1991; — U.S. Patent #5,054,047, 1991; — "Circuits Responsive To and Controlling Charged Particles," U.S. Patent 5,148,461, 1992; — and Steve Shoulders, "Observations on the Role of Charge Clusters in Nuclear Cluster Reactions," *J. New Energy*, 1(3), Fall 1996, p. 111-121.

76. D. J. Evans and D. J. Searles, *Phys. Rev. E*, Vol. 50, 1994, p. 1645.

77. See Donald Kennedy, "To Publish or Not to Publish," *Science*, Vol. 295, 8 Mar. 2002, p. 1793.

78. R. P. Taleyarkhan, C. D. West, J. S. Cho, R. T. Lahey Jr., R. I. Nigmatulin, and R. C. Block, "Evidence for Nuclear Emissions During Acoustic Cavitation," *Science*, Vol. 295, 8 Mar. 2002, p. 1868-1873. Quoting from the abstract: "In cavitation experiments with deuterated acetone, tritium decay activity above background levels was detected. In addition, evidence for neutron emission near 2.5 million electron volts was also observed, as would be expected for deuterium-deuterium fusion. Control experiments with normal acetone did not result in tritium activity or neutron emissions."

79. Yuri T. Didenko and Kenneth S. Suslick, "The energy efficiency of formation of photons, radicals and ions during single-bubble cavitation," *Nature*, Vol. 418, July 25, 2002, p. 394-397.

80. E.g., see John Archibald Wheeler and Richard Phillips Feynman, *Phys. Rev.* 59, 1941, p. 683; — "Interaction with the Absorber as the Mechanism of Radiation," *Rev. Mod. Phys.*, 17(2, 3), Apr.-Jul. 1945, p. 157-181.

81. Albert Einstein, "Foreword," in Max Jammer, *Concepts of Space: The History of Theories of Space in Physics*, Harvard University Press, Cambridge, Massachusetts, 1969, p. xi-xii.

82. Robert A. Fisher, [Ed.], *Optical Phase Conjugation*, Academic Press, NY, 1983, p. xv.

83. Basically, the choice between distant heating in the interference zone, or distant cooling, is as simple as how one biases the ground potential used for the electrical grounds of the interferometer transmitters. Biasing well above the ambient potential in the distant IZ produces divergent EM energy (heat) forming and radiating in the distant zone. Biasing well below the ambient IZ potential produces convergent EM energy (cold) forming and radiating in the distant zone.

84. Mass is mostly empty space filled with EM potentials, fields, and waves. Since these potentials, fields, and waves are simply bundles of longitudinal EM waves and their impressed dynamics, it follows that mass itself

is mostly a "giant superhighway" for the transmission of LWs. This is actually a sort of "subspace" transmission "right through" matter, so to speak.

85. As demonstrated by such dual serial usage by a giant interferometer in the anomalous and explosive "cloud" phenomena near the Kurils in April 1984. For excellent descriptive articles and a hard look at the phenomena, see Walker et al., *Science*, *ibid*.

86. See "Soviet device uses radio waves as tranquilizer," AP release, *Huntsville [Alabama] Times*, May 19, 1983. See also W. Ross Adey, "Biological effects of low energy electromagnetic fields," *Proc. NATO Adv. Study Inst. on Advances in Biological Effects and Dosimetry of Low Energy Electromagnetic Fields*, Plenum Press, New York, 1983, p. 359-391. Adey apparently was aware only of ordinary U(1) electrodynamics. He describes the **LIDA** device as follows: "*Soviet investigators have also developed a therapeutic device utilizing low frequency square wave modulation of a radiofrequency field. This instrument known as the LIDA, was developed by L. Y. Rabichev and his colleagues in Soviet Armenia, and is designed for the 'treatment of neuropsychic and somatic disorders, such as neuroses, psychoses, insomnia, hypertension, stammering, bronchial asthma, and asthenic and reactive disturbances.'* It is covered by U.S. Patent #3,773,049. In addition to the pulsed RF field, the device also delivered pulsed light, pulsed sound, and pulsed heat. Each stimulus train can be independently adjusted in intensity and frequency. The radiofrequency field has a nominal carrier frequency of 40 MHz and a maximum output of approximately 40 watts. The RF field is applied to the patient on the sides of the neck through two disc electrodes approximately 10 cm. in diameter. The electrodes are located at a distance of 2-4 cm from the skin. Optimal repetition frequencies are said to lie in the range from 40 to 80 pulses per minute. Pulse duration is typically 0.2 sec. In a 1-year trial period, the instrument was used on 740 patients, including adults and children. Positive therapeutic effects were claimed in more than 80 percent of the cases treated." We accent that this is one of the simplest Russian psychoenergetics devices, obsoleted very early on, and thus released very early for public use.

87. Since U.S. researchers are unaware of the EM wave polarization transduction mechanisms, and in general have no instruments for detecting longitudinal EM waves, the specific transduction effects on humans would not be measured by U.S. laboratories. Hence the U.S. scientists could only think of it in conventional electrodynamic terms, and remained totally unknowledgeable about the specific transduction mechanisms in the human body producing time-polarized EM waves and effects from the device.

88. Max Frankel, "Khrushchev Says Soviet Will Cut Forces a Third; Sees 'Fantastic Weapon'," *New York Times*, Jan. 15, 1960, p. 1.

89. For a simplified introduction to psychoenergetics and the mind-matter coupling mechanism, see T.E. Bearden, "Mind Control and EM Wave Polarization Transductions, Part I", *Explore*, 9(2), 1999, p. 59; Part II, *Explore*, 9(3), 1999, p. 61; Part III, *Explore*, 9(4,5), 1999, p. 100-108.

90. One of the serious goals of the die-hard KGB psychoenergetics scientists appears to be to achieve the capability of directly engineering the entire human collective unconscious mind. The plan envisioned is to convert the human species into a sort of "giant ant species" where each one has perfect, machine-like niche and function (except, of course, for the elite Communist masters). In short, they conceived back there in the 1960s that such a "perfect communist state" for all humanity was in fact possible to achieve technically, with sufficient development of psychoenergetic technology. They are apparently well along the way toward achieving that goal. [The U.S. has not even conceived such a scientific possibility, and modern cognitive science in the West seems bent on the rather astounding proposition that mind itself does not even exist!]. We point out that no type of physical defense is even possible against such a capability engineered into the collective human unconscious, once it is achieved. The only "counter" is to use the same technology (it has to first be developed) to "re-engineer" what will have been done. But our fellows have not even conceived the possibility of the threat, much less the cause or the counter. Hence they continue to totally misunderstand what happened to Captains Button, Svoboda, and Hess in successful mind-control tests achieved perfectly at great distance.

91. To see the nature of the time-density wave (which is basically a longitudinal EM wave along the time axis), due to the perfect correlation between time-energy flow currents and variations with respect to longitudinal EM waves, see T.E. Bearden, "Giant Negentropy from the Common Dipole," 2000, *ibid*. Not stressed in the paper is the fact that the same dipolar negentropy with correlated EM time-energy currents and EM spatial energy currents, exists in the "individual" photon. Further, they can occur in coupled photon-antiphoton pairs, yielding the graviton. For time-polarized EM photons, it appears that two photon-antiphoton pairs are coupled, yielding the "supergraviton." Elsewhere we have briefly and addressed these novel formations as hypotheses.

92. Induction of specific diseases and health changes in the U.S. Embassy in Moscow over four decades, included causing the deaths of three U.S. Ambassadors. It was accomplished by implementing desired disease-pattern "engines" infolded inside field-free potentials. The Johns Hopkins study of the radiation patterns revealed a most significant finding: All the affected persons were in regions of the Embassy where the Russian microwave radiation *fields* were absent. In short, where the field-free—and thus very stable—potentials existed. Since these scientists (and most others in classical EM) consider that EM effects are caused only by fields, they concluded (totally erroneously) that

these health changes could not have been caused by the microwave radiation. To the contrary, they had just clearly proven that the radiation was indeed the cause. They showed a 100% correlation to the *presence of field-free potentials*, and a 100% anticorrelation to where the fields were present. This was for induced phenomena over several years. Had the radiation not been the culprit, then some health changes would have occurred where the fields were present, and some would have occurred where they were absent. That is not what happened at all, and this inexplicable logical non sequitur against common statistical inference was the accepted decision. The truly revealing aspect was that *apparently the entire U.S. Intelligence community had no competence or capability in higher group symmetry electrodynamics*.

93. E.g., see Lewis H. Ryder, *Quantum Field Theory*, Cambridge University Press, 2nd Edition, 1996, p. 147+ which covers the four photon polarizations. See also F. Mandl and G. Shaw, *Quantum Field Theory*, Wiley, 1984, Revised Edition 1993, under the heading "5.2 Covariant Quantization" and "5.3 The Photon Propagator" in Chapter 5.

94. We elaborate on this somewhat, in "Mind Control and EM Wave Polarization Transductions", *ibid*.

95. Again, we point out the unified field approach of Mendel Sachs as probably being the best Western model in which to grapple with these phenomena.

96. David J. Bohm, "A Suggested Interpretation of the Quantum Theory in Terms of 'Hidden' Variables, I and II." *Phys. Rev.*, 85(2), Jan. 15, 1952, p. 166-179 (Part I); 180-193 (Part II).

97. T. E. Bearden, *Gravitobiology: A New Biophysics*, Cheniere Press, Santa Barbara, Ca. www.cheniere.org, 1991.

98. W. A. Rodrigues Jr. and J.-Y. Lu, "On the existence of undistorted progressive waves (UPWs) of arbitrary speeds $0 < v < \infty$ in nature," *Found. Phys.*, 27(3), 1997, p. 435-508. A slightly corrected version is downloadable as hep-th/9606171 on the Los Alamos National Laboratory web site. It includes corrections to the published version.

99. W. A. Rodrigues Jr. and J. Vaz Jr., "Subluminal and Superluminal Solutions in Vacuum of the Maxwell Equations and the Massless Dirac Equation," *Adv. Appl. Clifford Algebras*, Vol. 7(S), 1997, p. 457-466.

100. E.g., see A. Enders and G. Nimtz, *Phys. Rev. Lett.*, Vol. 48, 1993, p. 632. Enders, Aichmann, Nimtz and co-workers at the University of Cologne have transmitted 8.7 GHz microwaves (free space wavelength 3.4 cm) traveling in a rectangular wave-guide that contains a "barrier" section of reduced dimensions. They transmuted Mozart's 40th Symphony as frequency modulated

microwaves through a barrier wave-guide at an FTL group velocity of $4.7c$, receiving audibly recognizable music from the microwave photons that survived their barrier passage.

101. J. D. Jackson, *Classical Electrodynamics*, 2nd Edition, Wiley, New York, 1975, p. 222.

102. See H. A. Lorentz, *Vorlesungen Über Theoretische Physik an der Universität Leiden*, Vol. V, *Die Maxwellsche Theorie* (1900-1902), Akademische Verlagsgesellschaft M.B.H., Leipzig, 1931, "Die Energie im elektromagnetischen Feld," p. 179-186. Figure 25 on p. 185 shows the Lorentz concept of integrating the energy flow vector around a closed cylindrical surface surrounding a volumetric element. This is the procedure which arbitrarily selects only a small component of the total energy flow in space outside a circuit and associated with it—specifically, the small Poynting component diverged by the surface charges into the conductors to power the electrons—and then treats that tiny component as the "entire" vast energy flow (which may be a trillion or more times greater in magnitude). Thereby Lorentz arbitrarily discarded all the huge Heaviside energy transport component that does not strike the circuit at all, is not diverged into the conductors, and is just wasted. See Oliver Heaviside, *Electrical Papers*, Vol. 2, 1887, p. 94. Quoting: "It [the energy transfer flow] takes place, in the vicinity of the wire, very nearly parallel to it, with a slight slope towards the wire... . Prof. Poynting, on the other hand, holds a different view, representing the transfer as nearly perpendicular to a wire, i.e., with a slight departure from the vertical. This difference of a quadrant can, I think, only arise from what seems to be a misconception on his part as to the nature of the electric field in the vicinity of a wire supporting electric current. The lines of electric force are nearly perpendicular to the wire. The departure from perpendicularity is usually so small that I have sometimes spoken of them as being perpendicular to it, as they practically are, before I recognized the great physical importance of the slight departure. It causes the convergence of energy into the wire."

103. When it is associated with positive energy fields and potentials from positive mass, positive energy source charges, we have nominated that long-unaccounted Heaviside energy flow component as the source of the excess gravity holding the arms of the spiral galaxies together (a solution to the dark matter problem). When it is associated with negative energy fields and potentials from negative-energy Dirac Sea holes in 4-space, we have nominated that unaccounted energy flow component as the source of the excess antigravity responsible for accelerating the expansion of the universe (a solution to the dark energy problem).

104. About a year from now, Bedini and I will also release a very novel use of this Heaviside energy flow component in inverted circuits—circuits that

operate almost completely in reverse from normal textbook circuits. This is a totally new kind of circuit that we hope will revolutionize power systems and electronic control systems. Until our intellectual property rights are secured, we are not releasing any details at all.

105. Terence W. Barrett, "Tesla's Nonlinear Oscillator-Shuttle-Circuit (OSC) Theory," *Ann. Fond. Louis de Broglie*, 16(1), 1991, p. 23-41. Tesla was able to shuttle energy around in his circuits at will. Barrett went on to improve the process and patent two versions. See T. W. Barrett, "Active Signalling Systems," U.S. Patent No. 5,486,833, Jan. 23, 1996. This is a signaling system in time-frequency space for detecting targets in the presence of clutter and for penetrating media. See also T. W. Barrett, "Oscillator-Shuttle-Circuit (OSC) Networks for Conditioning Energy in Higher-Order Symmetry Algebraic and RF Phase Conjugation," U.S. Patent No. 5,493,691. Feb. 20, 1996.

106. Bryan G. Wallace, "The Unified Quantum Electrodynamic Ether," *Found. Phys.*, 3(3), Sept. 1973, p. 381-388.

107. William G. Harter, John Evans, Roberto Vega, and Sanford Wilson, "Gallop waves and their relativistic properties," *Am. J. Phys.*, 53(7), July 1985, p. 671-679. Most waves caused by a single frequency source have a galloping motion. The only exceptions are the very special cases of absolutely pure moving waves or absolutely pure standing waves. The superposition and resulting interference of two oppositely moving waves generally yield a wave having nonuniform motion; in short, the wave rushes forward rapidly, then slows appreciably, etc. A relativistic example is given in which the source frame observes a very nonuniformly galloping wave whose velocity varies between 0.01 c and 100 c, even though its average velocity is c. Relativistic properties of interfering electromagnetic plane waves are discussed.

108. S. L. Miller, "The Formation of Organic Compounds on the Primitive Earth," *Ann. NY Acad. Sci.*, Vol. 69, 1957, p. 260; — *Bioch. Biophys. Acta.*, Vol. 23, 1957, p. 480-489; — *Science*, Vol. 117, May 15, 1953, p. 528-529; — and H. C. Urey, "Organic Compound Synthesis on the Primitive Earth," *Science*, Vol. 130, 1959, p. 245-251.

109. R. Harada and S. Fox, "Thermal Synthesis of Natural Amino-Acids from a Postulated Primitive Terrestrial Atmosphere," *Nature*, 201(4917), 1964, p. 335-336; S.W. Fox, "How Did Life Begin?," *Science*, 132(3421), July 22, 1960, p. 200-208; — and S. Yuyama, "Abiotic Production of Primitive Protein and Formed Microparticles," *N.Y. Acad. Sci. Ann.*, Vol. 108, June 1963, p. 487-494; — and K. Harada, "Thermal Copolymerization of Amino Acids to a Product Resembling Protein," *Science*, 128(333), 1958, p. 1214; — and M. Middlebrook, "Anhydrocopolymerization of Amino Acids Under the Influence of Hypothetically Primitive Terrestrial Conditions," *Federation Proc.* Vol. 13, Mar. 1954, p. 211.

110. H. C. Urey, "On the Early Chemical History of the Earth and the Origin of Life," *Proc. Nat. Acad. Sci.*, 38(4), 1952, p. 351-363.

111. I.e., one may speak of the "potential" of a specific engine of a former life form, and then realize that the potential for that form reduces in magnitude inversely as the radial distance from the Earth. However, it does not reduce to zero until an infinite distance is reached.

112. As an example, a great EM energy flow—produced by the cross product $\mathbf{E} \times \mathbf{H}$ of the earth's magnetic field and the earth-to-electrosphere electric field—flows from West to East around the earth, nearly parallel to the equator. Infolded in that great EM energy flow are all the structures of all the genetics and life forms on earth, or that have ever been on earth and conditioned the natural scalar potential of the earth. The vials in the laboratory experiments of Miller, Fox, and Urey were all continually bathed in that great energy flow, which within it contained the entire life structure and dynamics of the planet. So no "inert" experiments were ever performed, contrary to the interpretations of the scientific community.

113. Vlail Kaznacheyev and L. P. Mikhailova, *Ultraweak Radiation in Intercellular Interactions*, [in Russian], Novosibirsk, 1981 [an English exposition of much of the Kaznacheyev work is given in Vlail Kaznacheyev, "Electromagnetic Bioinformation in Intercellular Interactions," *Psi Research*, 1(1), Mar. 1982, p. 47-76.] Kaznacheyev, e.g., appears to have headed the Soviet team actually producing the basis for the disease-inducing technology utilized for four decades in the microwave radiation of the U.S. Embassy in Moscow.

114. Specifically, the down payment was \$900 million in gold. The lease is probably about \$1 billion per year. Thus the Yakuza acquired very powerful strategic weapons, and became a secret power to be reckoned with internationally and strategically. Since 1990, weather engineering over the U.S. and occasional shootdown of aircraft (such as the TWA-800) have been by rogue Japanese fingers on the scalar interferometer weapon triggers, on site in Russia.

115. The Yakuza has also transferred some of the longitudinal EM wave interferometry technology to their Japanese facilities. One such system has apparently been deployed in the power grid, and has been used to kill some government officials who opposed the Yakuza. This information was obtained by some brave Japanese risking their lives to get the information to the present author.

116. Many important KGB weapon tests happened in April of various years; the KGB weapons folks were simply preparing for their May Day reports, and each wished to have a good one.

117. Sen. Sam Nunn's investigation teams verified that the Aum Shinrikyo were actively seeking the "Tesla Weapons", with the Aum Shinrikyo even visiting the Tesla Museum in Beograd for that purpose. We have 100% certain confirmation of the Yakuza and Aum Shinrikyo leasing of the scalar interferometers from the KGB and Russian Mafia (working for the KGB) at the end of 1989 or first few days of 1990. Sen. Nunn's report confirms that the Aum Shinrikyo set up a University in Moscow. Our comment is that this is where the Russians actually taught the Japanese crews the science and technical functions so that they could successfully man and use the scalar (longitudinal EM wave) interferometry weapons.

118. Recall that in the 1950s and early 1960s, Kaznacheyev et al., *ibid.*, had already clearly proven that nearly any form of cellular change, damage, or disease could be induced in cells at a distance by purely electrodynamic means.

119. In the kill of the Arrow DC-8 at Gander, Newfoundland on 12 Dec. 1985, the struck aircraft did charge up with time-density charging, and many pieces of the wreckage did indeed emit longitudinal EM waves thereafter for some time. Consequently, the Canadian recovery crews working the site and handling the materials, were exposed to longitudinal EM wave radiation for varying degrees of exposure. It follows that many of those on-site handlers should have later come down with physical ailments, with symptoms such as flu-like features, weakness, heart palpitations, headaches, dizziness, disturbance of equilibrium, and with various infections because of weakened immune systems. They also should have had weakened cellular regenerative (healing) systems, so their physical problems would endure and largely remain. About five dozen of the recovery personnel did come down with those exact symptoms, and many remained disabled or debilitated for some years.

120. We have also explained (a) why the French forces in the Gulf War did not get GWS, while American, British, and Canadian forces did, (b) why the native population did not exhibit GWS, and (c) the remaining anomalous phenomena associated, such as the semen "infecting" the wife, the children catching similar or related conditions from sustained close proximity to their father's biofields (transmission of engines), etc.

121. Mario Bunge, Foundations of Physics, Springer-Verlag, New York, 1967, p. 176.

122. T. E. Bearden, "Giant Negentropy from the Common Dipole," *J. New Energy*, 5(1), Summer 2000, p. 11-23 gives the solution to the long-vexing source charge problem. The paper is also carried on DoE restricted website <http://www.ott.doe.gov/electromagnetic/> and on www.cheniery.org

123. Two examples of inane articles and actions in this respect, revealing no knowledge that every charge in the universe already exhibits $COP = \infty$, are (a)

Graham P. Collins, "There's No Stopping Them: Perpetual Motion is alive and well at the U.S. Patent Office," and (b) Resolution by the Executive Board at the June 2002 meeting of the American Physical Society (APS) as follows: *"The Executive Board of the American Physical Society is concerned that in this period of unprecedented scientific advance, misguided or fraudulent claims of perpetual motion machines and other sources of unlimited free energy are proliferating. Such devices directly violate the most fundamental laws of nature, laws that have guided the scientific progress that is transforming our world."* So the learned APS has just declared the source charge as an unacceptable "free energy" machine and perpetual motion machine, since the charge simply sits there and continuously pours out real observable EM energy in all directions at the speed of light, without any observable EM energy input. Thus the APS has implicitly declared all EM fields and potentials and their energy—which includes every joule of EM energy in the universe, in matter or in space—to be unacceptable byproducts of perpetual motion nonsense. We heartily call upon the APS in the name of science to enforce their resolution in the orthodox academic community, who are the greatest perpetual motion advocates in history. To be consistent with their own resolution, they must root out and destroy—from all texts and universities and from the scientific literature—any mention whatsoever of charge, field, potential, and EM energy. Either they must do that, or stand hoisted on their own petard as a dogmatic group still very much unaware of why the Nobel Prize was awarded to Lee and Yang in 1957 and what the proof—by Wu et al.—of the asymmetry of opposite charges means with respect to the source charge considered in its modern quantum field theory view as a dipolarity of a bare infinite central charge surrounded by clustering virtual charges (also infinite charge) of opposite sign in the active vacuum. Every electrical engineering department and professor and textbook still uses a model and teaches a subject assuming that every charge in the universe freely creates energy from nothing at all. Further, the APS in every annual meeting also tolerates, encourages, and publishes multiple papers and presentations with the same such unacceptable perpetual motion assumptions in them. Such is the lofty understanding of our present organized scientific community, which seems much more politically bent than scientifically bent. The simple Bohren experiment and the entire area of negative resonance absorption of the medium has long been established in nonlinear optics, and such experiments widely yield a nominal COP = 18. In other words, the experiments nominally output 18 times as much energy as the operator inputs, and the excess input energy is furnished absolutely for free from the active vacuum's exchange. In this case the Executive Board of the APS is not even aware of what its own physics discipline has long proven and accepted in particle physics, for nearly a half century. Neither are the self-appointed defenders of the faith, who also are totally unaware of what physics has already proven with a Nobel Prize awarded nearly a half century ago.

124. C. S. Wu, E. Ambler, R. W. Hayward, D. D. Hoppes and R. P. Hudson, "Experimental Test of Parity Conservation in Beta Decay," *Phys. Rev.*, Vol. 105, 1957, p. 1413. We also quote Nobelist T. D. Lee as follows: "*Since nonobservables imply symmetry, any discovery of asymmetry must imply some observable. The experiment of Wu, Ambler, Hayward, Hoppes and Hudson... established the asymmetry between the positive and negative signs of electricity.*" [T. D. Lee, *Symmetries, Asymmetries, and the World of Particles*, U. Wash. Press, Seattle, 1988, p. 11.].

125. Dilip Kondepudi and Ilya Prigogine, *Modern Thermodynamics: From Heat Engines to Dissipative Structures*, Wiley, New York, 1998, reprinted with corrections 1999.

126. See "Secret Speech: Did Brezhnev Come Clean?" *National Review*, 29(8), Mar. 4, 1977, p. 248, 250

127. For the energy description of this device and some results, see Floyd Sweet and T. E. Bearden, "Utilizing Scalar Electromagnetics to Tap Vacuum Energy," *Proc. 26th Intersoc. Energy Conversion Engineering Conf. (IECEC '91)*, Boston, Massachusetts, p. 370-375.

128. Also see my book, *Energy from the Vacuum*, 2002, *ibid*, which includes photographs of the self-powering Sweet device, courtesy of Walter Rosenthal.

129. Roy Brewer was very active in Hollywood Unions against Communists when they were busily penetrating the Hollywood complex. He was a staunch anti-communist, fighting them out of control of the unions, way back when. Ronald Reagan was a personal friend of his of long standing, and Roy had open access to the White House when Reagan was President.

Roy briefed Reagan on the Russian scalar weapons, and Reagan believed him. Three times, Reagan ordered his Secretary of Defense to take action in that area, but neither of the three did so because the U.S. Intelligence Community did not believe it and adamantly opposed any such action. We took quite a beating in those days, for quite a long time (some years), before certain key parts of the Government finally believed us, checked it out experimentally, and found that it worked.

Roy also introduced me to the Duke de Grantsmesnil, one of the last of the great old British intelligence men, now unfortunately deceased. In the hectic 1997 days when we were trying desperately to warn a little friendly nation (and our own) against a coming great strategic strike on the U.S. and other allies, the Duke played a major role in introducing us directly to higher political levels in that little nation - which was the only nation on earth that could counter the pending strike. The first planned strike scheduled in February 1997 was successfully countered, only to be immediately rescheduled. In the second

incident, the attack was scheduled for May 1, 1997. We finally realized why the hostile nation could reschedule and go ahead, and needed then to warn the little nation of the reason in some detail. We had tried everything to get certain information through, and all means had failed. A former ambassador of that nation to Great Britain was also assassinated during that struggle. Roy Brewer was one of the key fellows assisting in that attempt, as were other personal colleagues of mine who also were witnesses and direct participants in those desperate events. When all else failed, I finally just faxed the Prime Minister directly, in the clear, some five days before the attack, urging the most urgent and immediate action possible by the Prime Minister. A complete change in command and control of the weapon was required, and that change had to be made and then the hostile nation had to be notified that the change was in place (and probably shown that it was). The Prime Minister accepted the message and the necessary action was carried out immediately. So two days or so before the actual attack was scheduled, that great hostile armada began standing down. Oh, the hostile nation and its leaders could have easily destroyed the entire United States in two hours or so, without fail! But then their own country would have promptly disappeared from the face of the earth. So they stood down. And our own Intel community never even picked it up (they did get my messages alerting the U.S. Government, but thought it was a joke or something). They, of course, also intercepted my open fax to the Prime Minister, and so were all over me for that one for a while thereafter.

Interestingly, at the very time that great armada was just beginning to stand down, then Secretary of Defense William Cohen made the following statement at a conference in Georgia: "Others are engaging even in an eco-type of terrorism whereby they can alter the climate, set off earthquakes, volcanoes remotely through the use of electromagnetic waves...so there are plenty of ingenious minds out there that are at work finding ways in which they can wreak terror upon other nations...It's real, and that's the reason why we have to intensify our efforts, and that's why this is so important." Secretary of Defense William Cohen at an April 1997 counterterrorism conference sponsored by former Senator Sam Nunn. Quoted from DoD News Briefing, Secretary of Defense William S. Cohen, Q&A at the Conference on Terrorism, Weapons of Mass Destruction, and U.S. Strategy, University of Georgia, Athens, Apr. 28, 1997.

Ironically, the Secretary was referring to the earlier scalar interferometer weapons, and now the quantum potential weapons etc. He was completely unaware that a great strategic strike had actually been scheduled and was just being aborted as he was speaking those words.

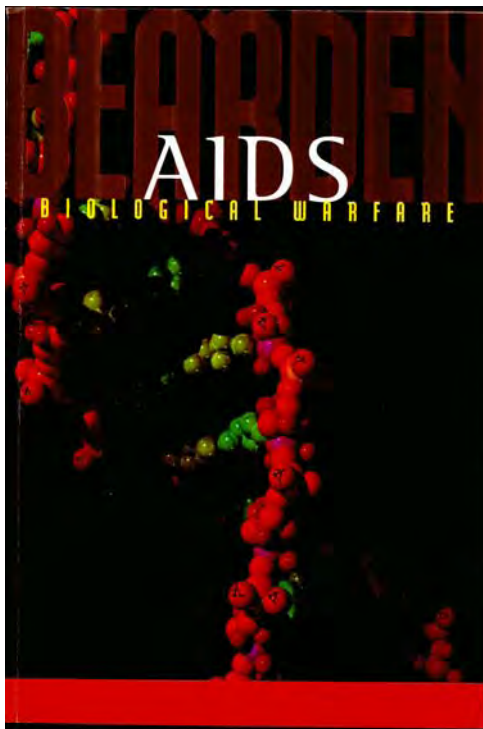
Roy Brewer is one of those fellows who has been a great American, has served his country admirably during his lifetime, and contributed greatly to preventing a planned take-over by the Communists of the labor unions of America. In

addition, he helped set up the contacts with the friendly **little foreign nation**, so that on four occasions planned attacks to destroy the United States have been successfully aborted or handled.

As you know, one of the great failures in the Communist plan to have America go communist was their failure with the labor unions. And we owe that failure to the steadfast efforts of some staunch folks like Roy Brewer. He helped save our nation when many of us were still wearing knee pants.

130. Wheeler's principle, as stated in W. Misner, K. S. **Thorne**, and J. A. Wheeler, *Gravitation*, W.H. Freeman and Co., San Francisco, 1973, p. 5.

131. With the new improvements we uncovered, treatment time can be reduced to 5 minutes per patient. Three such treatments one week apart would be what are required. Hence one machine station could treat a patient every five minutes, around the clock. With sufficient portable treatment units, mass treatment for mass casualties would become a practical reality.



AIDS

BIOLOGICAL WARFARE



Lieutenant Colonel Thomas E. Bearden (U.S. Army, Retired) PhD, is the author of numerous books, papers, briefings, and presentations dealing with anomalous phenomena, scalar electromagnetics, free energy devices, Soviet Tesla weapons, and Soviet scalar electromagnetic weather warfare.

At the time of writing this book, Lt. Col. Bearden was a senior scientist and department manager with the Alabama division of a major aerospace company where he directed the company's design and production of expert systems (artificial intelligence) applications for the U.S. Army command control systems. He had more than 29 years experience in air defense systems, tactics, and operations; technical intelligence; nuclear weapons employment; computerized wargames; anti-radiation missile countermeasures; and military systems requirements.

Bearden obtained a Master of Science degree in nuclear engineering from the Georgia Institute of Technology and a Bachelor of Science degree in Mathematics from Northeast Louisiana University. He is a graduate of the U.S. Army Command and General Staff College.

Tom was also then a member of Mensa, Society for the Investigation of the Unexplained, International Tesla Society, American Association for the Advancement of Science, Association of American Physics Teachers, the Air Force Association, the Association of the U.S. Army, the American Nuclear Society, and the American Defense Preparedness Association. He was also the Alabama and East Coast Director for the Association of Distinguished American Scientists, was a member of the Alabama Academy of Sciences, and was previously on the Board of Directors of the U.S. Psychotronics Association.

In private life, Tom has two sons and daughters, and lives in Huntsville, Alabama with his wife, Doris.

Sweating done by red_gonzo.

Note: sometimes formatting of the text may be a little fuzzy. It's all because the OCR process didn't go as smoothly as I expected. Also there may be some errors inside text so be vigilant. In any case share this book, send emails to people about knowledge contained in it. This book should especially be interesting to any person in medical community (being as a doctor or as patient) as it provides factual evidence of successful (but suppressed) treatments through electromagnetic means. But before any devices can be understood and developed a new and extended kind of physics must be introduced into our educational system. Only then can this proper foundation be learnt and used by applicative sciences such as medicine. So far such knowledge has been contained in highly classified military circles and hopefully now, after many decades of suppression, it will finally be used for the good of mankind.

Dedication

This book is sincerely dedicated to the millions of persons who have died needlessly of cancer, leukemia, and AIDS in the last two and half decades. They were men, women, and children. Some were weak, some were strong. Some died in agony, some died silently. All of them were our fellow human beings. We remember them. They were important. Their anguish cries out to be heard. God willing, the new electromagnetic medicine so long suppressed will flower, and save the millions otherwise yet to die.

Special Acknowledgements

Mr. Christopher Bird's kind permission to print, his summary of the Priore Affair is gratefully acknowledged, as is the contribution of his own extensive Priore research material to this effort. The author owes a great debt indeed to Chris Bird for his magnificent assistance.

Mr. Robert Whitney graciously contributed rare photographs of Antoine Priore's device and also translations of background papers by French scientific journals. His previous valiant though fruitless efforts to bring the Priore machine into the mainline of Western medical treatment are specifically recognized and commended.

Vital contributions by Drs. Robert B. and Theodore A. Strecker are particularly acknowledged. Their March 1986 alert to the federal government, that AIDS was a deliberate biological attack spawned by Soviet agents working in Western research laboratories, is specially pointed out.

Heroic efforts by Dr. John Seale and other scientists to alert the medical research community to the true source of AIDS is specifically recognized and gratefully acknowledged.

Continuing efforts by Dr. William C. Douglass to "tell it like it is" on the AIDS crisis is specially pointed out. His permission to extract and present an excerpt from his research, pointing out tested healing of viral infections by UV irradiation of the blood, is deeply appreciated.

The unyielding and continuing efforts of Dr. Eva Snead, to alert the national authorities to the fact that there is more to AIDS than meets the eye, is also particularly recognized and appreciated.

Decades of effort by John Crane to bring Royal R. Rife's work out of suppression are specifically recognized and appreciated.

Important scalar EM experiments by John Bedini and Frank Golden are fully recognized and deeply appreciated. Their experimental efforts over a period of years have profoundly influenced my own thinking and understanding.

As always, my great admiration and deep thanks go to my friend Hal Crawford, whose keen artistic vision and skilled hand have contributed key illustrations to my work for years.

Other important illustrations and artwork by Messrs. James Thomas Neumann and Lee Giles are gratefully acknowledged.

Photographs furnished by John Moray showing his father's pioneering free energy work are appreciated. T.H. Moray's genius and achievements will yet be recognized.

Support from the Association of Distinguished American Scientists and Mr. Richard J. Reynolds III is deeply appreciated. Without that support, this effort could not have been accomplished.

Important contributions from a host of other colleagues and persons are deeply appreciated. These persons include Frank Golden, John Bedini, Ken Moore, Tom McLaughlin, Joe Parrot, Randy Davidson, George Fencel, Andrew Michrowski, Stefan Possony, Tony Gideon, Electra Briggs, and many others too numerous to mention.

Finally, nothing that I have attempted could have been accomplished at all without the unflinching and loyal support of my beloved wife, Doris.

To all of you I owe a great deal. If this bizarre struggle to save humanity is ever won, it will largely be due to the significant contributions you have made.

Thomas E. Bearden
Jan. 17, 1988

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*Chapters 4 and 5
contain complex scientific material
and are suggested for those who are
technically proficient.*

FOREWORD

What This Book is About

In my book, "**Fer-de-Lance: A Briefing on Soviet Scalar Electromagnetic Weapons**," (Tesla Book Co., P.O. Box 1649, Greenville, Texas 75401, 1986), I specifically pointed out that I was of necessity neglecting the biological warfare (BW) aspects. I intended to later write a second book covering the BW aspects.

This book contains the most important item of that planned second book, including the photobiology aspects of BW.

The material is put down in great haste, for it is meant to serve as an urgent warning. There is no time to do the six months additional research and compilation necessary to "flesh it out", sculpture it and meticulously document it, as should be done by a careful scholar.

I apologize to the reader for this lowered standard, but in this case the basic information is far more important than scholarship.

Further, I acknowledge the fundamental contributions of Dr. Robert B. Strecker, M. D., Ph. D., who together with his brother Ted, has for some time urgently called attention to the terrible threat posed by the AIDS epidemic.

I specifically acknowledge his important warning, "This is a Bio-Attack Alert," Mar. 28, 1986, which was sent to the U. S. President and Vice-President, Governors of the states, various federal agencies such as Departments of State, Defense, and Agriculture; National Security Agency, Federal Bureau of Investigation, Central Intelligence Agency; and three members of Congress.

Dr. Strecker has also strongly pointed out the covert involvement of Soviet and other communist agents in the epidemic, and the absolute necessity for an *electromagnetic* solution.

Also recognized are the efforts of the other medical scientists, such as Dr. John Seale, M.D., and Dr. Eva Snead, who have tried

repeatedly to call attention to the nature of the AIDS initiation, only to have their submitted papers resoundingly rejected by important journals such as *New Scientist*, **The Lancet**, etc.

Work by Dr. William C. Douglass in alerting the public to the nonsense truth about aids is particularly recognized. His monthly newsletter, **The Cutting Edge**, is an oasis of clarity sharply standing out in a sea of misinformation. Permission to reproduce his published research article on UV irradiation of the blood to successfully heal viral infections is deeply appreciated.

The continuing efforts of Dr. Andrija Puharich and Dr. Robert Beck to assist in achieving an AIDS solution are pointed out and recognized. Important contributions by Ed Skilling are also recognized in this regard.

The vital and extensive contributions of Christopher Bird are particularly acknowledged. Chris has unstintingly and unselfishly shared with me the results of his enormous research on the Priore device and affair and the results of his translations from the French. He has most graciously permitted me to publish his important summary of the Priore affair, and I am greatly in his debt. The reader will find that material most illuminating, and well may be shocked at the depth and malevolence of the scientific and political suppression of Priore's rigorously demonstrated electromagnetic cure for cancer, leukemia, and other killer diseases.

Special acknowledgement is made to Robert Whitney, who so nobly labored to bring the Priore technology into the mainstream of medical treatment, only to be ruthlessly suppressed in his efforts. Photographs of the Priore machine were furnished by Bob from his collection.

My special thanks to colleagues John Bedini, Frank Golden, Andrew Michrowski, George Fencel, Ken Moore, Tom McLaughlin, Joe Parrott and Randy Davidson, without whose assistance this project could not have been accomplished.

The material in this present small book is intended to be of any assistance possible to certain brave colleagues who — with little or

no funds or resources except what they can tear out with their bare hands — are already laboring around the clock to develop a permanent solution to the AIDS problem.

As a matter of discretion, I shall not mention the names of those colleagues. The solution sought is radical, by orthodox assessment. Yet it is the only possible approach that has any chance whatsoever of succeeding.

What they are doing, I cannot do. If they do not succeed, no one can. But I will say this, and most strongly: In my view, the only hope for humanity lies in the work they are doing, and they have my utmost admiration and support.

Their initial results are exciting and encouraging. Basic phase conjugated electromagnetic "mixed-modulations" signals lethal to bacteria, nematodes (hookworm-like organisms), various amoeba, viruses, etc. at very weak power levels have been synthesized and demonstrated.

In my best estimate/opinion, these researchers must succeed in *two years or less, certainly in no longer than three years*, else the **AIDS** incubation already accomplished by then, and the implementation time delay — even given a cure —together will insure a devastation of humanity unparalleled in all of history.

Let me accent that developing this AIDS cure is far more important than developing our entire arsenal of new military weapons. It is even more important than the development of defenses against the Soviet scalar electromagnetic weapons I detailed in **Fer-de-Lance**. Problems in the Middle East, Korea, and Nicaragua are insignificant compared to the AIDS problem.

Desperate Diseases, Desperate Remedies

Spurred by the looming holocaust of AIDS, and by the strong efforts of my colleagues, I have decided to release specific *information on how to develop electromagnetic healing, essentially against any and all of the "killer" diseases including cancer, leukemia, and AIDS.*

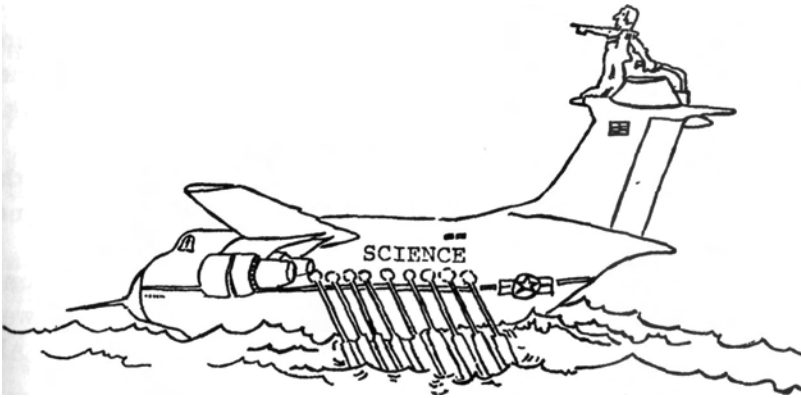


Figure 1. Conventional science cannot do the job.

Unavoidably this also releases a major principle of scalar electromagnetics: what is really going on in phase conjugation. If phase conjugation is truly understood and applied, all the Soviet weapons I have pointed out in **Fer-de-Lance** can be understood, designed and developed.

I'm also releasing specific information on mind and thought that will enable them to eventually be directly detected, measured, and investigated scientifically. Unfortunately, this also will enable them to be technologically manipulated for nefarious purposes.

However, the developing scalar EM technology for the AIDS cure must not be hamstrung. There is no time to apply the standard "Let's classify it!" response. If we do, we'll win the skirmish and lose the war.

As shocking as it sounds, I am convinced that the Soviets have already launched WW III, to the hilt. And it's not at all the kind of war we've been expecting.

There's no time to rail against the Soviets, who have cunningly and in great secret "struck our vitals with the mailed fist." We've been struck in such a way that, *unless we can solve the AIDS problem, in two to three years or less, we are already finished.*

We have been preparing to fight a better World War II. The one we're preparing for is never going to be fought. The real World War III is already raging. Our death knell has been sounded, *and we've not yet even recognized that the battle is underway.*

A great Soviet "first strike to finish us" has already been accomplished. The new "Pearl Harbor" has already happened. The enemy has already overrun our Maginot Line; we are at our Dunkirk. There are no boats waiting, and there are none on the way.

The great Soviet first strike has been delivered with surreptitious biological warfare, not with nuclear weapons or ground forces.

As always in the past, we have almost no troops facing the brunt of the first strike and trying to turn it. This time we have far fewer than we've ever had. Just two or three unorthodox researchers. All the orthodox researchers are manning the wrong ramparts.

Ironically, this time our entire system—the government, the medical establishment, the scientific establishment, the universities — all are far too dogmatic, and have far too sluggish a response time, to offer any assistance at all. They are simply so "out of it" that they don't even know what's really happened.

The bureaucracy simply is so stagnated that, even with a giant paroxysm, it cannot change quickly enough to do the job in time.

The best response the orthodox system could theoretically make—if it immediately placed the nation under martial law, marshalled all the universities and scientists, everything — would require at least seven years to produce results. A more likely response time is 10 to 14 years. That won't do the job.

So the job has to be done from completely *outside* the system. It has to be done with *independent* financing. Financing without a lot of conventional, bureaucratic strings on it. Resources must be committed as needed, immediately, not with a several months' approval process.

Everything in the orthodox establishment simply has to be bypassed.

The government, the medical establishment, the scientific establishment, the universities, everything.

Otherwise, we're as good as finished *right now*.

The "Dirty Dozen"

In the West, there are only perhaps a dozen persons or so that I know of, who are qualified to work on the main task required. They

are all unorthodox researchers and scientists.

There are thousands of fine orthodox scientists, of course, who can help with the peripherals — making and testing viral solutions, setting up and operating equipment, doing interminable tests, all the lab stuff, etc.

But only about 12 unorthodox guys are qualified and mentally and emotionally prepared to come to grips with the particular scalar EM technology required for rapid development of an AIDS cure.

Right now, there are just two or three of the 12 working on this, hammering away as best they can, at terrible cost to themselves and their normal endeavors.

Obviously immediate funds are needed for facilities, equipment, and marshalling that dozen unorthodox researchers and a team of scientists — along with support staff and personnel.

An Analogy

I'm reminded of a story from WWII.

On the beach at Anzio, in a battle lull some doughboys were briefly resting near their foxholes, eating lunch from C-ration cans.

A lone German Messerschmitt appeared, closing on them fast and low with machineguns blazing. They were forced to hastily jump into their foxholes as the Messerschmitt strafed their position.

The pilot continued to make strafing run after strafing run, low and "on the deck." Obviously lunch was rather totally disrupted.

Suddenly, in total disgust a soldier leaped up and flung his half-filled C-ration can into the air directly at the approaching aircraft, full in the teeth of the machinegun fire.

Incredibly, the can sailed straight up into the air intake of the hurtling aircraft, where it was sucked into the engine, which sputtered and died.

The surprised German pilot banked his plane upward and bailed out.

He was promptly captured by the very troops he had been strafing only moments before.

Those two or three colleagues of mine are literally "throwing their C-ration cans" in a desperate effort to ward off a monstrous threat.

Those two or three are striving to the limit of their endurance.

This book and the release of the material in it represent my own "Oration can" hurled into the teeth of the actual Soviet threat as a last resort. Hopefully we can "hit the air intake" of the Soviet juggernaut, so to speak, and stop its progress.

The giant Soviet scalar electromagnetic weapons that I detailed in **Fer-de-Lance**, e.g., are easily countered — in six months or less. Primarily, it is necessary to make a pumped phase conjugate mirror adjunct (PPCMA) that operates at the frequency band of interest, and associate it with a receiver. Once a signal is received from the enemy weapon — say, from a Woodpecker transmitter — it is introduced to the PPCMA. A powerful phase conjugate replica energy pulse is returned into the distant hostile transmitter, totally destroying it.

To meet the viral biological warfare weapon, however, we must develop electromagnetic healing.

In an important article, "SDI vs. the plague," Mar. 8, 1988, p. 6, the **Washington Times** revealed a startling Pentagon conclusion that the Soviets may counter SDI with genetically engineered weapons.

Valentin Falin, Chief of the Soviets' Novosti Press Agency, is quoted as saying:

"We won't copy you anymore: We'll take asymmetrical means with new scientific principles... genetic engineering could be a hypothetical example. Things can be done for which neither side could find defenses or countermeasures, with very dangerous results. If you develop something in space, we could develop something on earth. These are not just words. I know what I'm saying."

The genetically engineered Soviet counterstrokes exist and are already being taken. This book tells you what the asymmetrical means, new scientific principles, and genetically engineered weapons are.

May God help us all. If we do not move immediately and correctly to augment the effort of my colleagues, the Free World and half of the peoples of the earth will perish before another decade passes.

CHAPTER 1

THE VACCINE CONNECTION

The following quote is from Don Rowe, **Wall Street Digest**, 214 Carnegie Center, Princeton, New Jersey 08540.

"The AIDS Plague will affect society in ways that you cannot now imagine. AIDS is 100% fatal. Scientists and medical research people are not optimistic about an immediate cure to [or] vaccine. They do not expect to develop an effective vaccine within the next two decades. Public health officials estimate that as many as 2.4 billion people (half the world's population) will die from AIDS within the next 15-20 years."

"Economically, the insurance and medical health systems could be devastated in the 1990's. Nothing short of a spectacular medical breakthrough will keep Western civilization from suffering the worst catastrophe in the history of the world."

The first official U. S. AIDS case was diagnosed in San Francisco in 1981. This followed the puzzling outbreak of the disease in Third World areas such as Africa and Haiti in the 1970's.

The U.S. AIDS outbreak at first seemed to be confined to the gay community, such as in San Francisco.

No one seemed to connect the apparently unrelated facts that, before the outbreak in the U.S. gay community, (1) the World Health Organization had accomplished substantial smallpox vaccination in Haiti, and (2) West Coast gays — particularly from San Francisco — had made Haiti a main playground and vacation spot.

Most orthodox medical scientists have not the foggiest notion why such a drastic "explosion" of the virus has occurred.

It has occurred because *AIDS was introduced by contaminated vaccine used by WHO in its smallpox eradication campaign*. A high correlation exists between WHO vaccination and subsequent outbreak of AIDS.



Figure 2. The "monkey-bite" theory.

The "Monkey-Bite" Theory

As the prevailing rationale goes, a naturally-mutated monkey AIDS virus derivative or strain is believed to be the cause of the monstrous plague looming to strike down half of all the humans on earth.

That is, a monkey is supposed to have bitten a man—an African—and transmitted the normally harmless monkey AIDS virus to him. The virus is then supposed to have naturally "recombined" its genetic material with other viral genetic material and the man's human genes, to produce the virulent new strain of AIDS.

Then this new strain, *from its single human host*, is supposed to have rapidly started spreading through Africa and around the world.

That is simply nonsense.

In Africa, for example, monkeys as well as other animals have had their viral diseases for thousands of years. If monkey virus were the culprit, African man would have been devastated by AIDS thousands of years ago. He either would have been dead or—as have the monkeys—he would have developed a certain resistance and tolerance for the disease, so that it is no more harmful than others.

Understand, the "monkey bite plus human cell modification" undoubtedly does occur in Africa with great rarity—once in several thousand years.

However, even if that rare natural recombination of the monkey AIDS virus were to occur in a single human, normal contact between other humans and the infected human is totally insufficient to provide any substantial infection rate *unless the rate of infection of new individuals is greatly assisted and vastly speeded up by some other outside mechanism — for example, by something like AIDS-contaminated vaccine and a mass inoculation program.*

Retroviruses and Recombinants

As Dr. John Seale has pointed out, "The AIDS virus (human immunodeficiency virus or HIV) is a lentivirus — a little-studied sub-family of the retroviruses. It is highly pathogenic to man but it differs profoundly from any other virus of humans. It is spreading rapidly in the general population of central Africa, and amongst homosexual men and drug addicts in the West. *It is the first virus to have appeared in mankind for many centuries which is entirely new, highly lethal, and spreading steadily from person-to-person world-wide.*" [accent by the present author.]

Dr. Seale has courageously pointed out some other very disturbing facts:

(1) Retroviruses of animal origin, if repeatedly passed from human cell culture to human cell culture, will gain the ability to infect human cells *preferentially*. Indeed, they may then even cease to be infectious to their original animal hosts.

(2) In 1982 Robert Weiss pointed out that, in the laboratory, the genetic code of retroviruses commonly recombine if two of them infect the same cell simultaneously.

(3) In a 1984 article in the **Journal of Virology**, David Baltimore showed an efficient means of overcoming the cell's block against simultaneous infection by two or more retroviruses.

(4) Further, Baltimore reviewed how *this had widely been done during the preceding ten years!*

(5) Outside the laboratory, recombination of multiple simultaneous retroviruses has not been shown to occur naturally in humans.

(6) In animals, there is some evidence that it may occur naturally with extreme rarity — indeed, only once in many thousands of years.

(7) By the early 1970's, the technology to make new recombinant retroviruses virulent to humankind was already developed and had been widely published.

To the layman, the infection and reproduction by retroviruses is peculiar to say the least.

When a retrovirus infects a cell, from its own genetic material (RNA) it first makes a "template" or pattern (DNA) for forming other retroviruses just like it. It then inserts this "DNA template" into the DNA of a cell. The host cell itself is now a "sleeping factory", ready to start producing retroviruses.

When activated, the "template" in the cell causes the factory to go into production of retroviruses. Activation is varied. The "infection production factory" can just remain dormant, be slowed over years, take place almost immediately, or be slowed for years and then "explode" to rapidly increase the infective viruses.

Genetically, the cells of any person infected with AIDS or any other recombinant retrovirus have been permanently transformed. Literally that person has acquired a new set of genes. He or she has been converted into a "factory" for producing—and spreading—the virus.

Cancer Research Produced Ideal Biological Warfare Agents

In 1971 President Nixon signed into law the National Cancer Attack Act. Though certainly not intended by the President and the Congress, *the inadvertent result of this act was that taxpayer's funds were used to research and develop the precise things that constitute the most lethal kind of viral biological warfare.*

The on-going small effort in medical research laboratories to alter animal tumor viruses — including retroviruses — to replicate efficiently in human cells was drastically speeded up, as part of the new "war on cancer." In other words, whether intended or not, much of our cancer research money was converted into the precise kind of research that develops virulent biological retroviruses for potential use in biological warfare.

Not only was the research drastically accelerated, but also the

direct participation by Communists and scientists sympathetic to the communist cause was accepted and encouraged.

Astoundingly, this open invitation to the communist scientists was issued at a time when one of the high KGB priorities was to infiltrate our recombinant DNA genetics laboratories! To the Soviets' utter astonishment, we simply opened our labs and invited them in.

The Soviets participated — and penetrated — with alacrity. It is an obvious conclusion that a number of the Iron Curtain scientists sent to help staff our laboratories were undercover KGB agents.

In the cancer laboratories, on a wide-spread scale, animal retroviruses were injected and reinjected into human cell cultures, until these retroviruses had become efficient, lethal recombinants favoring human cells as their hosts.

At that point, infection of one or more persons by one of these lethal new retroviruses could unleash a massive AIDS-like plague on all mankind.

A single laboratory accident (or a single act by one Communist agent) could unleash the Great Death Plague.

Weak and ineffective reference to this forthcoming danger was made in 1974 by the Committee on Recombinant DNA Molecules, which had been established by the U.S. National Academy of Sciences. According to **Science**, July 26, 1974, p. 303, the Committee made the following rather bland and ineffectual recommendation:

"Scientists throughout the world (should) join with the members of this committee in voluntarily deferring experiments (linking) segments of the DNA from (cancer-causing) animal viruses to... possibly increase the incidence of cancer or other diseases."

So much for the great scientific watchdogs.

U. S. "Cancer War" Labs Were Infiltrated

As we said, ironically we ourselves helped load and cock this potentially disastrous biological warfare cannon. Incomprehensi-

bly, enemy fingers were permitted — even encouraged! — to be placed on the trigger. Many of our medical research facilities involved in this research contained known Communists, dissidents, etc.

For example, see page 106 in *Omni*, March 1986. Carlton Gajdusek, presently Chief of the National Institute of Health's Laboratory of Central Nervous System Studies and Laboratory of Slow, Latent and Temperate Virus Infections, was asked the question, "Isn't Fort Detrick in Maryland such a biological-warfare research facility?" He responded:

"No, emphatically no! There is no defensive or offensive warfare microbiology done at Fort Detrick today. It is the national cancer research facility of NIH. In this facility I have a building where more good and loyal Communist scientists from the USSR and mainland China work — with full passkeys to all the laboratories — than Americans. With night-working U. S. citizens and foreign Communist investigators here, obviously there is no "secret" bacterial warfare activity going on. Even the Army's infectious-disease unit is loaded with foreign workers — not always friendly nationals. It is a valid basic research unit on worldwide problems of infectious -diseases in which no classified or secret activities unfold."

The point is, what was being produced in these labs were viruses that would grow in human cells. Under tight control, these new lethal agents could be safely studied, and many things could be tried experimentally to see if they would slow, stop, or kill the viruses and heal or benefit the virally infected human cell cultures.

The viruses were being developed to benefit man by aiding in the war on cancer — we accent this most strongly.

However, many of them were precisely the same things that would be developed in a biological warfare lab: lethal new viruses that preferred the human as a host, and against which humans have developed little or no immunity.

The Deed Was Easily Done

Now one can see the subtlety and irony in the Soviet Union accusing the U. S. of having made the AIDS virus at Ft. Detrick!

It's both true and false at the same time.

There is substantial information indicating that the AIDS disease is manmade, and has been deliberately unleashed on mankind by Soviet and other Communist agents, augmented by the international control groups and shockingly inept work by U. S. and European medical researchers.

Human cell cultures deliberately infected with animal viruses were carelessly handled in U. S. and European laboratories — carelessly handled in that far too great (essentially open) access to the new viral strains was permitted.

Our own scientists were apparently unwitting pawns, and Soviet agents performed the "final touchups" to insure release — whether intentional or inadvertent — of the lethal new agents against an unsuspecting world.

Viruses can infect bacteria, since a bacterium is a one-celled organism and the virus is a single molecule.

Cell cultures where vaccine is made from weakened bacteria could easily be contaminated with the desired recombinant viruses available in the cancer laboratories.

To insure worldwide release of the lethal virus, covert Communist agents apparently caused contamination of the smallpox vaccine that was prepared in quantity in Western laboratories.

This contaminated vaccine then was widely used to inoculate Third World peoples and others, in the successful international program to eradicate smallpox.

With only a few agents in key places, the Soviets could easily have taken advantage of the looseness of Western laboratory procedures to deliberately contaminate the animal cell cultures used to make the vaccines.

They had an abundance of agents in the key laboratories, for they were openly invited in and accepted!

The Soviets had their fingers in it, up to the elbow.

And at just exactly the right time, the answer to a Communist's biological warfare dream was available: The World Health Organi-



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Figure 3. The Soviets have delivered an intended knock-out.

zation was already involved in its 13-year campaign of massive smallpox inoculation in the Third World, to eradicate smallpox.

All that was needed was to contaminate the WHO vaccine by one or more of the lethal new recombinant retroviruses that had been developed — and were continually being developed — in cancer research laboratories filled with Communists agents.

The opportunity was presented for a great Soviet "first strike" against the West, using biological warfare agents developed in U.S. and European laboratories and administered by an international agency.

The opportunity was ripe for the taking. It was irresistible. You can be sure the Soviets took it.

It's Actually Documented!

Virus-contaminated vaccines were then widely administered to Third World countries—particularly in Africa, South America, and Haiti. Administration of these vaccines by the World Health Organization is precisely correlated to the subsequent outbreak of the AIDS

epidemics in those countries.

This strongly indicates that the vaccine itself was the "precursor" agent initiating the start of the AIDS infection.

In a shocking article, "Smallpox vaccine 'triggered Aids virus'," in the London **Times** of May 11, 1987, **Times** Science Editor Pearce Wright announced that the AIDS epidemic may have been caused by World Health Organization (WHO) smallpox inoculations in third-world countries.

In an important article in **Easy Reader**, June 4, Jon Rappoport reported the **Times** article and the results of an interview with Robert Matthews, technical correspondent of the **Times**.

According to Rappoport, Matthews informed him WHO itself had somehow suspected that its immunization program against smallpox might be connected to AIDS. An outside consultant was employed to perform an independent study, and the study confirmed that WHO vaccines were indeed — somehow — causing AIDS to evidence in inoculated persons.

Needless to say, WHO promptly buried that report—whose conclusion must have been the last thing WHO wanted to hear.

The consultant then came to the **Times**. The **Times** heard him out and printed the story.

This astounding story has almost startling correlations: *"The smallpox vaccine theory would account for the position of the Central African states as the most afflicted countries; why Brazil became the most afflicted Latin American country; and how Haiti became the route for the spread of AIDS, to the U.S.: Brazil, the only South American country covered in the eradication campaign, has the highest incidence of AIDS in that region."*

Rappoport confirms that the subject of contaminated vaccines—"vaccines which, made in tissue cultures of animal parts, contain 'extra' dangerous viruses" — has been of increasingly serious concern to medical scientists in recent years, and the WHO smallpox vaccines may have been contaminated in this fashion.

A documented U.S. Army incident is a case in point.

New U.S. Army recruits are routinely vaccinated against a

range of diseases. One of them is smallpox, in case an enemy should try to use smallpox as a biological warfare agent.

A healthy 19-year old Army recruit developed AIDS after vaccination, and was admitted to Walter Reed Army Medical Center, where he died.

In a paper published in the **New England Journal of Medicine**, Walter Reed medical team scientists reported their discovery of the connection between vaccination and stimulated AIDS disease.

They also warned against the WHO plan to use modified versions of the smallpox vaccine to combat other diseases in developing countries.

WHO's 13-year vaccination and eradication program ended in 1980. The program is credited with saving two million lives a year and preventing 15 million infections.

It may be inadvertently responsible for the ultimate death of billions.

In a meeting of 50 experts near Geneva in May, 1987, it was revealed that millions of new AIDS cases are about to hit Southern Africa. The experts believe that up to 75 million Southern Africans — about a third of the population — may have AIDS within the next five years.

From our previous statements above, it appears almost certain that Communist agents who had penetrated U.S. and European laboratories manipulated the contamination of the altered vaccines.

Further, the Soviets may be stimulating the disease and guiding it electromagnetically, by special implanted signals carried by the giant Soviet woodpecker "over-the-horizon radars" and other Soviet transmitters.

Or, the Soviets may be using their own transmitters and ours, including our own power lines and radio and TV stations, to broadcast signals that "precondition" and greatly amplify our population's vulnerability to certain selected diseases — AIDS and otherwise.

We will address these issues and Soviet subtle EM capabilities later.

Soviet Biological Warfare Background

In World War I, the Russians suffered half a million casualties

to gas warfare, including 50,000 dead.

At 10,000 troops per light division, that's the equivalent of 5 divisions killed and 45 divisions incapacitated.

This made a deep and lasting impression on the Soviets. Lenin himself ordered a major effort mounted to develop and manufacture chemical and biological weapons, for he understood the implications of such mass-destruction weapons.

In 1919 the Soviets began work in earnest on BW weapons. Work on them has not stopped since then. It will not stop so long as the Communists remain in power.

To loyal Communists, Lenin's dictate to develop and lead the world in biological weapons is absolute and unquestioned.

By 1937, the Red Army was fully equipped and psychologically prepared to wage chemical and biological warfare.

Continuing today, the Soviet forces have the highest training in chemical warfare of any troops in the world. Red Army soldiers practice regularly, often using actual chemical agents. Decontamination is a standard measure and practiced as a matter of course.

Even though the Soviets, along with many other nations, signed the Geneva Protocol of 1925 which banned the use of deadly chemical and bacteriological weapons, the Soviets have never ceased development of such weapons.

In the 1930's, a secret Soviet bacteriological institute was set up at the town of Suzdal. Prisoner microbiologists worked on a variety of new weapons and vaccines, including bubonic plague and tularemia (rabbit fever). By World War II the Soviets were prepared to retaliate vigorously to any use by the Germans of chemical and biological warfare agents.

After the war, Soviet research and development in chemical and biological weapons continued apace. However, much of the genetic work was hampered by Stalin's stern support of the autocratic control of agronomist Trofim D. Lysenko. Lysenko's crackpot theories on genetics, for example, held that genes did not even exist. After the death of Stalin, Lysenko's work was discredited, and the Soviets set forth immediately to "catch up" with the West in genetic implications such as recombinant DNA techniques.

Thus in the early 1960's the Soviets began sending Russian

scientists to the West to catch up with Western genetics research. One of these scientists was David Goldfarb, who later became a leading Soviet expert in the field of molecular genetics. He headed up the Laboratory of Molecular Genetics of Bacteria and Bacteriophages of the Soviet Academy of Sciences in Moscow. Although he did not work on secret Soviet projects, the Soviet authorities stopped him cold when he applied for a visa to leave in 1979. Goldfarb was a specialist in plasmids, antibiotic resistances, and recombinant DNA technology—all very, very useful to the Soviet effort in biowar.

One can readily understand the reluctance of the authorities to release scientists such as Goldfarb. After all, the Soviet "dirty work" with the deliberate AIDS contamination of the World Health Organization's smallpox vaccine had already been accomplished and a great Soviet biological warfare "strike" was already underway, thanks to the massive smallpox vaccination program of WHO.

In 1972, in the Biological and Toxin Weapons Convention, the Soviet Union and every major power agreed not to develop or use biological weapons. The agreement went into effect in 1975. Although it bans the development, production, and stockpiling of biological agents and toxins for hostile purposes, it has not slowed or altered the Soviet program.

In the early 1970's, Soviet leaders made a decision to use genetic engineering to produce new and improved BW weapons. Highly secret institutes for this purpose were set up in Moscow, Leningrad, and Novosibirsk. These laboratories specialize in seeking ways that genetic engineering techniques can be used to develop virulent strains and agents that their opponents cannot resist.

Every Soviet civilian institution dealing with bacteriology and epidemiology is responsible for certain military work as well. The Soviet Academy of Sciences in fact funds appreciable research of such nature at these institutions.

One of the major Soviet centers for recombinant DNA techniques in biological weapons research is in the village of Protvino, near Moscow. Research on chemical and biological weapons is very easy to conceal, and the Soviets are sure that they will not be caught. Satellites cannot detect what is going on in the labs. The payoff is big and the risk is minimal. The Soviets push this area vigorously.

A number of installations capable of producing disease agents and toxins on a large-scale basis and placing them in munitions and delivery systems have also been identified. One such facility is in the city of Sverdlovsk and has a long history of BW research and development and production, with emphasis on anthrax. During early April 1979, an accidental release of anthrax occurred in Sverdlovsk that caused many casualties and deaths in spite of heroic efforts by Soviet doctors and cleanup and decontamination crews.

Note that, according to DoD's 1987 edition of **Soviet Military Power**, page 110, *"Anthrax causes a high mortality rate when the infection results from ingestion (up to 70 percent fatal) or inhalation (almost 100 percent fatal) if treatment is not promptly begun."*

In addition to military BW institutes, military officers and KGB agents are assigned to key posts in the Soviet Union's normal health and science ministries to monitor research and development that has possible military significance.

Also, the KGB has a continuing and highly active program to insert recruited Soviet Scientists in Western genetic research institutes and agencies. This is a high priority effort, and it has been very successful. Also, it obviously says something about the probability of Soviet agents penetrating U.S. and Western European cancer research institutes, particularly those using recombinant DNA techniques. To make it even worse, we simply invited them in with open arms!

Indeed, it was that KGB program plus the "open arms" in Western cancer virology research institutes that enabled the Soviets to set up and bring about a massive "first strike", using WHO and Western laboratories to do the actual dirty work unknowingly.

We Need An Immediate, Full Scale Investigation

Annually, President Reagan makes a report to the U.S. Congress on the subject of Soviet noncompliance with Arms Control agreements.

In April, 1984 Defense Secretary Caspar Weinberger put it this way:

"There is an apparent effort on the part of the Soviets to transfer selected aspects of genetic engineering research to their biological warfare centers... Soviet research efforts in the area of genetic engineering may also have a connection with the biological program...Normally harmless, non-disease-producing organisms could be modified to become highly toxic or produce diseases for which an opponent has no known treatment or cure. Other agents, now considered too unstable for storage or biological warfare applications, could be changed sufficiently to be an effective agent."

At the time that Secretary Weinberger made this statement, a devastating biological warfare strike using those exact techniques had already been unleashed on the Western world by the Soviet Union, cleverly disguised under the banner of the World Health Organization's smallpox vaccination program.

It is imperative that the Congress of the United States launch a full investigation of the entire background of the AIDS biological warfare strike, as a matter of the highest priority.

The investigation should include the role of the Soviet Union, fellow-travelers, and Western scientists openly sympathetic to the Soviet cause.

It requires little investigation to see that there is a well-marked trail for several decades, showing that such a biological warfare strike against humanity has long been considered — and even preferred — by those advocating the Communist cause and world domination.

For example, Bertrand Russell, philosophical spokesman for a group of Westerners, explicitly stated this diabolical BW capability for consideration, in his **Impact of Science on Society**:

"At present the population of the world is increasing at about 58,000 per diem. War, so far, has had no very great effect on this increase, which continued throughout each of the world wars... War has hitherto been disappointing in this respect... but perhaps bacteriological war may prove effective. If a Black Death could spread through the world once in every generation, survivors could procreate freely without making the world too full. The state of affairs might be

unpleasant, but what of it?"

The blood of every American — and every European, African, and Asian — should curdle at such words. We are now facing the very "Black Death" type of plague referred to by Russell in such glowing terms!

Highly influential followers of the Russell philosophy — and his callous approval of the periodic slaughter of much of the world's population — may have continued to view the great destructive power of new viral warfare agents as the best means to achieve their end: Selective thinning of the world's population.

At least a few such men may have continued to cooperate with the Soviet Union to work powerfully behind the scenes in international organizations, trying to arrange the proper opportunity to achieve their nefarious purpose.

The "East-West cooperative effort" in cancer research created and gave them the precise biological agent custom-made for the job.

WHO's massive, worldwide smallpox inoculation program gave them the precise means to rapidly get the deadly virus into enough human veins to assure a new "Black Death."

All that had to be done was surreptitiously contaminate the vaccine — the easiest thing of all.

This plague has been knowingly, with malice aforethought, unleashed upon mankind. The perpetrators should be hounded down like the wild beasts they are, uncovered in the full light of day, and suitably punished with the swift and sure justice they deserve.

At least one outstanding medical consultant had the courage to report to WHO that their vaccine was generating the AIDS epidemic. When WHO suppressed the evidence, the London Times had the courage to print the story.

I strongly urge every U.S. Senator and Congressman to introduce and/or support immediate legislation that would launch a full-scale, massive investigation, with no stone left unturned. I urge every concerned activist to demand and support such an investigation at the highest level.

By preoccupying ourselves with lesser things — "IranGate," Nicaragua, the Middle East, etc. — we are simply fiddling while Rome burns.

CHAPTER 2

THE SOVIETS KNEW THE U.S. WOULDN'T REACT

Administering the Coup-de-Grace

As we've seen, the present AIDS viruses were deliberately created in Western cancer research laboratories strongly penetrated by Communist scientists and Soviet agents.

In laboratory experiments that were a legitimate and vital part of the war against cancer, animal retroviruses were repeatedly injected into human cell cultures until they recombined to produce **strains** hostile to human life—strains that would thus live in human cell cultures.

Even though their work was accomplished for a totally different purpose, cancer laboratories produced the ultimate, made-to-order biological warfare agents.

The World Health Organization (WHO) is also strongly penetrated—and even controlled at some levels—by communist agents, **as** are many other such international agencies.

And WHO's massive smallpox vaccination program in Third World countries provided the Soviets a made-to-order opportunity to have (ostensibly) "someone else" deliver the actual BW strike.

In other words, the Soviet deception plan was complete.

It was very simple for Soviet agents to contaminate the cultures in which smallpox vaccine was being produced for WHO's inoculation campaign. This insured the production of vaccine contaminated with AIDS viruses, and the subsequent massive infection of the African peoples and other Third World nations.

It delivered what will be the knockout punch against the West, unless AIDS is countered.

Table 1. Interesting Soviet Statements

"WE HAVE A NEW WEAPON, JUST WITHIN THE PORTFOLIO OF OUR SCIENTISTS, SO TO SPEAK — SO POWERFUL THAT, IF UNRESTRAINEDLY USED, IT COULD WIPE OUT ALL LIFE ON EARTH."

NIKITA KHRUSHCHEV,
1960, SPEAKING TO THE PRESIDIUM

"WE WILL BURY YOU!"

NIKITA KHRUSHCHEV,
TO RICHARD NIXON, "KITCHEN" DEBATE

"IF A MEANS OF TOTAL NEUTRALIZATION OF FOREIGN MISSILES IS TO BE FOUND, IT CAN ONLY COME FROM A GROUP OF NEW PRINCIPLES IN PHYSICS, CALLED ENERGETICS!"

NOBELIAN PETER KAPITSA, TO NIKITA KHRUSHCHEV

"EACH SIDE SECRETLY DEVELOPS NEW MEANS OF WARFARE IN ORDER TO EMPLOY THEM UNEXPECTEDLY. HISTORY KNOWS MANY EXAMPLES HOW THE EMPLOYMENT OF A NEW WEAPON INITIALLY GAVE CONSIDERABLE SUCCESS BECAUSE THE ENEMY, CAUGHT UNAWARES AND NOT KNOWING THE COMBAT CAPABILITIES OF THIS WEAPON, WAS FOR SOME TIME INCAPABLE OF EFFECTIVE COUNTER-ACTION."

V.YO. SAVKIN, THE BASIC PRINCIPLES OF OPERATIONAL ART AND TACTICS. MOSCOW, 1972.

"OF PARTICULAR IMPORTANCE IS BASIC RESEARCH AIMED AT DISCOVERING STILL UNKNOWN ATTRIBUTES OF MATTER, PHENOMENA, AND THE LAWS OF NATURE, AND DEVELOPING NEW METHODS FOR THEIR STUDY AND USE TO REINFORCE THE STATE'S DEFENSE CAPABILITY."

PORTION OF A BOOK BY MARSHALL GRECHKO
DELETED FROM ENGLISH TRANSLATION, BY SPECIFIC REQUEST OF THE U.S.S.R.

"WILL SHORTLY SEE DEVELOPMENT OF NEW WEAPONS, MORE POWERFUL THAN NUCLEAR WEAPONS, AND THEY WILL BE NONVERIFIABLE."

LYSENKO (FIRST NAME UNKNOWN)
USSR REP/SOVIET EMBASSY WASHINGTON, D.C.
WORLD FUTURES CONFERENCE, WASH. D.C., 20 JUL 82.

Murky "Behind-the-Scenes" Intentions

As was pointed out, the WHO inoculation program is well-correlated as the precursor or "initiator" of the AIDS epidemic.

Where WHO smallpox vaccination occurred, the mysterious symptoms of AIDS disease appeared in due time.

Even the eventual spread of the AIDS virus to the U.S. homosexual community is explainable.

For example, the economy of Haiti had earlier been made a shambles. The poor citizens of that impoverished island had been reduced to desperate straits.

In desperation many younger Haitian males had begun to prostitute themselves to visiting homosexual tourists. The Haitian males were not homosexual themselves; rather, they were desperate to gain money to provide for their starving families.

In response, U.S. homosexuals — particularly from San Francisco and New York — had made Haiti their vacation playground. They even ran ads to this effect in their gay newsletters and magazines.

WHO then vaccinated some 15,000 or so Haitians against smallpox, using the vaccine contaminated with the AIDS virus. This introduced AIDS into Haiti and into the Haitians.

The U.S. homosexuals quickly picked up the AIDS virus by direct contact, and brought it back to the U.S. with them. There the nature of the activities engaged in by homosexuals was responsible for enhanced spread of the virus among members of the homosexual community.

Engineering the AIDS epidemic appears to have been a collusion between Communists and the international control groups.

Apparently the control groups wished to "clean out the African continent and other Third World areas" — possibly to provide room for relieving population pressure in the developed countries. This may have been seen as the way to solve the problem of the ballooning human population — the so-called "biological time bomb."

The Soviets, however, realized that contamination of the smallpox vaccines would result in an epidemic of unparalleled proportions. They recognized the opportunity for safely initiating — and winning — World War III with a great first strike.

The Soviets themselves already possess an electromagnetic cure for diseases such as AIDS, but they have not unveiled it.

All such products of scalar electromagnetics (which the Soviets call energetics) are held tightly by the KGB.

That the Soviets have kept such a cure secret strongly implies that they regard it as a known antidote for biological warfare agents, and thus highly classified.

The importance of this can easily be seen: Presently the West has absolutely zero defense against a biological warfare strike using viruses as BW agents.

In such a strike, fast-acting viral strains can easily be used — say, agents which are highly infectious and kill within two or three days.

Development of a vaccine is impossible. There is simply no time to do that. Further, even if the virus was slow-acting, a vaccine could only be developed if the virus is stable. If it is unstable (constantly mutating), development of a vaccine is impossible.

The greatest vulnerability of the U.S. today is its total vulnerability to unknown BW viral agents. Absolutely nothing we have or are doing in our Department of Defense is of any consequence or protection against new BW viruses for which no vaccine is developed or possible.

The great ease with which such cheap new, highly lethal viral BW agents can be developed means that even a relatively small military power—such as Libya, Cuba, or Iran—can develop and use them against the U.S.

Such BW viral agents can also easily be clandestinely planted across the U.S., to devastate an unsuspecting, unprotected American populace.

In fact, even a single deranged madman can readily develop lethal BW viral agents sufficient to devastate even a great military power. Further, in an open society such as the U.S., that same madman can easily introduce such an agent he develops — and, if he's clever, not even get caught in the act.

Past isolated cases of "contamination" of on-the-shelf drugstore medicines is just a faint prelude of that which is to come.

Indeed, we may unwittingly do it to ourselves by accident, even without a BW strike by the Soviets, small enemy powers, or a madman.

Throughout the West, it is now most fashionable to experiment with the production of new bacteria and viruses. Gene-splicing, recombinant DNA genetics, etc. are being employed on a grand scale as the latest "scientific marvel."

Even some high school students have experimented with this sort of thing. Many other colleagues, universities, and private persons are proceeding full-tilt with casual experiments.

Most of this "casual experimentation" is uncontrolled. When finished, the residue gets dumped in the trash can or flushed down the drain. In any case, it goes into our biosphere. Some of this residue contains unstable, highly adaptable viruses.

It's only a matter of time until one of these unwitting agents gets loose and survives — one that's lethal, fast, and highly infectious.

Make no mistake: It's a *near certainty* that this will happen. The only question is *when*.

Also, with the recent Supreme Court decision allowing the patenting of a virus or bacteria, a number of laboratories and companies are now feverishly developing new agents to unleash in the biosphere upon persons, animals, and plants.

For the most part, these experiments are tightly controlled. However, it is impossible to test in the laboratory the result of the natural recombination and mutation of these agents once they are loose in the environment and in a free exchange with all the natural bacteria and viruses.

Once loosed in the biosphere, a new viral agent undergoes combinations and recombinations with the greater number of viruses already present. The situation is like an increase in a large factorial number: Only a few additional viruses will result in millions and millions of additional combinations — at least some of which inevitably will be lethal and quick-acting. This is *not* tested in those laboratories making, patenting, and releasing new viruses.

Humans have spent millions of years developing sufficient immunity to the natural BW agents to allow humanity to survive.

Very shortly we are going to have increasingly large numbers of

new environmental BW agents emerging all around us. For some of them, it is a foregone conclusion that we have little or no natural immunity developed.

So we are going to enter an increasingly harsh environment, characterized by the rise of great epidemics and pandemics of many kinds.

Inevitably some of these coming scourges are going to rival the "Black Death" in ferocity and lethality.

Effective defense against one or more such BW viral attacks — either against our forces in the field or against our civilian population — can only be provided by a ready, fully developed technology of electromagnetic healing.

It does not really matter whether the BW strikes are performed by a hostile foe, a madman, natural mutations within our now drastically stimulated viral environment, or as a result of some particular "residue" discarded by an enthusiastic high school or college student.

The end result — the decimation of humankind — is going to be the same unless we develop and use electromagnetic healing technology.

However, with the present enormously self-hostile state of mankind, one or more enemies or madmen will almost certainly launch a strong, clandestine BW strike against the United States Armed Forces and the U.S. populace.

With EM healing technology, a specific "antidote" to any viral disease — known or unknown — can be developed in a matter of hours.

Mass electromagnetic treatment can then be started immediately, even for an entire army in the field or for our population in the heartland. Within hours of recognizing a BW strike, cure rates above 90% can be quickly achieved in exposed personnel.

Further, using electromagnetic healing technology, if necessary a more conventional vaccine can also be rapidly developed — say, in two weeks — for mass distribution and inoculation of the civilian populace.

The bottom line is this: Neither the U.S. Armed Forces nor the U.S. civilian populace can or will survive the coming lethal viral

warfare strikes unless we quickly develop electromagnetic healing technology and have the necessary diagnostic and treatment devices already ready and waiting.

The clandestine AIDS strike by the Soviet Union is just the precursor of a great deal more to come.

The USSR Has Repeatedly Verified Our Nonreaction

The Soviet Union already knows that Western science and governments are too stereotyped and dogmatic to react to anything highly unorthodox.

For years, the Soviet have been proving this, over and over, in their development and testing of frightful scalar electromagnetic superweapons of unprecedented power. In the face of overwhelming evidence of this, the West has kept its head buried in the sand like an ostrich.

It wasn't invented in the West. Therefore it cannot be.

Years of substantial Communist indoctrination of students in our universities, by leftist/liberal professors, has placed a massive imprint into our society. An entourage of sympathetic groups has resulted — groups which believe that the Soviet leaders are just like us, that the Stalinist era is long since over, and that the Communist leopard has changed its spots and really isn't trying to take over the world anymore.

As a system, then, much of the West simply refuses to accept anything unorthodox, anything "not invented here", and anything that indicates Soviet aggression.

The Soviets know the U.S. is totally ignorant of advanced scalar EM weaponry. They have proven over and over that the U.S. will not even comprehend that it has been deliberately struck, if the strike is sufficiently unorthodox.

The Soviet scalar EM superweapons have already been documented in **Fer-de-Lance**, Tesla Book Company, 1986, and that documentation will not be repeated here.

Only a short summary of events will be presented, to put the Soviets' confidence into perspective. A longer chronology of selected events is included as Appendix IV.

31 *Soviets Knew The U.S. Wouldn't React*

The Soviets were quite confident in arranging for a great biological warfare strike, because of the total lack of the U.S. to comprehend incidents such as the following:

1. Beginning in the late 1950's, hidden Soviet transmitters across the street targeted "weak microwave radiation" against the U.S. Embassy in Moscow. Over the years the radiation continued, sometimes continuously, sometimes intermittently. The Soviets electronically induced diseases that resulted in extensive health problems of Embassy personnel, the death of two U.S. Ambassadors, and the sickness of a third. Several U.S. Presidents have protested the radiation. Both U.S. Intelligence and the U.S. scientific community have been totally baffled. They still do not know the true nature of the radiation, nor its purpose.

2. In the winter of 1957-58, an unexplained nuclear event happened near Kyshtym, within the Soviet Union. A huge explosion occurred in the stored nuclear wastes in the disposal section of the Soviet atomic weapons industry located in the southern Urals. Radioactive contamination covered 1,000 square miles. For years the story was opposed — or suppressed — by U.S. intelligence agencies, perhaps to allay public resistance to the U.S. nuclear industry. At the time, Soviet experimentation with large scalar electromagnetic transmitters was well underway. A large transmitter probably failed, discharging its built-up, giant electrogravitational potential (EGP) into the earth. Such a pulse would have propagated through the earth as a wave; the first nuclear material contacted would have been fissioned immediately. The stored nuclear wastes probably exploded due to receipt of an EGP from the inadvertent failure of one of the Soviet Union's new superweapons in development. Survivors reported that indeed the nearby nuclear wastes exploded.

3. In January 1960 Khrushchev announced to the Presidium that a new fantastic weapon was in development. He stated that the weapon was so powerful that, if unrestrainedly used, it could wipe out all life on earth.



Figure 4. The U.S. Embassy in Moscow. The Soviet Union has bombarded this facility with weak microwave radiation for decades.

Table 2. MICROWAVE RADIATION OF THE U.S. EMBASSY IN MOSCOW

- **SINCE 1959 OR 1960**
- **HIGH LEVEL TARGET (U.S. AMBASSADOR)**
- **GUARANTEES PERSONAL ATTENTION OF**
 - **PRESIDENT**
 - **NSA, CIA, DIA**
 - **TOP CONSULTING SCIENTISTS**
 - **STATE DEPARTMENT**
 - **LEADING SCIENTIFIC INSTITUTIONS**
 - **NATIONAL SECURITY COUNCIL**
 - **ETC.**
- **TWO AMBASSADORS DIED, ANOTHER SICKENED**
- **U.S. REACTION REVEALS ANY KNOWLEDGE OF TESLA ELECTROMAGNETICS**
- **FOUR U.S. PRESIDENTS REQUESTED SOVIETS TO CEASE**
 - **CUT FROM 18 WATTS/CM² TO 2**
 - **THEN AGAIN INCREASED**

Soviets Knew The U.S. Wouldn't React

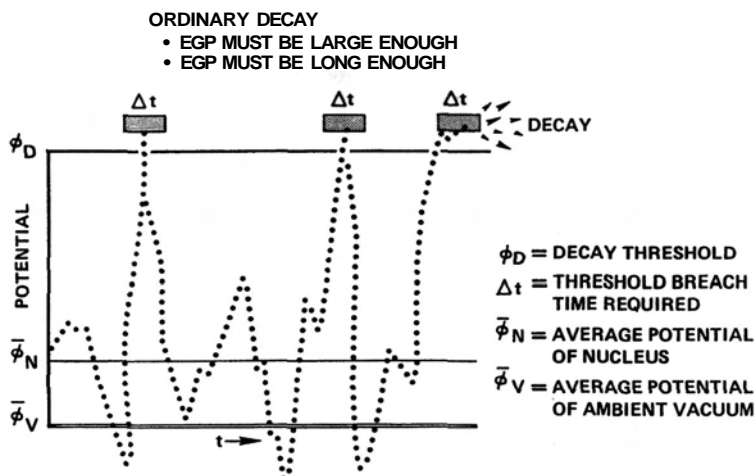


Figure 5. Decay of a radioactive nucleus. When it absorbs a scalar EM wave (electrogravitational pulse) that is long enough and large enough, the nucleus fissions.

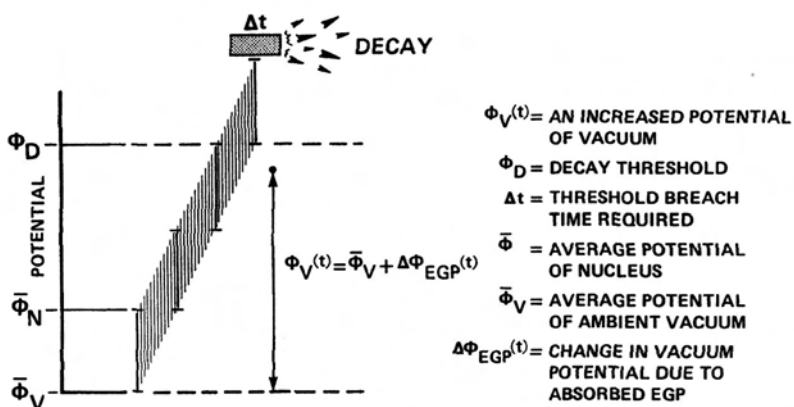


Figure 6. EGP fission of a radioactive nucleus. If an initial EGP is large enough and long enough, it will fission any and all radioactive nuclei it strikes.

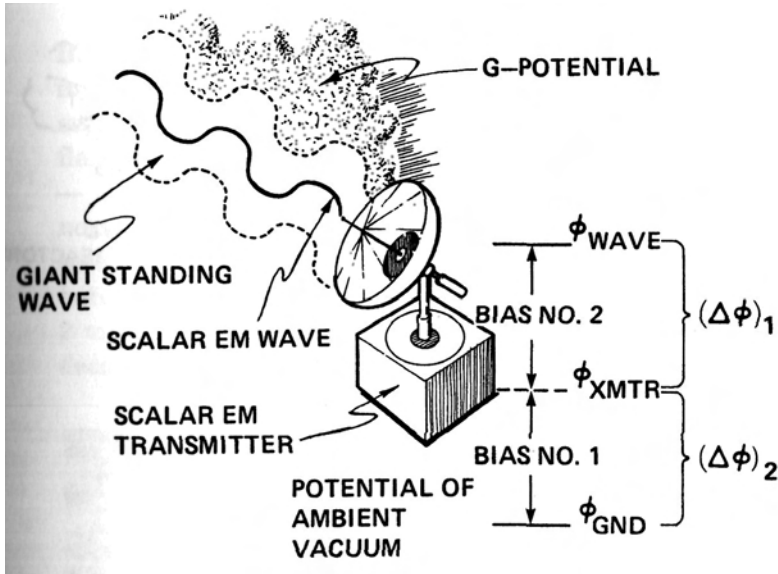


Figure 7. Bottled up energy in a standing scalar EM wave is a potential.

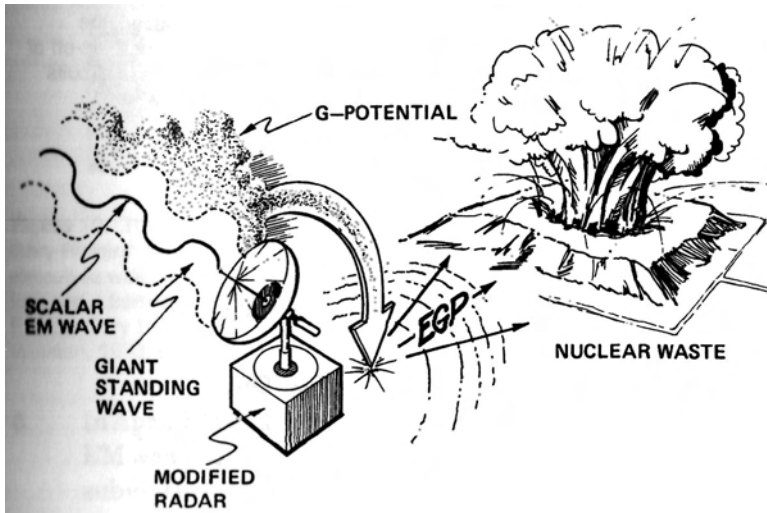


Figure 8. EGP short-out Transmitter failure and consequent discharge of a giant standing scalar EM wave potential caused the explosion of stored nuclear wastes at Kyshtym, USSR, in the winter of 1957-58.

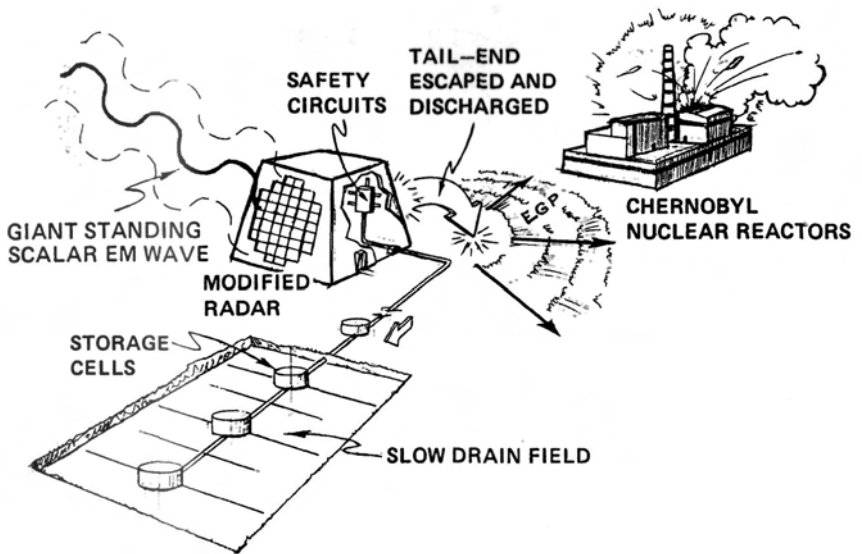


Figure 9. EGP initiation of the Chernobyl event. Failure of another giant transmitter near Chernobyl in 1986 eventually caused the eruption of one of the Chernobyl reactors by EGP-pulsing its nuclear fuel rods. When the transmitter failed, the alarmed Soviets shut down the four Chernobyl reactors while waiting for drain-off of the EGP potential by the safety circuits of the disabled transmitter. These circuits finally gave way, producing a mild EGP pulse into the earth. Had they failed immediately, all four reactors at Chernobyl would have violently exploded.

Table 3. KHRUSHCHEV'S 1960 STATEMENT

(Speaking to the Presidium)

**WE HAVE A NEW WEAPON,
JUST WITHIN THE PORTFOLIO OF
OUR SCIENTISTS...
SO POWERFUL THAT,
IF UNRESTRAINEDLY USED,
IT COULD WIPE OUT
ALL LIFE ON EARTH!**

4. In May 1960 Gary Powers' high-flying U-2 spy plane was mysteriously disabled over the Soviet Union, resulting in its subsequent crash and the Soviet capture of Powers himself. A flash appeared behind Powers' aircraft, as if from an explosion — except that *the flash persisted*, showing that it was not a normal HE explosion at all. A tracking radar, employed in a scalar EM mode, probably was used to cause the electromagnetic "flash ball" and disable Powers' aircraft. Harmless SA-2 missiles fired far below him may have been employed to deceive Western intelligence analysts.



Figure 10. The U-2 high altitude reconnaissance aircraft. On May 2, 1960 Francis Gary Powers' high flying U-2 spyplane was disabled over the Soviet Union. Some difficulties with the autopilot were first experienced. Then a single dull thump was felt, and a tremendous orange flash lit the cockpit and sky — *and persisted*. (See Francis Gary Powers with Curt Gentry, **Operation Overflight**, Holt, Rhinehart and Winston, 1970, p. 82.)

5. In April 1963 the Soviet Union utilized a newly deployed scalar EM weapon to destroy the submerged U.S.S. Thresher nuclear submarine, off the coast of the U.S. itself. In spite of intense and totally anomalous electronic jamming experienced by the U.S.S. Skylark, surface companion to the Thresher, the U.S. failed to recognize this major indication of a scalar EM attack. *One day later, a Soviet scalar EM weapon placed a giant*

underwater burst in the ocean, 100 miles north of Puerto Rico. With these two tests Khrushchev, still smarting from his Cuban Missile Crisis facedown by John Kennedy, avenged himself and convinced the Presidium to allow him to remain in power for yet awhile.



Figure 11. The U.S.S. Thresher disintegrates.

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Table 4. DEATH OF THE U.S.S. THRESHER

APRIL 10, 1963

- DURING TRIALS OFF EAST COAST OF U.S. IN ATLANTIC
- SURFACE COMPANION: U.S.S. SKYLARK
- UNDERWATER PHONE BETWEEN THE TWO
- THRESHER DIVED AND WAS LOST
 - GARBLED MESSAGE
 - DID NOT RESPOND TO CONTROLS
 - SANK TO CRUSH DEPTH
 - IMPLoded
- SKYLARK ENCOUNTERED SEVERE ELECTRONIC INTERFERENCE

Table 5. SEVERE EM INTERFERENCE EXPERIENCED BY U.S.S. SKYLARK

APRIL 10,1963

- **SKYLARK JAMMED (1.5 HR TO TRANSMIT MESSAGE)**
- **MULTIPLE SYSTEMS**
- **SIGNATURE:**
 - **SCALAR INFEROMETRY**
 - **SKYLARK IN "SPLATTER" ZONE**
 - **THRESHER PROBABLE TARGET**
- **OTHER SYMPTOMS**
 - **ONE SYSTEM KNOCKED OUT**
 - **OTHERS THEN WENT OUT**
 - **LATER RESUMED WORKING**

6. In Afghanistan, in 1981 and at intervals since then, Soviet helicopters have sometimes attacked Afghan guerrillas or villages with a strange new weapon. A body struck by this weapon dies instantly and completely. It falls like a limp rag, **and** does not decay even in 30 days. Every cell, bacterium, virus, etc. in the body has been killed instantly. Nerve gas rockets and chemical rockets are also usually fired to provide a "deception cover" for the nature of the real weapon. This eery Soviet weapon has been mislabeled as some strong new gas, **and** is referred to as "Smirch", a combination of the two words "smert" (death) and "semerch" (sandstorm).

7. In April 1984 a monstrously huge scalar EM incident occurred off the coast of Japan, near the Kuriles. Subsequent interviews with the pilots sighting the incident have revealed that several combined tests of the various modes of a scalar EM howitzer occurred. A giant "cold explosion" occurred, raising a giant mushroom cloud to over 60,000 feet and greater than 150 miles diameter in two minutes. A glowing dome appeared, and expanded to monstrous size. According to Dr. Walker and colleagues, **the diameter of this great glowing, hem-**

ispherical **shell expanded to several hundred kilometers.** * He and his colleagues were able to rule out any possible known natural events or mechanisms that could have caused the incident.

8. Numerous incidents of hemispherical shells of light and giant balls of light within the Soviet Union have been seen from Iran and from Afghanistan. Such giant artificial phenomena have also repeatedly been seen over the oceans by mariners and airline pilots.
9. Several instances of anomalous disabling of jet engines of commercial airliners have occurred while the aircraft were in flight.
10. Direct and intensive weather engineering over the U.S. itself has been accomplished by the Soviet Union for a decade, using the interference grid resulting from the crossing of two or more giant beams from the woodpecker "over-the-horizon radar" transmitters. Specific cloud signatures (anomalous holes, giant radials, twin giant radials, and razor-sharp giant interference patterns) have continually occurred, but the orthodox system has blithely ignored them.
11. A giant test of over a hundred huge Soviet scalar EM weapons occurred in and around May 1, 1985 for the 40th anniversary of the end of WWII. The entire Western scientific and intelligence establishment remained sublimely unaware of the giant exercise. They had not a single scalar EM signal detector — even though the air, land, and ocean was filled with hundreds of Soviet scalar EM transmitters, chattering away to Soviet armed forces, submarines under the water, etc. Underneath our feet, the earth itself was in giant scalar EM resonance on 54 frequencies — 27 pairs, each of which tapped energy directly from the molten core of the earth and fed it to an ensemble of giant Soviet strategic scalar EM weapons.

*See Science, 227 (4584), Feb. 8, 1985, p. 607-611; Science 234 (4775), Oct. 24, 1986, p. 412-413.

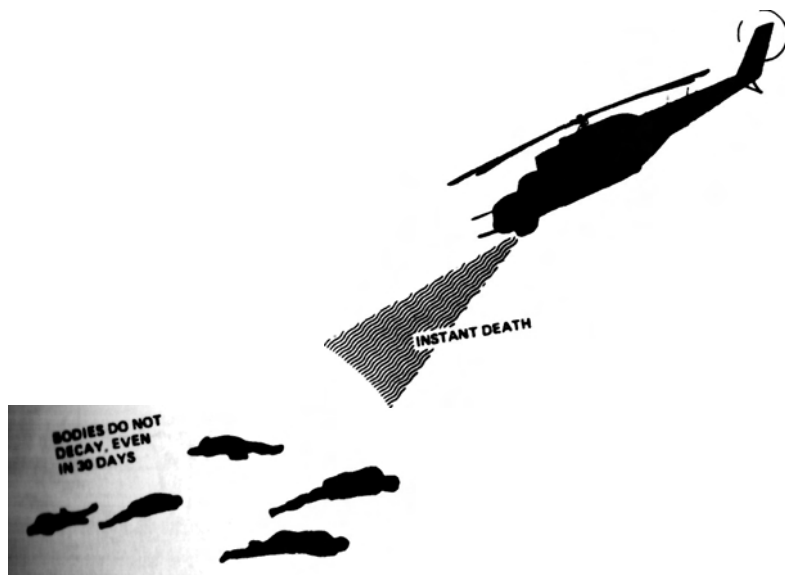


Figure 12. Soviet helicopters have used a "death ray" in Afghanistan.

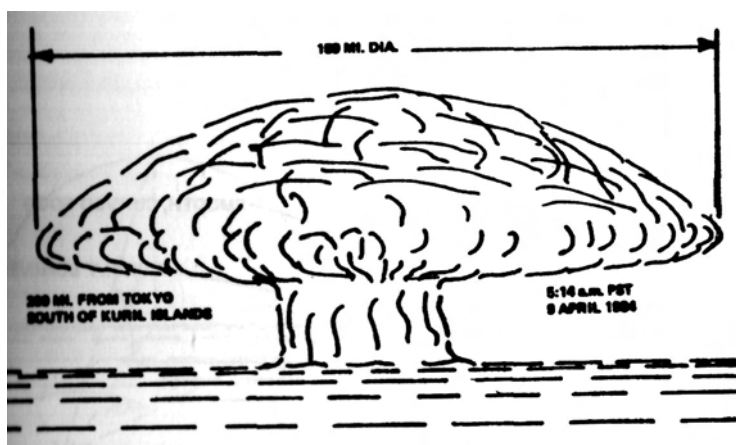


Figure 13. Mushroom cloud from the sea off Japan, near a Russian test area.

4i *Soviets Knew The U.S. Wouldn't React*



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Figure 14. The Tesla shield, a giant hemispherical shell of energy. Seen repeatedly in Soviet tests in out-of-the-way places and remote regions of the ocean.

8:15 PM
THURSDAY
AUG 1969
VIRGIN ISLANDS
SEEN BY MANY RESIDENTS

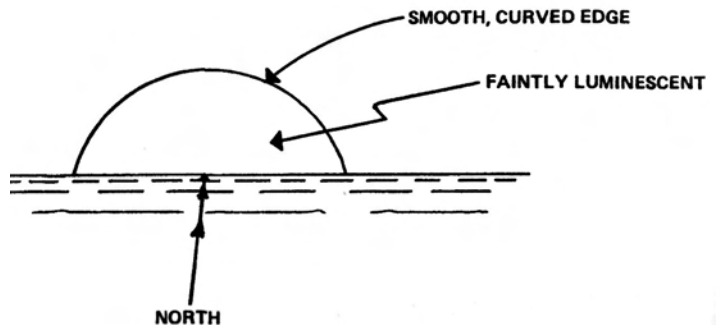


Figure 15. The Tesla shield: A 1969 Virgin Islands incident.

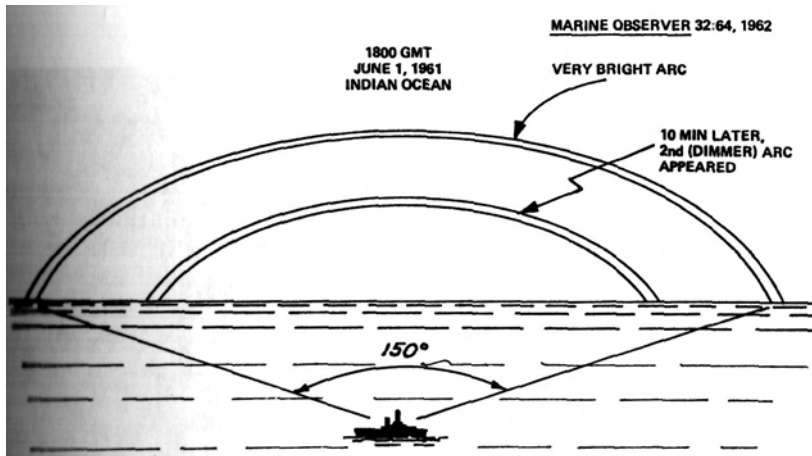
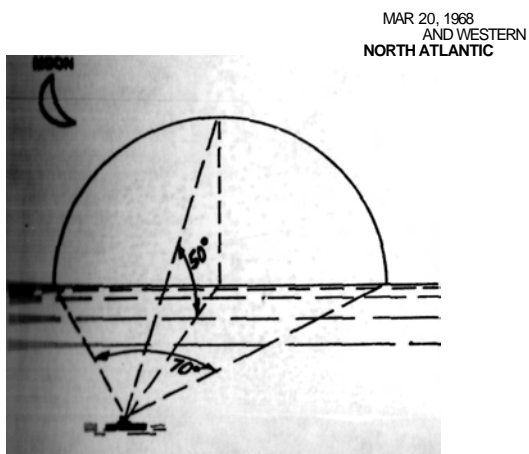


Figure 16. Tesla shields: Two nested arcs of light in the sky.



- SEMICIRCLE
- MILKY WHITE LIGHT
- QUITE BRIGHT AT FIRST
- DIMMED AS ENLARGED
- LASTED 10 MINUTES

Figure 17. Tesla shield: An expanding hemispherical circle of light.

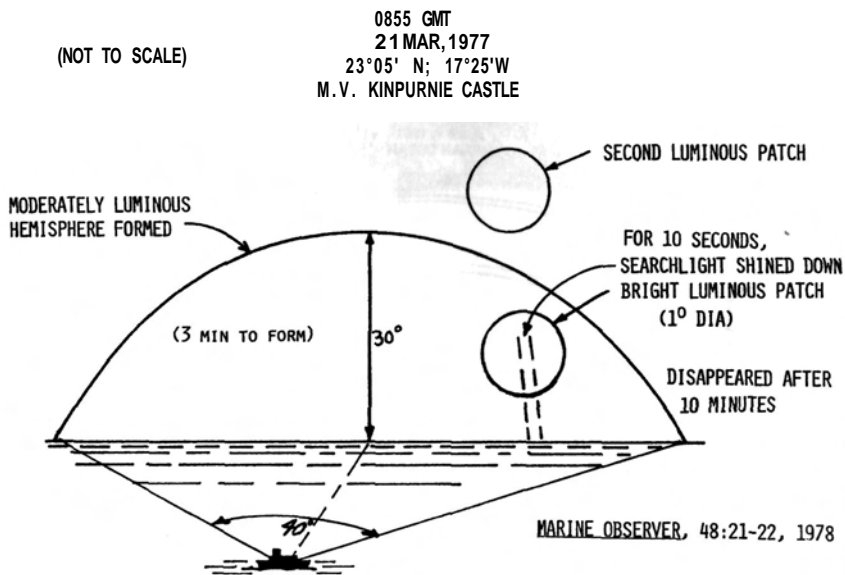


Figure 18. Tesla shield: Hemisphere and globes, 1977.

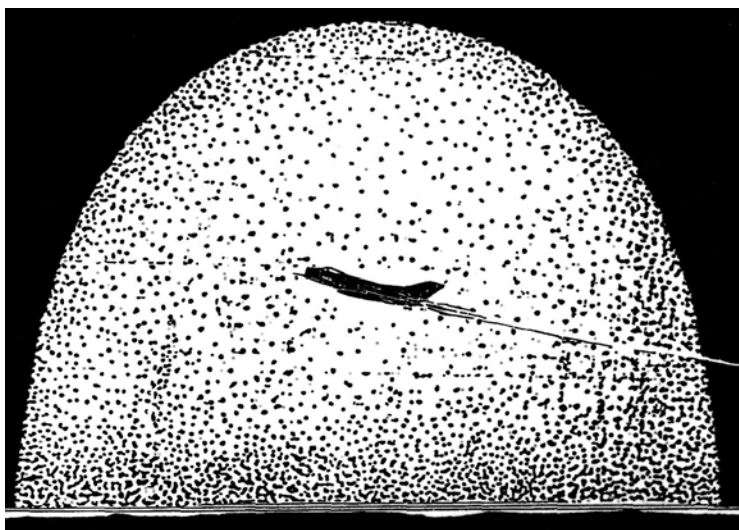


Figure 19. Large Tesla Shield observed by Red Chinese fighter pilots. Electrical difficulties in the aircraft were also experienced.

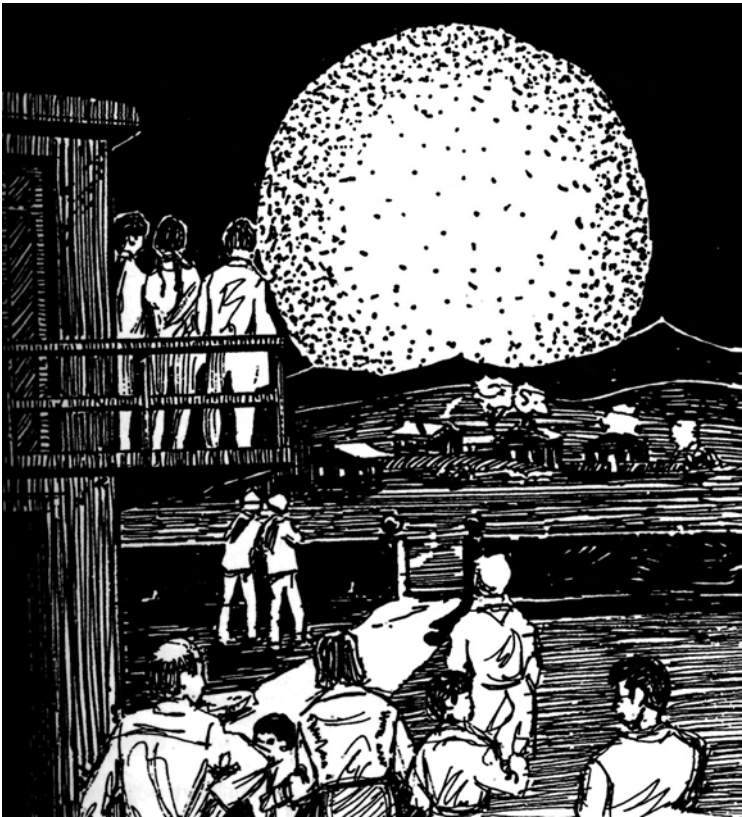
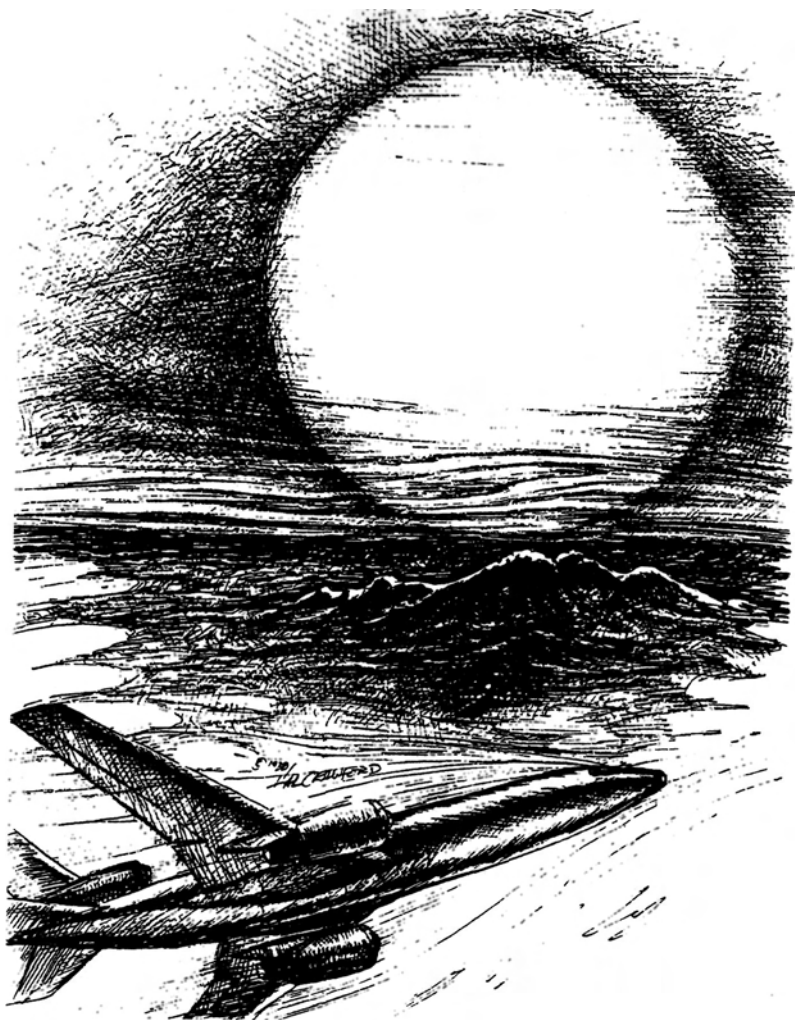
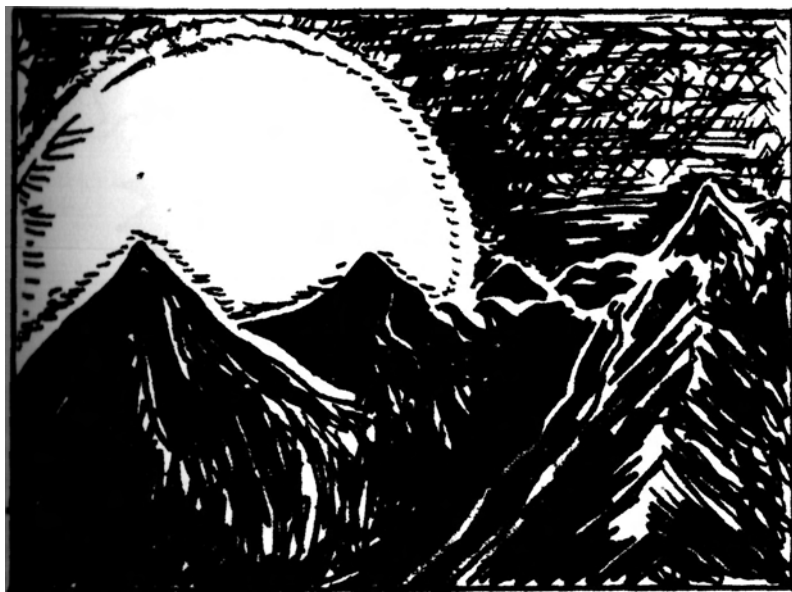


Figure 20. Large glowing Tesla Globe," Red China. Observed by hundreds of persons.



©1980 Hal Crawford

Figure 21. 1966 test of giant Tesla Globe, expanding deep within the Soviet Union. Seen from Teheran, Iran June 17, 1966 by two aircraft approaching Mehrabad Airport. Observed for several minutes.



Multiple events seen in Sept. 1979 from Afghanistan

Strange lurid glow that flared silently over the Hindu Kush; as described by
Nick Downie.

The LONDON SUNDAY TIMES, 17 August 1980

Figure 22. A giant globe, deep within the Soviet Union in 1979. Seen several times from Afghanistan, looking toward Saryshagan.

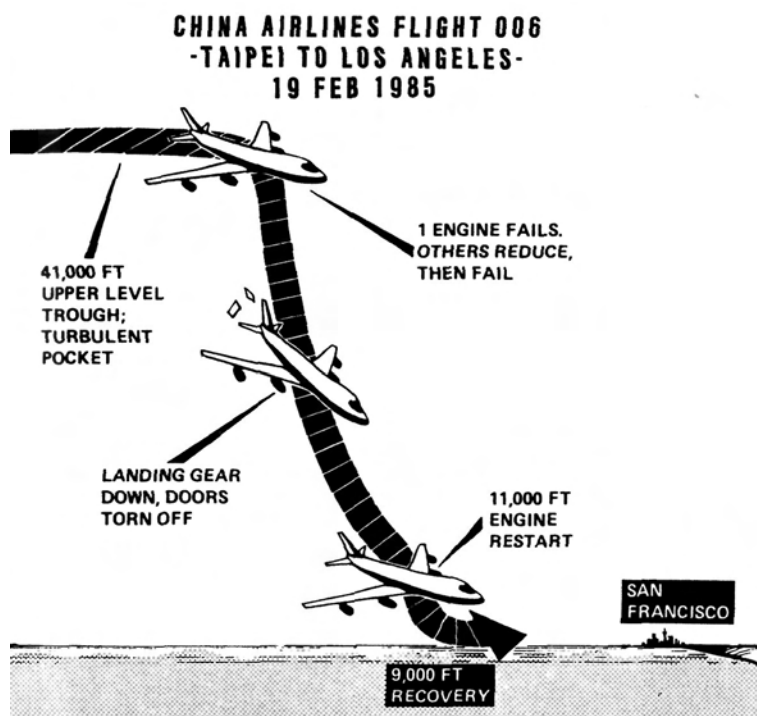


Figure 23. Engines disabled, a passenger jet drops six miles in two minutes.

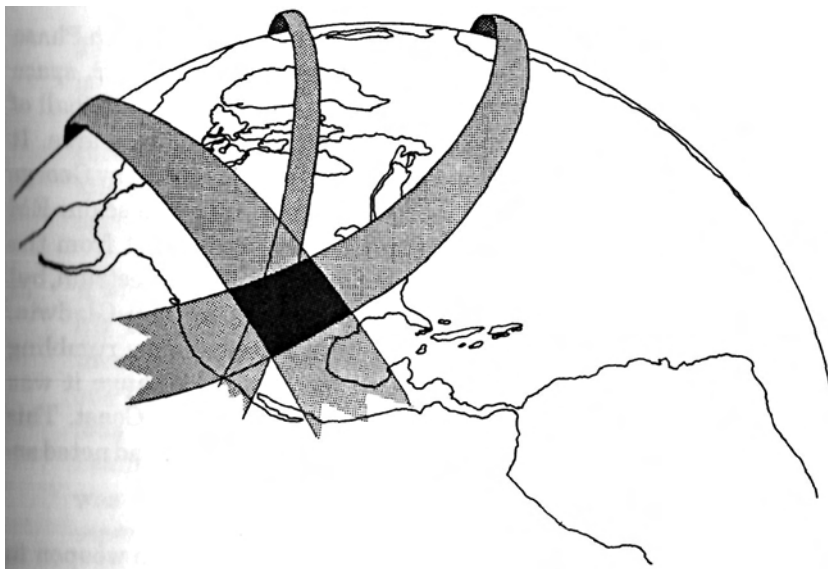


Figure 24. Giant "Woodpecker" beams intersecting over the U.S. Used for weather control, as a launch phase ABM and anti-bomber system, electromagnetic attack of distant populations, and disease conditioning. Using phase conjugate radar mirrors, any amount of energy desired can be delivered to any distant target from which a radar return has been received. Real-time distant holography, to produce powerful energy forms at a distance, can also be accomplished.

Table 6. MASSIVE 1985 STRATEGIC MAY DAY EXERCISE

APRIL/MAY 1985

- **BREZHNEV'S 1972 STATEMENT FULFILLED**
- **40th ANNIVERSARY OF WWII**
- **GORBACHEV NEWLY IN POWER**
- **EARTH IN GIANT SCALAR EM RESONANCE**
 - **54 FREQUENCIES**
 - **27 "POWER TAP" PAIRS**
 - **4 TO 6 WEAPONS EACH PAIR**
- **C³I SCALAR EM LINKS**
 - **UNDERWATER SUBS**
 - **NAVAL FORCES**
 - **OTHER FORCES**

49 *Soviets Knew The U.S. Wouldn't React*

12. In late November, 1985 the Soviets tested their Launch Phase ABM system over Florida, using the launch of a U.S. space shuttle as a convenient test target. A marker beacon (ball of light) was placed in the sky, hovering near the launch area. It was seen by hundreds of persons, and photographed by George Suchary. During the final countdown to launch, a scalar EM "missile" (ball of intense energy) was fired, offset from the shuttle. This ball of energy was not in the visible spectrum, but may have been accidentally photographed by Bob Gladwin. Twelve minutes offset after launch, a tremendous rumbling overhead boom echoed through the area — so huge it was heard for hundreds of miles up and down the East Coast. This was the third U.S. shuttle launch in which NASA had noted associated anomalous phenomena, but did nothing.
13. On December 12, 1985 the Soviets used the same weapon in the anti-bomber mode to destroy an Arrow DC-8 jet just after its takeoff from Gander Air Force Base, Newfoundland. **Over 250 U.S. soldiers and civilian crew members were killed.** Gander has long been a registration point for the Soviet scalar EM weapons. For example, in one 4-day period in 1982, 36 anomalous incidents occurred in and around Gander, involving moving lights, lights in the sky, etc.
14. On January 28, 1986 the Soviets destroyed the U.S. space shuttle Challenger, shortly after its launch. A dozen signatures are associated with this Soviet kill, too many to mention all of them. To give only a few: First, the Soviet ships monitoring the launch site suddenly departed at high speed, four hours before the launch. This was unparalleled. Second, according to General Daniel Graham, *the following evening KGB headquarters gave a party to celebrate the success of the KGB's perfect active measures against the Challenger!* Direct and unmistakable indications of extreme localization of the Soviet transmitters to the Challenger's launch site existed on the day of the launch. In addition, a metal-softening signal was confirmed on the Soviet Woodpecker beams as early as

January 1, 1986. Many other indicators also exist. The total is a very strong statement that the Soviets destroyed the Challenger with the same weapon they had tested against three previous shuttle launches, and which they had used to kill the Arrow DC-8 at Gander Air Force Base only six weeks earlier.

15. A whole series of anomalous missile failures occurred, involving Titan, Delta, and Ariane launches. The odds against all these launches failing in that pattern were millions to one. In one Titan failure, video taken of the event showed the anomalous "marker beacon" light in the vicinity, high overhead. Frame-by-frame analysis of the video showed that the light was indeed independent of the explosion, and it moved off separately after the rocket exploded.

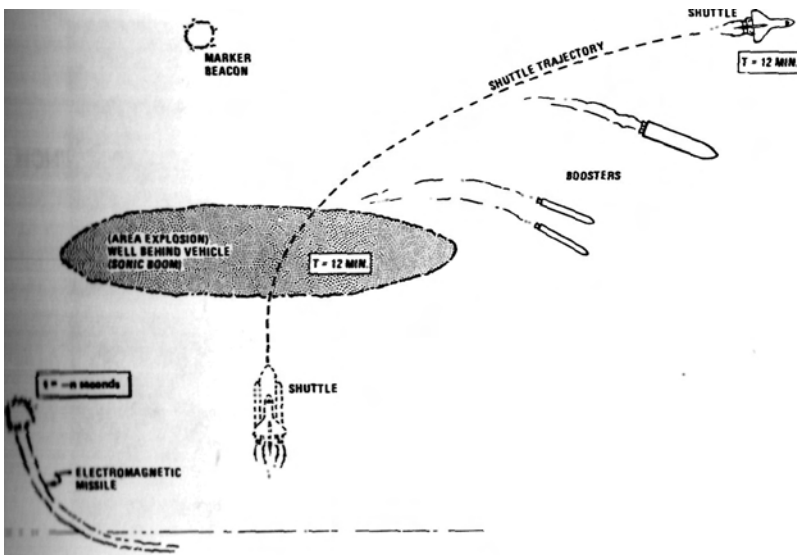


Figure 25. Third Soviet non destructive testing against shuttle launches, Nov. 26, 1985.

Table 7. SHUTTLE LAUNCH ANOMALIES, NOV. 26, 1985

- **MARKER BEACON**
 - PHOTOGRAPHED
 - SEEN BY HUNDREDS

- **OFFSET SCALAR EM MISSILE**
 - INVISIBLE TO HUMAN EYES
 - STRIKE PHOTOGRAPHED

- **GIANT ATMOSPHERIC BOOM**
 - T + 12 MINUTES
 - HEARD FOR HUNDREDS OF MILES

- **THIRD LAUNCH WITH SUCH A BOOM**

Table 8. SOVIET ESCALATION AFTER 3RD TEST AGAINST SHUTTLE LAUNCH on Nov. 26,1985.

- **U.S. STILL UNAWARE OF SCALAR EM WEAPONS USE**
- **SOVIETS ESCALATED ACTION**
- **DESTROYED OR DISABLED:**
 - ARROW DC-8 (DEC. 12,1985)
 - CHALLENGER (JAN. 28, 1986)
 - TITAN 34-D (APRIL 18, 1986)
 - DELTA ROCKET (MAY 3, 1986)

- **MAY HAVE DISABLED:**
 - ARIANE II(MAY 31,1986)
 - TWO U.S. NUCLEAR SUBS WHICH RAN AGROUND
 - STEALTH FIGHTER WHICH CRASHED

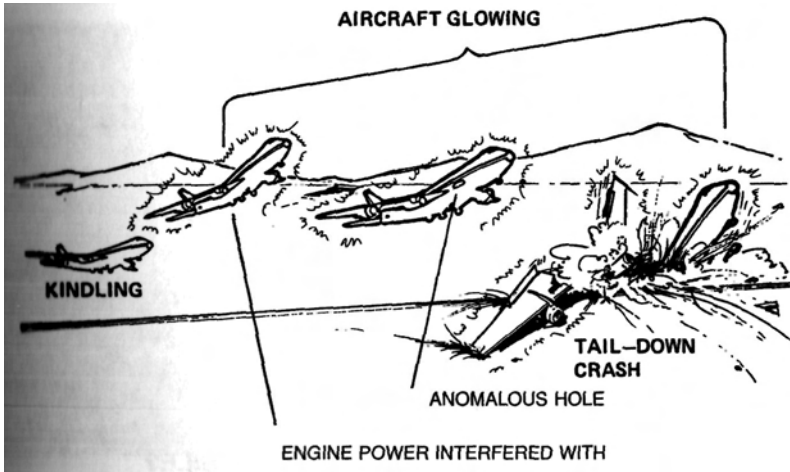


Figure 26. Death of the Arrow DC-8, Dec. 12, 1985. Three eye-witnesses saw the **doomed** airliner glowing. An anomalous hole was found in the fuselage, forward of the engines. Engine combustion was interfered with, by phase conjugate (negative) **energy**. Engines were rumbling laborously, not roaring with power, as the aircraft **passed** 100 ft directly over a witness.

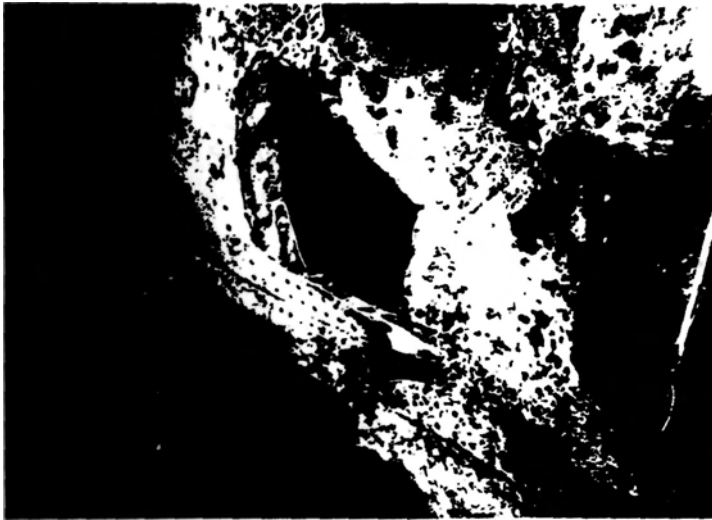


Figure 27. Anomalous hole in the right fuselage of the ARROW DC-8, ahead of the engines. With crossed over-the-horizon radar beams and multiple phase conjugate **radar** mirrors, real-time holography allows the production of a ball of EM energy at a great distance. The ball may be as small as desired, and contain as much energy as desired.

Table 9. ARROW DC-8 DISASTER, DEC. 12, 1985**GANDER AFB, NEWFOUNDLAND**

- AIRCRAFT LIFTED OFF
- AIRCRAFT WAS GLOWING YELLOW - ORANGE
- SANK TAIL-DOWN AND CRASHED
- SIGNATURE OF ENGINE/COMBUSTION INTERFERENCE
 - LAUNCH PHASE WEAPON
 - ANTI-BOMBER MODE
 - ANOMALOUS HOLE IN FUSELAGE, FORWARD OF ENGINES
 - STRUCK BY ELECTROMAGNETIC MISSILE?
 - EXTENSIVE "BALLS OF LIGHT" WEAPON TESTS IN AND AROUND GANDER
- CLOSELY FOLLOWED THIRD TEST AGAINST SHUTTLE NOV. 26, 1985, IN ABM MODE

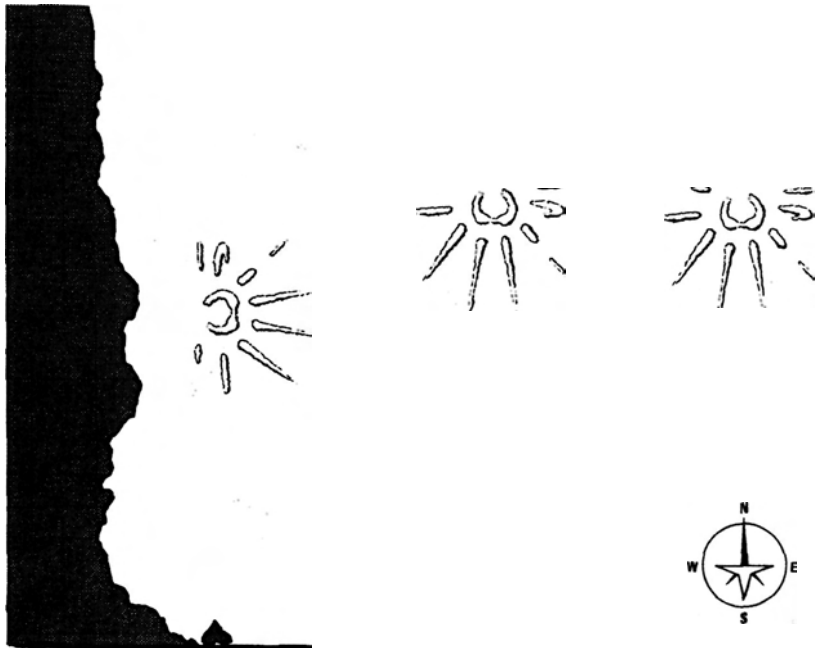
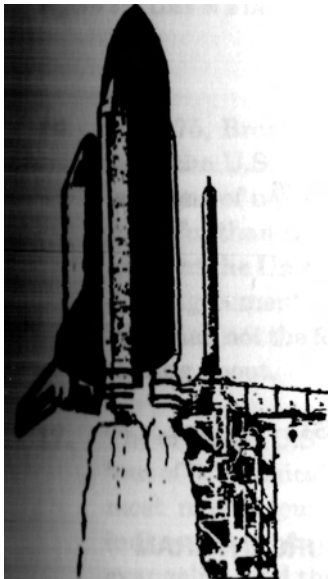


Figure 28. Part of the Soviet engineering of U.S. weather, just prior to the death of the Challenger. Three "giant radial" clouds sighted over the greater Los Angeles area by Margaret Wilson. Appeared one after the other, at 10 min. intervals.



DOD PHOTO

Figure 29. Soviet Trawler spyship. About four hours before the launch of the Challenger, all Soviet ships off coast, that normally monitor each launch, suddenly and mysteriously departed at high speed. Unprecedented event.



- **SOVIET WEATHER ENGINEERING**
- **SEVERE COLD STRESS**
- **METAL-SOFTENING**
- **BOOSTER SEAL PROBLEM**
- **SOVIET SHIPS ABSENT**
- **LOCALIZATION**
- **AIR TURBULENCE**
- **BIRDS NOT FLYING**

Figure30. Launch of the doomed Challenger, Jan. 28,1986.

Table 10. DEATH OF THE CHALLENGER, JAN 28, 1986

- METAL-SOFTENING SIGNAL ON WOODPECKER GRID AS OF JANUARY 1, 1986
- SOVIETS ENGINEERED COLD WAVE INTO FLORIDA
- SEVERE COLD STRESS ON VEHICLE
- GRID LOCALIZATION SIGNATURES
 - BIRDS NOT FLYING IN LAUNCH AREA
 - BIRD FALLS IN BIRMINGHAM, AL (HINGE)
- SOVIET SHIPS/TRAWLERS DID NOT TRACK LAUNCH
- BOOSTER SEAL PROBLEM SEVERELY AGGRAVATED
- CAUSED SHUTTLE FAILURE
- SOVIET KGB HEADQUARTERS CELEBRATED "PERFECT SUCCESS OF ACTIVE MEASURES" AGAINST THE CHALLENGER!

Table 11. KGB CELEBRATION

EVENING OF JAN. 28,1986

- AFTER DEATH OF CHALLENGER
- KGB HEADQUARTERS
 - JUBILANT PARTY
 - CELEBRATED SUCCESS
 - OF ACTIVE MEASURES AGAINST THE CHALLENGER

SOURCE: GENERAL DANIEL GRAHAM, URGENTGRAM

- NOTE: SOVIET SCALAR EM WEAPONS ARE CONTROLLED BY KGB



- **SHORTLY AFTER LAUNCH**
- **ANOMALOUS POWER SURGE**
- **"COMMANDED" ENGINE SHUTDOWN**
- **VEHICLE THEN UNSTABLE**
- **RANGE SAFETY OFFICER DESTROYED ROCKET**
- **EXTERNAL RANGE SENSORS DID NOT RECEIVE SURGE SIGNAL**
- **SIGNATURE OF TIME REVERSED WAVE**
- **WHICH LOCALIZED ON ROCKET**

Figure 31. Loss of a Delta rocket, May 3, 1986.

16. In 1975, Brezhnev had surprisingly urged U.S. senators to have the U.S. cooperate in banning the development of new weapons of unparalleled horror. He used the phrase, "more frightful than the mind of man has ever imagined." Shortly after, at the United Nations, Gromyko had even introduced a draft agreement for all nations of the world to sign. Again, the West had not the foggiest notion as to what the Russians were talking about.

17. The orthodox U.S. news media has been, and is, almost totally "out of it." Ironically, at the time of our deadliest peril, and the most momentous period in history, incidents such as the indiscretions of a presidential candidate and of a television evangelist, and the "Iran Gate" actions of the National Security Council in trying to illegally get arms to the Contras, are the "burning issues of the hour" — and the week, and the month, and the year, and HO on ad nauseam.

18. The Congress — great watchdog and the direct representative of the U.S. citizenry — is equally immersed in interminable hearings of little or no substance except news media coverage and publicity.
19. A belabored president, misled and now hemmed in on all sides and on the defensive, has had his power to act greatly constricted. In addition, the orthodox filtering networks surrounding him have effectively isolated him. He has been unaware of the extensive information that shows just how certain it is that the Soviets have fantastic superweapons and have been gingerly using them against us for decades. He and his immediate advisors are fed highly filtered, shaped and interpreted data. U.S. intelligence is very good at doing the things that it does. However, it is also very good at ignoring the things that it ignores! Further, the intelligence community is a past master at "slick-tonguing" the interpretation of anything new, and anything it really doesn't understand, in terms such as "We have no evidence that ..." For decades, the community has consistently underestimated the Soviet threat, and it has also usually projected any unpleasant present Soviet capability in the terms that "If the Soviets keep this sort of thing up, it may prove to be a real threat 30 years from now!" For years U.S. intelligence was unaware of a Toronto inventor's development and public demonstration in the late 1960's of an inertial field generator device, for example, because it simply did not place high value on simple overt intelligence such as reading the newspapers! The entire event was printed in detail in a Canadian newspaper. Only very recently, within the last few years, has the community again realized that the most important intelligence can only come from human (HUMINT) sources. And in relying on the scientific community — which itself knows nothing of scalar electromagnetics — the intelligence community has not received the technical advice necessary for it to properly task its collection agencies to collect information on the Soviet superweapons.

20. Western science has also shown itself to be highly dogmatic and ensconced in the comfortable "status quo." It has regally ignored the important Soviet developments in unified field **theory**. It has assumed an aristocratic stance, regarding the Soviet scientists as little more than peasants still trying to **clean** the mud off their boots. In fact, the Soviet scientists have been ahead of the rest of the world in *nonlinear* science — the **truly** hard stuff— since the beginning. They have always been **the** best nonlinear mathematicians in the world. Soviet scientific papers regularly appear which deal with local general relativity and the overcoming of the sacrosanct conservation laws as a matter of course. That subject is still a "no-no" in U.S. scientific publications, even though breaking symmetry and consequent violation of conservation laws has long been proven in particle physics. To my knowledge, with the exception of Hooper's obscurely published work, not a single U.S. scientific paper appears in the literature showing any detailed investigation of "bucking fields" as such and investigating the behavior of materials exposed to such "sum-zeroed" fields. Yet ironically a whole area of optical physics — phase conjugate optics (PCO) — has shown great activity since we discovered it in the open Soviet literature in the late 60's, and **since** two Soviet scientists visited Livermore* in 1972 and briefed us upon the subject (as another stimulus to see if we recognized the awesome weapon implications). In PCO, the **scalar** EM wave formed by two waves 180 degrees out of phase **with** each other, and locked (modulated) together by a nonlinear medium, is blithely called the *pump wave*. Using it on nonlinear materials produces extraordinary results — such as electromagnetic waves traveling backward in time. Further, the PC effect is known to be universal, and not just in the optics **region** at all; for example, it has also been done with sound waves. **The obvious experimental and theoretical proof of scalar EM has been in our literature for nearly two decades, and even in PCO our scientists do not yet realize that the "pump" wave is a scalar wave, a wave of**

*Lawrence Livermore National Laboratory

artificial potential, and a gravitational wave that pumps the nuclei of the atoms in the nonlinear medium. They also still do not understand that it is the nucleus of the atom that produces the phase conjugate replica wave in PCO.

Table 12. BREZHNEV'S 1975 PROPOSAL

AT THE SALT TALKS ON JUNE 13, 1975

- **THE SOVIETS URGED THE U.S. TO AGREE ON A BAN AGAINST RESEARCH AND DEVELOPMENT OF NEW KINDS OF MASS DESTRUCTION WEAPONS MORE TERRIBLE THAN ANYTHING THE WORLD HAS KNOWN!**
- **BREZHNEV PERSONALLY URGED VISITING U.S. SENATORS TO AGREE TO THE BAN.**
- **GROMYKO INTRODUCED A DRAFT AGREEMENT INTO THE UNITED NATIONS MEETING AND URGED THE NATIONS OF THE WORLD TO SIGN IT.**
- **THE WEST HAD NO IDEA WHAT THE SOVIETS WERE TALKING ABOUT!**
- **SOVIET HAWKS THEN GAINED DOMINANCE, AND THE USSR STARTED ITS MASSIVE BUILDUP FOR EVENTUAL WORLD TAKEOVER.**



A. Location of the incident



B. Artist's sketch of the incident.

Figure 32. Probable Soviet test of a Tesla Shield over Atlanta, Georgia.

Continually assured that Western science and intelligence remained outrageously ignorant and would obstinately persist in wearing orthodox blinders, the Soviets felt quite safe in striking the U.S. and its Western allies a mortal death blow.

The Soviets knew there would be no retaliation, so long as the blow was sufficiently unorthodox.

After all, the Soviets have been waging a slowly increasing unorthodox war against us for decades, and totally getting away with it.

Consequently the Soviets manipulated the cancer research and the contamination of the World Health Organization's smallpox vaccine to produce the perfect biological warfare "first strike," administered unwittingly by the WHO itself in its mass immunization program to eradicate smallpox. The Soviets continue to manipulate the spreading AIDS viruses electromagnetically so that the West will be devastated, as well as Africa and the Third World.

At least one other spreading AIDS-strain has already appeared in Africa. Testing for exposure to the first strain in most cases did not detect exposure to this second strain.

Officially no one knows whether it will be as infectious as the first strain. However, a suspicious correlation has appeared between hepatitis vaccination in several large U.S. cities and consequent outbreak of AIDS among the persons inoculated.

Further, the latest studies are beginning to show that (1) AIDS may be just as spreadable, though more slowly spread, in the heterosexual community as in the gay community, (2) the AIDS tests themselves are far more unreliable than suspected; one may have the AIDS virus — and serve as an active carrier — for up to three years before the tests begin to detect it, and (3) no one has any real idea as to how many persons have already been infected.

As can be seen, even orthodox scientists are beginning to suspect a coming AIDS infection "asymptote" which may represent an explosion of the disease into a mass pandemic in the world population. In Africa, for example, AIDS is spreading freely among the heterosexual population as well as the homosexual population. * We may be on the verge of seeing a similar phenomenon emerge in the

*Although there is much speculation as to why African heterosexuals seem so vulnerable, at present no one knows why it is true.

Western world.

If so, we are looking full in the face of a forthcoming AIDS massacre that makes the 1918 influenza pandemic pale by comparison. Not only will AIDS decimate Africa and the Third World, but it will also decimate the West a little later.

In the Soviet plan, after the AIDS massacre has peaked, the remaining much smaller U.S. and European populations will be decimated and totally powerless. The demoralized and devastated Western nations will easily capitulate and pass under the Soviet hammer and sickle.

In their deception planning, the Soviets even are allowing some contamination of their own citizens by AIDS. Thus they can keep up *a pretense* that they are just as much victimized as we are, and just as much "in the dark" as we are about the whole thing.

Of course, once the AIDS infection does its lethal dirty work in the West, the Soviets can easily eradicate it in their own population at will, using the electromagnetic healing technology they already possess. The Soviet planners regard the loss of a few Soviet citizens along the way as one of the things necessary to insure the success of the Great Strike and the Final Revolution. Forward divisions in the standard Soviet attack are always regarded as such sacrificial pawns to guarantee the success of the follow-on echelons in the attack. In this BW strike, the sacrifice of some Soviet citizens is deemed necessary to the overall success of the attack.

Remember, these are the same type of Soviet communist planners who killed 20 million Kulaks — their own people — to forcibly collectivize Soviet agriculture. For their highest purposes, these planners are still quite capable of ruthlessly sacrificing millions of their own people to achieve their objectives.

The Asian Tiger Mosquito: A New and Efficient Vector

As almost everyone now realizes, in the past our government has greatly understated the AIDS problem. Past projections of the limitation of the spread of the disease have been far more optimistic than warranted.

For example, officially the government is still denying any possibility of insect vectors for the disease.

Don't believe it. In fact, highly efficient insect carriers of the disease are already on the way.

Insects in Africa have positively been verified to be harboring the AIDS retrovirus. Ofcourse, such reports are always accompanied by the bland assurance that "We have no evidence... (that the insect bites will give AIDS to humans).

Let's see now: We're supposed to believe that a monkey bite will do enormously more than that. Even when the monkey didn't have the exact present form of the AIDS retrovirus. Even though monkey bites hadn't done the trick in thousands of years.

But we're supposed to turn right around and believe that an insect carrying the live AIDS retrovirus can bite you, inject into you some of his body fluid containing AIDS viruses, and you won't stand any chance of developing AIDS .

What are we supposed to believe? That the injected AIDS virus from an insect bite won't bother you, but the injected AIDS virus from other causes will?

Nonsense!

Anyone who believes that is a prime candidate for purchasing that bridge down the road...

Of course insect vectors will give you AIDS!

And we've got a real tiger — mosquito, that is, on the way to do just that.

The Asian Tiger mosquito has been introduced into the U.S. (it just "accidentally" appeared, of course!) and is now spreading through the Southeastern states. This vigorous and voracious mosquito prefers man as its target, and has an unusually wide range.

Recently U.S. scientists have reluctantly confirmed the presence of the AIDS virus in the Asian Tiger mosquito. However, as usual we are presented with the same tired refrain, "We have no evidence that... the mosquito's bite is capable of causing a human to develop AIDS."

Of course, you can be sure that eventually we *will* have evidence of precisely that!

The AIDS virus is now known to be able to live outside the body for up to at least 15 days, if not longer.

Also, the AIDS virus is an unstable virus — it's constantly mutating and changing its form. That means it's "highly adaptable" - **that** is, it's continually adapting to its environment, at a rate millions of times faster than normal stable viruses change and

That fact implies that some mutant strain of the virus will almost certainly be adapted to living in the Asian tiger mosquito and being introduced into its human host by the mosquito's bite.*

It's not a matter of "Can it do that?" or "We have (as yet) no evidence of that."; instead, it's a matter of "How long will it be until that occurs and we confirm it?"

The Asian Tiger mosquito apparently is intended to serve as the major vector (carrier), or at least one of them, to eventually rapidly increase the AIDS infection rate and devastate the U.S. population.

As the vector spreads and the virus adapts to that mode of transmission, the rate of increase of the AIDS infection will itself accelerate. This means that all the projections for "doubling times" are seriously in error.

The latest data from Alabama, for example, shows that the disease is now doubling every six months instead of every year. Also, the doubling interval itself has been shortening, at least up to the **present**. Note also that, from the data of the new studies confirming a much longer lag time for the AIDS test to indicate the presence of the infection, even the present data on the number of persons infected and the doubling time are underestimated.

If these and other data are a true indication, it appears that we literally may have an "explosion" of the AIDS infection in no more than two to three years.

In addition, as we said the AIDS virus is an unstable virus. Mutations in the virus itself are occurring so rapidly that producing an effective vaccine essentially will be impossible. Without a totally new means applied to produce an AIDS cure, AIDS simply cannot be **stopped**.

*And one or more strains will eventually evolve that can be infectiously spread like the influenza virus is.

In fact, recently it has been discovered that the AIDS virus is far more devious than previously suspected.* It attacks in more ways than suspected. It changes in the body, increasing its virulence as the disease progresses.

Macrophages, the immune system's scavenger cells, become infected and carry the virus to other body cells. It appears that macrophages may pass the virus to the T-cells, conditioning the destruction of the immune system. Infected macrophages are found in rectal material of AIDS patients and in cervical fluid and semen. Thus through infected macrophages the AIDS virus is able to infect partners through exchange of semen, cervical fluid, and rectal material—even though there are no breaks or tears in the skin, and even though the number of free AIDS viruses in the fluids is too small to pass the infection.

Other immune system cells—such as Langerhans cells—are also suspected to be capable of serving as AIDS carriers when infected. The end result is that, as the AIDS patient sickens, the virulence of the AIDS virus increases, so that it attacks a greater variety of cells and can more easily infect them.

Present orthodox methods cannot cure AIDS in time, if ever.

Unless unorthodox technology is applied to solve the problem the West is already defeated.

*See Gina Kolata, "Fatal Strategy of AIDS Virus Grows Clearer," Science Times section, **New York Times**, Mar. 22, 1988; see also "Growth in AIDS Virus Virulence Found," **Los Angeles Times**, Apr. 1, 1988.

CHAPTER 3

WORLD WAR III IS RAGING AND WE'VE NEARLY LOST IT

More on AIDS Doubling Time

AS we said, the AIDS problem is much, much worse than officially announced. As stated, in some areas at least, the number of new AIDS cases diagnosed has been doubling every six months instead of every year. New studies have shown that the tests to identify infection by the AIDS virus may themselves have a 3-year lag period in which they do not reliably indicate the presence of the infection.

These facts probably make all previous "officially announced" estimates and projections off by several orders of magnitude (at least three).

If the incubation period (nominal) is, say, 5 years, then there is a factor of up to 2 (exp 10) of AIDS cases already in incubation.

The lag in accuracy of the AIDS tests however, may mean that there are even more AIDS cases in incubation than this.

And we may have a new entry into the equation at any time, once the AIDS virus adapts to its transmission by the Asian tiger mosquito and possibly even other insect vectors.*

Remember, we've got the U.S. data for only a relatively few years since 1981. So it's statistically difficult to project ahead with any accuracy. However, the best interpretation of the data we can make shows a spiraling (speed-up) trend in the rate of acceleration of the disease, indicative of a forthcoming asymptote. If that interpretation of the data holds true, the asymptote represents literally an "explosion" of the disease.

That is, the six-months "doubling interval" is slowly becoming **the** six-months "tripling interval," the six-months "quadrupling interval," etc.

The best indication/projection I can tentatively arrive at is this: If the total cure is not accomplished within about two to three years, then - considering the incubation ongoing by then and the speedup

*Another HIV virus has now been identified.

ahead — somewhere between a third and two thirds of all humans on earth will perish.

In other words, nominally half the humans on earth will inevitably die, say within five years (the incubation) after that two to three year point.

Most of the people who die are going to be highly selected. Most of them are going to be Westerners, Africans, Asians, and Brown people.

And all of our tanks, ships, bombers, missiles, nuclear weapons, and armed forces put together can't save a single AIDS victim.

We've got more generals than ever before in our history, including World War II. And not a one of them has a single tactic or a single weapon to use against this mortal attack.

Understand, our generals have not failed us against the enemy they know and recognize. The bellies of our B-52 bombers and the aircraft aboard our distant aircraft carriers are filled with nuclear bombs sufficient to destroy the world many times over. Our powerful nuclear-tipped missiles sit in land-based silos and in sleek submarines cruising silently under the oceans, waiting to respond in an instant to hostile attack, again with the power to destroy the world many times over.

Yet the fine men and women who have built and maintained that awesome force, and who man it in constant vigilance to protect our nation, are absolutely vulnerable and defenseless against the smallest foe of all — just as were the Martians in H.G. Wells' **War of the Worlds**.

With all our awesome forces, we do not have the power to stop a single AIDS virus — or indeed, any other similar new BW virus.

We can be defeated with ridiculous ease by even the tiniest determined hostile nation — or even by a single terrorist, madman, or genetic accident by a high school youth.

And if there's one thing that we can learn from history with iron certainty, it is this: If we can be defeated with ridiculous ease, then most certainly we will be!

Since the strike has already occurred, then our defeat is just a matter of time if we continue our present courses of action.

All other threats — nuclear, chemical, scalar EM, the works — pale in comparison to this seemingly innocuous, doomsday BW viral

weapon that has already been unleashed upon an unsuspecting world.

World War III is Already Raging

World War III has long been unleashed and a final, decisive first strike has now occurred. We've already lost the war unless unbelievably heroic measures are taken immediately.

This thing is deliberate. It's fiendishly clever. It's effective. And a smiling Gorbachev — master propagandist — is just part of the icing on the cake to deceive us until it's too late.

Ironically, Soviet announcements have cleverly started claiming that the U.S. has produced the AIDS virus and unleashed it.

That's a very clever propaganda trick to shift suspicion from themselves. Indeed, in the Third World the propaganda has been very effective. Most Third World peoples now give at least credence to the Soviet claim.

Unless we move immediately to effect a total cure, the armed forces and the populaces of all the Western nations will shortly be devastated — perhaps even worse than if they been attacked with nuclear weapons.

With our armed forces and populations devastated, we surrender. We lose.

The Soviets get the U.S. (and European) farmland. That's what they really need.

Ofcourse they also will have rid themselves of about 200 million Americans or so along the way.

That, solves the old "winner's problem" of what to do with, and how to effectively control and care for, a conquered, resentful populace. That problem will have already been taken care of, for most of the U.S. populace will essentially have been eliminated.

There won't be many U.S. military prisoners, for example, since most of the military personnel will also have been eliminated by the virus or viruses clandestinely released.

Communism Is Savage Enough to Do Diabolical Things

The Communist's doctrine is to wage total war. Win any way, with any weapon, at any cost.

ALSO, communism has always taught that it is necessary to

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destroy capitalism. That equates with destroying the U.S., the major capitalist country. Communists have always taken the long view, willing to struggle for decades to eventually accomplish their aim.

If you think no modern nation could be so incredibly savage as to deliberately destroy untold millions of people, look at the actual record of the Communists.

When the Khmer Rouge took over Cambodia, they murdered a third of their own people.

The Soviets murdered some 20 million or so Kulaks when they collectivized the Soviet farms.

The Red Chinese also slaughtered Chinese peasants by the tens of millions — perhaps as many as twenty or thirty million — when they collectivized the farmers.

Lenin's followers have proved over and over that they are capable of murdering even their own people, on a scale of millions.

Dedicated communists are highly religious people — even fanatics. Deliberate murder to achieve communism's goals is part of the accepted dogma.

The communists are quite capable of killing a billion or more "foreigners" and "enemies," given the chance. Particularly when the goal is to win the "Final Revolution."

The opportunity to strike the decisive final blow without consequences, using as simple and unorthodox a weapon as the AIDS viruses, could simply not be ignored by men who have spent their lives trying to control the world.

The unparalleled strike opportunity was particularly irresistible since someone else (the Western cancer research institutes) would develop the weapon itself, someone else (the World Health Organization) would unwittingly deliver the strike, and the blow could easily be clandestinely arranged (simply by secretly contaminating the WHO smallpox vaccine) and accomplished without repercussions to the Soviet Union.

Western Medicine is Inadequate

But what of Western medicine? Doesn't it always come through to save us?

Present Western medical science is totally inadequate to do the

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task required.

For example, present medicine is largely based on "slowing or killing the invader of the body." Whether that invader is a germ, bacterium, virus, or whatever.

If there's a mechanical difficulty, then present treatment is to try to mechanically remedy it — remove a bad appendix, set a broken leg, etc.

However, then it's strictly up to the body's own natural healing system - its immune system and its repair system — to actually do the healing and repair/reconstruction.

The problem with AIDS is that it directly affects and suppresses the body's systems for healing and repair.

Once this protection and repair system is in disarray, any disease organism can attack the body and infect it. If the immune system can't handle the problem, eventually the invading disease organism kills its host.

Even if a way is found to destroy the AIDS virus itself, present medicine has not the foggiest notion of how to restore the healing and repair system from the damage and destruction it will have already sustained by massive AIDS infection.

Compare the situation to division combat: Hostile invaders are met at the front of the division by the division's combat forces. A battle ensues, with penetration and damage to the rear area support and sustenance facilities. After the enemy is beaten back or destroyed, the rear support and the combat forces must be renewed and restored. If that cannot be done, the seriously weakened division can still literally be boiled over by almost anything that comes along and hits it.*

*For this reason, standard Soviet doctrine is to attack in echelon, say, by three divisions — one behind the other. Thus, even if the first division is annihilated in the attack, the second and third divisions meet a seriously weakened enemy division and blast right over it. Similar tactics in the BW crisis - multiple viral strikes, one after the other — can almost inevitably be expected, now that the "first division" - AIDS - has engaged us.

The Soviet "repetitive attack" method *works*, in case anyone has doubts. For example, see George C. Wilson, "Army training exercises raise troubling questions," The Washington Post, as printed in the Huntsville (AL) Times, Feb. 28, 1988, p. 21A. Repeated U.S. Army tests in the Mojave Desert have shown that, in nonnuclear combat, when attacked by multiple Soviet echelons with 3:1 strength, U.S. forces lose every time! In particular, U.S. troops have poor anti tank defenses.

Modern medical dogma has concentrated almost entirely on the combat forces' problem of destroying and/or repelling the invader.

Western medicine has almost no tools or means of restoring the support and rear maintenance functions.

Even in a paroxysmal effort, dogmatic Western medical science would take decades to totally reorient its medical thinking to where it could even attack the real problem of AIDS and catastrophic sickness due to other viral BW warfare agents.

The same inability to cope with the problem also applies to our government bureaucracy, government agencies, the private companies, the universities, and to Western science in general.

If we have to depend on any or all of our present "system," the war is already over and we are all already doomed. Half of humanity will die within possibly five years after the upcoming two- to three-year "point of no return."

Medical insurance, treatment centers, and even private physicians are quickly going to be bankrupted as the AIDS plague increases. With the collapse of Western medicine, panic and pandemonium will reign in the streets. Martial law will be a necessity, and rioting on a scale unparalleled in American history will occur. We are likely to see our own U.S. dictatorship, in the form of a military junta making a coup and seizing power "to restore order and keep the lid on."

Study carefully the performance of governments and military regimes in such countries as Korea and South Vietnam, when those countries were hard pressed by enemy forces and in great disarray.

You may be looking at your own future.

The Soviets Will Not be Decimated

With the devastation of our armed forces, our governmental and civil agencies, and our population at large, a simple show of strength by the Soviets will collapse any further resistance. The hammer and sickle will wave supreme over the residue.

That's because the Russians *do* have the necessary developed scalar EM medical technology, not only to control and destroy the AIDS viruses, but also to directly restore the immune and repair systems.

The Kaznacheyev experiments alone show they have extensively studied electromagnetic induction of cellular disease and death.* We will have much more to say on that later.

If the Soviets extensively studied cellular death transmission by electromagnetics, you can bet they also studied the reverse: electromagnetic healing, or time-reversing the electromagnetic "death" signals themselves to produce specific "healing" signals for any type of cellular disease.

This is particularly certain since the Soviets also discovered and possessed the necessary "time reversal" electromagnetics: phase conjugation. This had been widely used by the Soviets in developing their enormous scalar EM weaponry, beginning about 1950 or so.

The curative signal technology was kept secret, of course, since the Soviets realized that it provided the only viable defense against viral biological warfare weapons.

The Soviets most certainly have the necessary AIDS cure. They can readily make the correct electromagnetic healing signal, by phase conjugating the AIDS death signal from dying human cells that contain AIDS retroviruses.

They also know we most certainly do *not* have the necessary EM cure. Years of weak microwave radiation of personnel in the U.S. Embassy in Moscow, and inducing illnesses in those personnel and even U.S. ambassadors, have shown that our own intelligence and scientific communities don't know what's really going on there.

Specifically, we've demonstrated (after checking with the DIA, CIA, NSA, and the orthodox scientists) that we do not recognize electromagnetic *biological warfare* — the deliberate introduction of cellular disease and death by electromagnetic means. Not only do we not recognize it, we can't do anything about it when it hits us.

And make no mistake, time-reversed electromagnetic medicine is shockingly cheap and effective, once developed. Specific healing signals for specific diseases — viral or whatever — can be quickly developed (within hours) and immediately used for mass treatment of entire populations.

For example, given the developed healing or "antidote" signal, it can even be recorded and played over ordinary transmitters, using

* There is now reliable information more closely associating Kaznacheyev with military institutes near Moscow, engaged in microwave weapon (directed energy) research

their normal transmissions as carrier waves. A populace continually bombarded by such "healing" television, radio, and powerline signals simply doesn't get the disease. And those already infected recover when continually exposed to such healing signals.

So the Russians can stop the AIDS epidemic cold, anytime they choose to do so.

Electromagnetically they can also gently guide and stimulate the progress of a disease such as AIDS, once the disease is introduced into a targeted population.*

Or, the Soviets can pull out all the stops and induce the disease in a distant population directly, placing the "death signals" on common carriers. Such as on our power lines, radio stations, televisions, and directly by induction from the Woodpecker over-the-horizon radar signals which continually bombard us.

The West cannot do any of these things. Neither can the West counter them, or defend against them effectively.

Unless a totally different tack is taken in the Western effort to counter this viral BW threat, Gorbachev's entrancing smile has already lured us to our doom. We are faced with a direct realization of Lenin's words:

"In the final revolution it does not matter if three-quarters of the earth is destroyed, so long as the remaining quarter emerges communist."

And Khrushchev's ghost will have the last laugh after all. We will have fulfilled the prediction he made to Nixon in their famous "Kitchen debate":

"We will bury you!"

Quite simply, for some decades the Soviets have had a new science — one they call *energetics*, and one which I have called *scalar electromagnetics*. The keystone or "heart" of this new science is time-reversed (phase conjugation) electromagnetics and electrogravitation.

*A candidate for an eery test of just this capability may be the highly anomalous deaths of numerous dolphins off the East coast of the U.S. in 1987. Nearly 500 died in the summer and late fall, apparently as a result of the weakening of their immune system to the common bacterium *Vibrio*. See Julia Lawlor, "Key: Failure of Mammals' defenses," USA Today, Jan. 19, 1988, p. 1A-2A.

*Chapters 4 and 5
deal with complex scientific material
and are suggested for those who are
technically proficient.*

CHAPTER 4

EXTRAORDINARY PHYSICS

Maxwell's Lost Unified Field Theory

About the time of the U.S. Civil War, James Clerk Maxwell succeeded in unifying magnetism and electricity. Actually he did far more than that, in his theory as originally written.

In fact, he had produced a theory which also captured the free interchange between electromagnetic energy and gravitational energy, but no one—including Maxwell himself—realized it at the time.

Maxwell wrote his original theory in quaternion and quaternion-like mathematics. The modern form of vector mathematics had not yet been finalized by Gibbs and Heaviside. It is most instructional to examine some of the fundamental differences between a vector and a quaternion.

In a conventional 3-dimensional vector, one may have three vector components, such as

$$\mathbf{v} = a\mathbf{i} + b\mathbf{j} + c\mathbf{k} \quad (4-1)$$

where $\mathbf{i}, \mathbf{j}, \mathbf{k}$ are unit vectors in the directions of the x, y , and z axes respectively and a, b , and c are constants.

Obviously if the vector components of vector \mathbf{v} are zero, then

$$\mathbf{v} = \mathbf{0} \quad (4-2)$$

We shall be interested in the "vector product" of two identical vectors \mathbf{v} , where

$$\mathbf{v} \times \mathbf{v} = AA \sin \emptyset = \mathbf{0} \quad (4-3)$$

and A is the length (magnitude) of vector \mathbf{v} , \emptyset is the angle between the two vectors (in this case zero), and $\mathbf{0}$ is the zero vector.

Now let us look for a moment at the quaternion situation.

First, in addition to the three vector components, a quaternion also has a separate scalar component, w . So the quaternion q for this situation is

$$q = w + ai + bj + ck \quad (4-4)$$

Now when this quaternion is multiplied times itself, the vector part zeros, just as it did for the vector expression. However, the scalar part does not go to zero. Instead, we have

$$q \times q = A^2 = a^2 + b^2 + c^2 \quad (4-5)$$

There is a very good physical interpretation of this result. It is a square of the amplitude, hence for the vector part of a wave, it is directly proportional to the energy density of the vacuum, as a function of time, at the particular position. However, we now need to make a short explanation of variation of stress energy density of spacetime.

First, we note that, according to general relativity, the "gravitational potential" is just a conglomerate of potentials of all kinds. Basically, a potential represents a G -potential, and consequently a curvature of spacetime. The potential also represents "trapped energy."

Second, we note that Kaluza combined electromagnetics and gravitation as a unified theory in 1921. Kaluza added a fifth (spatial) dimension to Minkowski's 4-space, and applied Einstein's relativity theory to 5 dimensions.

To Kaluza's delight, a common 5-d potential is responsible for both electromagnetic field and gravitational field. The "bleed-off of this 5-potential in the 5th dimension (which is wrapped **around** each point in our 3-space) is what we know as the **electromagnetic force field**. The bleed-off of this 5-potential *in and through* our 3-space is what we know as the **gravitational force field**.

Since the EM field is very much stronger (by a factor of 10^{42} for electrons) than the gravitational field, it is obvious that most of the

bleed-off of the 5-potential is in the 5th dimension, as EM force field. Only a tiny bit is left to bleed-off in 3-space, producing a very weak gravitational field.¹

We state this fact: as a mass moves in space, it generates increased "activity" with the virtual particle flux of vacuum itself.

The Increased virtual particle flux activity exchange between vacuum and mass is analogous to a strange kind of "virtual resistance." Since the resistance is virtual, it does not observably slow down an observable object moving in an (unobservable, virtual-particle flux) vacuum.

The increased flux activity represents an increased "virtual energy density" of space time, and an increased "trapped potential" (mass; resistance to an accelerating force) of the moving object. It represents a rotation of the spacetime frame, vis a vis the laboratory observer).

In the virtual vacuum (which contains both positive and negative time), one sees two antiparallel virtual forces: one in positive time, along the velocity vector of the object, and one in negative time (time reversed, or phase conjugated). The reason one sees virtual forces is that, each virtual (subquantal) change in the virtual flux activity represents an individual (unintegrated), separate change, hence a virtual acceleration. The observer (where things are integrated), sees the integral of all these accelerations, hence observable velocity.

The vector sum of these two virtual forces in the vacuum is a zero vector; however, the two taken together represent a stress in the local energy density of vacuum.

Since we may regard an EM wave as a stream of virtual electrons/positrons, each engaging in tremendous virtual particle flux exchange with the vacuum, then the same basic picture applies.

Now for our physical interpretation of (4-5): If we refer to an EM wave moving in the vacuum, the rotation of the frame is maximum (90 degrees). But this same rotation is just the same as additional vacuum stress, so the vacuum stress is maximum.

¹Electromagnetics is 5-gravity sliding around our 3-space. 3-gravity is 5-gravity oozing through our 3-space.

This leads to these conclusions: An electrical force field vector represents a local maximum linear stress in spacetime, along the line of the vector. (Note we specifically deny that the electrical force field vector, of an EM wave in vacuum, is transverse. Instead, it is longitudinal. That has been addressed elsewhere by the author and will not be covered further here.)

Another electrical (stress) vector interacting with the first one adds more "urging" stress to the first. However, this action is occurring in the rotated frame of the moving wave, and so is rotated 90 degrees from the electrical velocity vector. Therefore it is lateral (but in a hyperdimension, not in 3-space) at right angles to the electrical velocity vector.

The combined "urging" action of the two vectors thus sweeps out an area with respect to the laboratory observer.

This means that the total "urging" or "stressing" action of the two vectors is analogous to a vector area.

It also means that this "area" function may be taken as the "swirl" of the electrical vector, but in a hyperdimension, not in 3-space. That is, we have described the magnetic force field.

Thus any two electrical vectors that interact will have an "area" or "resistance" component generated. *Any two that interact.* Whether they add vectorially, cross-product multiply, or dot-product multiply.

What is actually happening is that the wave exists in the 5-potential. The E and B fields just represent the oscillations in that 5-potential. They represent oscillations in the bleed-offs of that potential as E-field (longitudinal) and B-field (swirl).

The drag-area represents the accumulation of extra potential — hence the local rotation of spacetime. Since this accumulation is moving (along with the EM wave), as it passes a point it represents a change in the local virtual particle flux density of vacuum at that point, **hence a local curvature of spacetime.**

Hence, the EM wave makes a 5-dimension G-potential wave as it travels. The 3-dimensional gravity wave associated with this is normally very, very much smaller in magnitude — say, by a factor of 10^{42} or so.

However, if the two vectors interact so as to produce a vector zero resultant, then all the electromagnetic energy of the two vectors **is**

captured. That is, all the "EM vector zero" resultant means is that the EM bleedoff of the 5-space gravitational potential wave has been stopped. The 5-potential is still oscillating, and now all its trapped 5-energy must bleed off as 3-gravity force field.

Mass acts as an accumulator for this "trapped-EM energy turned into local curvature of 5-space." If we continually irradiate a mass with such a wave, the atomic nuclei of the mass slowly charge up with the new energy. Note that this potential delta may be positive or negative, if one adjusts accordingly.

In this fashion one may change the mass of a static object in the laboratory. One may either increase the mass or decrease it, or cause it to float, or even cause it to accelerate upwards.

But to return to our vector interaction and our interpretation of the scalar remainder of the quaternion.

The rule is, when the two EM vectors interact so as to form a zero EM resultant, then the EM energy represented in each of the two vectors has been converted into a special form of 5-space gravitational potential, one that is not bleeding-off in the fifth dimension (electromagnetically), but one which will gradually produce a 3-gravity potential in a mass's atomic nuclei as a function of time, the individual element, permeability and absorption factors of those nuclei, etc.

Therefore in our mathematical theory we ought to have a scalar component remaining when two EM vectors interact to form an EM vector zero resultant. That scalar component represents what is happening in the 5-potential, that will only bleed into 3-gravity.

With exploration of this phenomenology in the laboratory, one can work out the functions, constants, coefficients, and parameters which specify how the "5-G to 3-G and vice versa" component works in conjunction with mass, motion, and other fields.

That's the magic secret of electrogravitation.

It was captured inherently by the quaternion theory of Maxwell published during the American Civil War!

After Maxwell's death, when the scalar portion of the quaternion was discarded (by Oliver Heaviside) to form "modern" EM theory, that also discarded the unified field interaction between electromagnetism and gravitation.

Electromagnetic field and gravitational field were then modeled and regarded as mutually exclusive. EM field, therefore, was thought to produce no specific gravitational effects in the vacuum itself.

Hence when Albert Einstein was formulating general relativity some decades later, he knew only one way to "curve" spacetime: that was gravitationally, by "attraction of mass" forces.

But gravitational force was so weak that only a huge collection of mass would exert enough of it to measurably curve spacetime. That would require a sun or star. Since the observer and his instruments would never be on the surface of the sun or a star, **Einstein assumed that the local spacetime of the observer would not be curved.**

Hence he severely crippled his general relativity theory. In the West, it remains an assumption to this day. It is not a universal assumption in the Soviet Union, however, since the Soviets have long since written — and developed in the laboratory — unrestricted general relativity with *local* spacetime curvature, and hence *local violation of conservation laws*.

So the scalar part of the quaternion interaction, that remains when the vector part of the resultant is zero, is magic indeed.

That is the magic unified field portion that everyone has been seeking for decades and decades!

It was there at the beginning. Then we inexplicably threw it away!

But to return to our vector/quaternion examples.

Note also that the two vectors

$$\begin{aligned} \mathbf{V} &= a\mathbf{i} + b\mathbf{j} + c\mathbf{k}, \\ \mathbf{v}_2 &= -a\mathbf{i} - b\mathbf{j} - c\mathbf{k} \end{aligned} \quad (4-6)$$

sum to zero vectorially when added, such that

$$\mathbf{v}_1 + \mathbf{v}_2 = 0 \quad (4-7)$$

However, quaternions may behave quite differently, even under addition. For example, the two quaternions

$$\begin{aligned} \mathbf{q}_1 &= \mathbf{w} + a \mathbf{i} + b \mathbf{j} + c \mathbf{k}, \\ \mathbf{q}_2 &= \mathbf{w} - a \mathbf{i} - b \mathbf{j} - c \mathbf{k} \end{aligned} \quad (4-8)$$

sum their vector parts to a vector zero resultant, but do not sum to a scalar zero as well. Instead, they sum to

$$\mathbf{q}_1 + \mathbf{q}_2 = 2\mathbf{w} \quad (4-9)$$

As can be seen, quaternions which have the same vector parts as vectors, do not necessarily yield a complete zero when the vector parts sum to zero. And when two vectors multiply to provide a zero vector resultant, corresponding quaternions may yield a scalar term that is equal to the product of the magnitudes of the two vectors.

In this way, the quaternion approach can capture the *stress of the medium*, induced by opposing or multiplying vectors. In the vector approach, the stress of the medium is entirely lost when the two vectors sum or multiply to a zero resultant.

Let us see just how important this "vacuum stress" can be.

First, the "stress in the medium" represents curvature of spacetime when that medium is the vacuum/spacetime.

In other words, the quaternion approach captures the ability to utilize electromagnetics and produce local curvature of spacetime, in an engineering fashion. Heaviside wrote a subset of Maxwell's theory where this capability is excluded.*

*Dr. Henry Monteith has independently discovered that Maxwell's original quaternion theory was a unified field theory. See his important "Dynamic Gravity and Electromagnetic Processes," in publication

Note that, by Maxwell's original quaternion theory, however, Einstein's assumption need not be true at all. For example, look at equations (4-5) and (4-9): Here we may utilize electromagnetic force quaternions to produce zeroed EM forces, and an increased stress in local spacetime. In other words, we have curved local spacetime electromagnetically. Since (with electrons) electromagnetic forces are about 10^{42} times as strong as the gravitation force, this local curvature of spacetime is not negligible.

That is, we have produced a scalar effect from zeroing vector operation between electromagnetic forces. I have called this **scalar electromagnetics**, and pointed out that it is truly *electrogravitation*.

We stress again that this violates one of the severely limiting assumptions that Einstein placed upon his theory of general relativity. He assumed that curving spacetime could only be done by the weak gravitational force due to mass. Since gravitational force is so weak, only a stupendous collection of mass — such as the sun or a star — could curve spacetime enough to notice experimentally.

Since obviously the observer and his laboratory instruments would never be located on the surface of the sun or a star, *Einstein assumed that the local spacetime would never be curved!* In other words, the local frame would always be a Lorentz frame. This meant that, locally, the familiar conservation laws of physics would always apply. Curvature of spacetime would only occur at great distances, and at huge collections of mass such as a star or dwarf star.

Einstein did not write a complete, unlimited general relativity. He wrote a sort of "special relativity with distant perturbations."

If Einstein had had electromagnetic theory in quaternions, the scalar "vacuum pressure" parts would have been there for him to ponder. It is highly probable that he would have captured the "electromagnetics-to-gravity conversion remainder" in the quaternion interactions.

If so, he would have written the full theory of general relativity, involving local violation of conservation of energy, a unified field theory, and the direct engineering of

gravitational and antigravity effects on the laboratory bench by electromagnetic means.

In that case, we should long since have navigated all around the solar system, colonized the planets, produced practical free energy devices and power systems, and avoided two great world wars and a host of little ones.

But let us now see if we can make a gravitational wave, electromagnetically.

Again, regard equations (4-5) and (4-9). Suppose these are instantaneous operations of EM force quaternions whose vector parts are varying in magnitude, but in such a manner that the vector parts ways form a zero vector resultant. Now one can see that the scalar part remaining — which represents the stress of local spacetime - is varying as the product of the magnitudes of the vectors in the interaction vary.

This means that one has now produced a scalar wave that represents the local variation of spacetime curvature in an oscillating manner.

Rigorously this is a gravitational wave. It has been produced locally. It has been produced by Maxwell's original unified theory.

Again, I have called this area *scalar electromagnetics*. The Soviets call it *energetics*.

Where local spacetime curvature is varied, conservation laws (energy, conversation, etc.) need not hold. Curved one way, the local spacetime acts as a source (of energy, charge, etc.) Curved the other way, the local spacetime acts as a sink (of energy, charge, etc.)

The Soviets often do not utilize the same restricted kind of general relativity that Western scientists adhere to.

Soviet papers in general relativity regularly point out the complete and unrestricted theory, where local spacetime curvature is allowed. They also point out that all conservation laws may be violated by such local curvature. Thus the Soviets have no unduly dogmatic respect for conservation laws.

Further, by assuming the possibility of local spacetime curvature, Soviet scientists have assumed the possibility of direct experi-

mentation with general relativity on the laboratory bench.

In the West, we have assumed that such cannot possibly be done, because of Einstein's limiting assumption of no local spacetime curvature. Thus Western physicists are strongly conditioned away from electrogravitation.

This is particularly ironic since the basis for just such an experimental theory was produced by none other than Maxwell himself in his original theory of electromagnetism.

Indeed, shortly after the U.S. Civil War, we should have been developing antigravity spaceships. We should have developed electromagnetics à la Maxwell and been on our way to the planets of our solar system. For Maxwell had — admittedly somewhat unwittingly — given us the basis for the necessary engineering theory of unified electrogravitation.

Heaviside's Mutilation of Maxwell's Theory

Well after Maxwell's death, Oliver Heaviside helped to finalize what is today vector analysis.

Then he undertook to "translate" Maxwell's theory from quaternion form to the new vector mathematics form.

Now quaternions were devilishly difficult to calculate in. So much so, that a majority of the electrical scientists (there were not very many of them in those days!) were in despair.

Not to worry! Heaviside took a broadax, figuratively speaking, and simply chopped off the scalar term, leaving only the vector components.

With that artifice, he greatly simplified the calculations to be performed.

Of course, he also threw away the EM stress of spacetime! That is, he threw away the "gravitation" part of Maxwell's theory!

Let me stress this fact most strongly. **After Maxwell's death a single man—Oliver Heaviside—directly altered Maxwell's equations, eliminating localized electrogravitation and producing the form of the theory taught throughout the West today as "Maxwell's theory."**

Maxwell's theory has never been taught in Western universities! Only Heaviside's crippled subset of the theory has been taught!

Then, shortly before the turn of the century, a short, sharp "debate" erupted in a few journals — mostly in the journal *Nature*. Only about 30 scientists took part in the "debate."

It wasn't really much of a debate! The vectorists simply steam-rolled right over the remaining quaternionists, sweeping all opposition before them.

They simply threw out the remaining vestiges of Maxwell's quaternion theory, and completely adopted Heaviside's interpretation

Thus, a little over a decade later when Einstein wrote his general relativity theory, he did not know that the original work of Maxwell already indicated the unification of gravitation and electromagnetics, and indicated the ease with which local spacetime could be electrogravitationally curved locally and *engineered*.

Accordingly, he placed the scientists of the West on a road which rigorously assumed that a unified field theory was yet to be discovered. It also strongly discouraged any experimentation aimed at curving local spacetime, for it assumed that such could not be done.

After Potsdam and World War II, a frustrated Stalin was to drive his scientists to review the entire scientific literature of the Western world, actively seeking a great new technical breakthrough area such as the Allies had demonstrated with the development and use of the atomic bomb.

Great Soviet institutes — one staffed, for example, with over 2,000 PhD's — were set up to thoroughly review all the Western scientific literature from its very beginning. Anything interesting, anomalous, or unknown was put aside for further examination.

It is a good bet that the meticulous Soviet scientists discovered the difference between Maxwell's original electromagnetic theory and Heaviside's mutilation of it. Great mathematicians that they are, Soviet scientists would have realized the implications of the difference. With their knowledge of unlimited general relativity, they would have made the connection to electrogravitation.

By 1950 they had indeed done so, and were deeply into the development of what they called "energetics", and I have called

scalar electromagnetics.

They had also reached another milestone about the same time — 1950 or so.

After WWII, both the Soviets and the U.S. were keen on securing the best of the German scientists. The U.S. particularly wanted missile scientists and rocket engineers. The Soviets wanted them too; but they also wanted the German radar specialists and infrared specialists.

The West didn't care about the German radar scientists and engineers, and the IR fellows. The Soviets did, and they got them. That was to prove a most spectacular benefit indeed.

During the war, the Germans had placed extreme emphasis upon radar and radar absorbing materials (RAM). The German scientists had fantastically developed and extended the science of radar cross section — which is the heart of the matter and very, very complex. **They were much further ahead in radar cross section theory at the end of WWII than where the U.S. is today, in the opinion of some U.S. radar experts.**

So the Soviets started with a great jump on us in radar knowledge, and they have steadily increased the lead over the years.

In addition, the Germans had developed highly successful radar absorbing materials, and much of the theory to accompany them.

Such materials turn out to be the key to how to build and develop a radar phase conjugation mirror, to produce a time-reversed radar wave.

Thus, because of the German scientists, by 1950 or so the Soviets had already discovered phase conjugation. And they had discovered it in radar first, not in optics!

They would have been primed for the discovery by their great review of Western literature and the foundations of science, since they would probably have noticed that the time-reversed wave is a solution to the wave equation. If so, they would certainly have realized its generality throughout all physics, all frequency bands, and all types of waves.

Superb mathematicians that they are, the Soviets would certainly have made the Kaluza-Klein theory connection, and also

realized that phase conjugate waves carry negative energy as well as negative time. They would quickly have seen the gravity and antigravity implications.

So about 1950 or so, the Soviet Union would have started phenomenology experimentation in earnest, with phase conjugate radar mirrors and phase conjugate radars. This is what was referred to as *energetics*. The Soviets began a massive program in energetics about the time of the beginning of the Korean War.

By 1957-8 the Soviets had progressed to the point of a giant scalar EM accident in the Urals which exploded nearby atomic wastes, devastating the area. They had also progressed to development of great new superweapons using their new energetics — weapons to which Khrushchev referred in 1960 when he informed the Soviet Presidium of a new, fantastic weapon in development, a weapon "so powerful that it could wipe out all life on earth if unrestrainedly employed."

About the same time (mid-to-late 50's), the Soviets had also started the very low-level microwave radiation of the U.S. Embassy in MOSCOW, to see if the U.S. knew of scalar electromagnetics (energetics) and was developing its own electrogravitational weapons and defenses.

Building Upon Whittaker's Fundamental Work

In 1904, a most fundamental paper in the foundations of electromagnetics was delivered by the British mathematician E. T. Whittaker. (E. T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," Proc. Lond. Math. Soc., Series 2, Vol. 1, 1904, p. 367-372.).

In this important paper, Whittaker showed that the electromagnetic force field equations can be replaced with the derivatives of two scalar potential functions.

He also derived the most general form of electromagnetic disturbances in the ether.

This means that the coupling of two dynamic scalar functions can replace vector electromagnetics in the vacuum.

Note that Whittaker's work pointing out the overriding importance of scalar fields also accents the erroneously discarded scalar

part of Maxwell's quaternion electromagnetic theory even more strongly.

Let me explain now how I got from Whittaker's paper to scalar electromagnetics, Soviet Tesla weapons, free energy, antigravity, and electromagnetic healing.

When I discovered Whittaker's paper, I had already strongly objected that "charges" and electromagnetic vector force fields — as presently included in the Heaviside version of Maxwell's equations — included observable mass. Of course there was no observable mass in the vacuum, hence the prescribed kind of EM force fields could not exist as such in the vacuum.

Obviously the foundations of our ordinary electromagnetics theory were seriously flawed. Although my objections fell on deaf ears, I determined to examine the foundations of EM theory, discover the flaws, and at least point out the necessary corrections to be made.

Though this was an arduous task to undertake and it required many years, slowly the flaws showed themselves, and the necessary corrections slowly became clearer.

Most exciting of all, in working with several unorthodox researchers, I was able to see many of these new ideas tried, adjusted, and demonstrated. In addition, the proprietary discoveries of these colleagues continued to reveal new and unique principles and concepts. The only disadvantage was that I could not reveal the propriety apparatuses and demonstrations of my inventor associates, but only the principles and concepts that developed. In turn, I also developed principles and concepts to explain what they were doing and the results they were obtaining.

So over the years I have slowly been releasing the principles and concepts. Some of them are my own discoveries, many of them are the discoveries of my associates. Some of them are simply a mixture of both.

Early on, it became obvious that the Soviet Union was far ahead on this path, and was already utilizing the new unified field theory to build eery, powerful new superweapons.

Since no one else in the U.S. seemed to be "watching thin particular store" (I was rather universally regarded as some pecu-

liar sort of fool!), I also began to compile information and data on the Soviet weaponization of this unrecognized technology. This information I have released in a series of papers, briefings, and books, the most recent being a 1-hour videotape, "Soviet Weather Engineering Over North America," 1985, and a detailed book, *Fer-de-Lance: A Briefing on Soviet Scalar Electromagnetic Weapons*, Tesla BookCo., Greenville, Texas, 1986.

Building upon Whittaker's important work, I formulated a conceptual revision to electromagnetics, which I dubbed *scalar* electromagnetics to accent that the observable EM vector force fields did not exist as such in vacuum, but dynamic scalar fields did. I also wished to call strong attention to the fact that observable force does not exist until an observable particle of mass is coupled to the interference of the two scalar fields (much like in the Aharonov-Bohm effect). The Soviets, of course, call this area *energetics*, Energetics technology has been used in gigantic weapons programs of the Soviet Union for decades, and it appears to be developed under the most highly classified program that the Soviet possess. All development and deployment of energetics weapons is under the KGB and controlled directly by that organization, not by the Soviet Armed Forces.

Peter Kapitsa, the great Soviet physicist, was once pressed by Nikita Khrushchev for a total defense against missiles and air- and space-borne vehicles. Kapitsa replied that it could only come from the new energetics. In 1960, of course, Khrushchev gleefully announced to the Presidium that a new, fantastic Soviet weapon was in the development, "so powerful that, if unrestrainedly used, it could wipe out all life on earth."

Ironically, Khrushchev "jumped the gun" before his new super-weapons were deployed. In the fall of 1962 he began inserting long range missiles into Cuba, bracketing the U.S. with nuclear firepower in an attempt to immediately change the balance of power. Kennedy, of course, backed him down "eyeball to eyeball," so to speak, in a blunt confrontation, but promised not to invade Cuba.

Khrushchev, with his days numbered, was desperate to deploy his new superweapons and provide a dramatic demonstration to recover face.

By destroying the U.S.S. Thresher on April 10, 1963 and, on the next day, producing a gigantic underwater explosion 100 miles north of Puerto Rico, the Soviets demonstrated that the new superweapons had been deployed. Khrushchev managed to retain his position a while longer.

In the 1960's and early 1970's, I was also deeply involved in the study of paranormal phenomena.

In 1969, I entered the Georgia Institute of Technology to pursue a Master's Degree program in nuclear engineering, graduating in 1971.

In 1973, I published a rather simple paper, "Quiton/Perceptron Physics: A Theory of Existence, Perception, and Physical Phenomena," in which I pointed out the nature of quantum change, gave a new definition of mass and acceleration, and pointed out the fundamental nature of inversion of time. The paper also contained a simplified derivation of Newton's laws of motion, relativistic form. The elements of this paper had been worked out in 1971 while I was finishing my Master's program in nuclear engineering. Finishing the work had been interrupted by a slight sidetrack — a tour in Vietnam from summer of 1971 until summer 1972.

At about the same time, I formulated a fundamental correction to Aristotle's logic, adding a fourth law of logic to Aristotle's three, and a proof of it. The new logic was of great use in discovering and uncovering new concepts in unified field theory.

Incorporating Kaluza-Klein 5-dimensional concepts, scalar EM became a field theory that unifies electromagnetics and gravitation.

Incorporating dynamic sum-zeroed EM vector systems (which are discarded in normal EM theory) allowed the direct engineering of the unified field theory, including structuring the vacuum, curving local spacetime, and producing effects at a distance and in higher dimensions. Actually it allowed the recovery of much of the scalar part of Maxwell's original theory.

I then realized that, inside a vector zero EM force field summation/multiplication, the virtual particle flux of vacuum/spacetime was ordered and controlled locally and macroscopically. This of course violated one of the major assumptions (a postulate) of quantum mechanics; the assumption that the structure of vacuum was

randomized, and could not be deliberately ordered, engineered, and curved locally.

Adding phase conjugation (time reversal) aspects and extended quantum mechanical concepts allowed local antigravity and local curvature of spacetime to be included—again, on an engineering basis. It also allowed one to produce a mechanism responsible for Newton's third law, and to engineer the reaction force at will.

Further, it revealed that the law of entropy was simply the *positive time* statement; it showed that there was another half of the law, the *negative time* part or the law of negentropy.

In addition, a startling new concept of mind, thought, life, biofields, disease, and healing emerged from all this—again, on an engineering basis. As we stated in the beginning of this book, it is now an urgent necessity to release my work on the basis for electromagnetic disease and electromagnetic healing. We must produce a very quick, positive treatment and cure of AIDS and other coming lethal viruses before the world is decimated.

Accordingly, this work is being released in this book.

In this chapter we will next present some perhaps surprising material on phase conjugation, from the scalar EM viewpoint, after first briefly explaining symmetry and parity.

In following subsections, we will cover briefly the remaining major concepts in scalar electromagnetics. This will then set the stage for the following chapter, *Extraordinary Biology*, in which we will deal with the basis for unparalleled electromagnetic healing.

Symmetry and Parity

The basic idea of symmetry is the arrangement of the parts of a body or system about an axis so that two or more parts appear the same with respect to some operation.

The most obvious example is to look in a mirror, where we notice that our image has been reversed, left to right. Yet otherwise there is no difference; and so we may say that the reflection has "mirror symmetry." It's the same except that left and right are reversed.

If you know the details of a system at one point, and at another

point you know that the system will possess mirror symmetry, then you can predict exactly what state the system will be in at the latter point. It will be "left to right reversed." You don't have to calculate the laws of reflection and the laws of motion of the system.

All the laws of nature that possess "mirror symmetry" have a special property: If the words "right" and "left" are interchanged in the statement of the law, then the behavior of a system that obeys the law is unchanged.

Thus symmetry became a powerful idea in physics. For a system with a great number of possible interactions, etc., one can usually eliminate a very great number of them due to symmetry considerations. In other words, if one can assume that symmetry of the system will not be violated, then all the possible interactions that would yield "broken symmetry" can be eliminated.

On the other hand, if symmetry is broken in a physical interaction, at least one of the conservation laws is broken in that interaction. Broken symmetry — and hence violation of individual conservation laws — is a well-established fact in particle physics today.

Another concept intimately associated with mirror symmetry is parity. Each particle is assigned a number (+1 or -1), depending upon what kind of particle it is. One adds up these numbers for an assembly of particles, to obtain an overall "parity" number for the system. If parity is conserved in an interaction, then this total number does not change in the interaction.

Table 13. SYMMETRY

- **SOMETHING IS SYMMETRIC IF IT REMAINS UNCHANGED UNDER A CERTAIN OPERATION**
- **A SPHERE IS SYMMETRIC WITH RESPECT TO ROTATION ABOUT ITS CENTER**
- **A CATHEDRAL ARCH IS LEFT AND RIGHT SYMMETRIC ABOUT A VERTICAL LINE THROUGH THE CENTER**
- **LAWS OF ELECTRICITY ARE SYMMETRIC WITH RESPECT TO REVERSAL OF POSITIVE AND NEGATIVE CHARGE**

Table 14. A FORCE FIELD IS A SPECIAL LOCAL SYMMETRY

".. THE FORCE OF GRAVITY IS SIMPLY A MANIFESTATION OF AN ABSTRACT SYMMETRY — A LOCAL GAUGE SYMMETRY — THAT UNDERLIES THE PHYSICS OF THE WORLD."

"ALL FOUR FORCES OF NATURE CAN BE GENERATED IN THIS WAY."

PAUL DAVIES, SUPERFORCE.

1984, p. 115

Table 15. GRAVITY AND LOCAL SYMMETRY

- **THE** LAWS OF PHYSICS CAN BE MADE SYMMETRIC EVEN UNDER LOCAL GAUGE TRANSFORMATIONS
- A GRAVITATIONAL FIELD IS INTRODUCED TO COMPENSATE FOR PLACE-TO-PLACE VARIATIONS
- THE GRAVITATIONAL FIELD IS NATURE'S WAY OF MAINTAINING A LOCAL GAUGE SYMMETRY
- IN THE ABSENCE OF GRAVITY, THERE IS ONLY GLOBAL SYMMETRY

Table 16. HINDSIGHT IS BETTER THAN FORESIGHT

- FROM THE TWIN REQUIREMENTS OF
 - SIMPLEST LOCAL GAUGE SYMMETRY
 - LORENTZ-POINCARÉ SYMMETRY OF SPECIAL RELATIVITY
- ONE CAN CONSTRUCT OR INFER
 - MAXWELL'S EQUATIONS
 - ALL THE LAWS OF ELECTROMAGNETICS
 - THE EXISTENCE OF RADIO WAVES
 - THE POSSIBILITY OF MOTORS AND GENERATORS
 - ETC.
- IN REALITY THESE WERE FIRST DISCOVERED EXPERIMENTALLY

Table 17. WHEN SYMMETRY IS VIOLATED [BROKEN]:

- A "NON-OBSERVABLE" TURNS OUT TO BE AN OBSERVABLE
- AN INVARIANCE IS BROKEN
- A CONSERVATION LAW OR SELECTION RULE IS BROKEN

COMMENTS:

- A VIRTUAL OBJECT BECOMES AN OBSERVABLE OBJECT
- LOCAL SPACETIME BECOMES CURVED, AT LEAST TO SOME POTENTIAL INVOLVING THAT OBJECT

Table 18. SOME PROVEN ASYMMETRIES

- POSITIVE AND NEGATIVE SIGNS OF ELECTRIC CHARGE
- TIME REVERSAL
- RIGHT/LEFT HANDEDNESS

Table 19. SPONTANEOUS SYMMETRY BREAKING

PRESENT VIEW

1. IF 4-MOMENTUM $K_\mu = 0$,

$$\phi_{(x)} = \phi_{VAC}$$

WHERE $\phi_{(x)}$ IS AS COMPLEX
AS ANY SPIN-0 FIELD

2. **FOR** VOLUME $\Omega \gg$ RELEVANT MICRODIMENSION.

$$K_\mu \neq 0 \text{ BUT } K_M \sim 0$$

$$\langle \phi_{(x)} \rangle \neq \phi_{VAC} \text{ [INSIDE } Q]$$

$$\langle \phi_{(x)} \rangle \neq \phi_{VAC} \text{ [OUTSIDE } Q]$$

3. INSIDE Ω , SYMMETRY PROPERTIES DIFFER FROM THOSE OUTSIDE Ω
4. T, P AND CP MAY BE SLIGHTLY ASYMMETRIC
5. CPT REMAINS INTACT

SCALAR EM VIEW

1. IF ARTIFICIAL POTENTIAL $\phi_{ART} \gg 0$, VOLUME Ω MAY BE SMALL
2. ϕ_{ART} MAY BE ENGINEERED IN
 - SPATIAL SIZE
 - LOCATION
 - MAGNITUDE
 - SUBSTRUCTURE
3. SYMMETRY PROPERTIES INSIDE Ω MAY
 - DRASTICALLY DIFFER
 - BE DELIBERATELY ENGINEERED
 - BE PATTERNED
4. T, P, AND CP MAY BE APPRECIABLY ASYMMETRIC
5. CPT MAY BE ASYMMETRIC

Table 20. WHY SUCH DRASTIC DIFFERENCE?

IN PRESENT THEORY

- $\emptyset_{(x)}$ • IS USED ONLY AS A PHENOMENOLOGICAL DESCRIPTION
- MICROSCOPIC STRUCTURE OF $\emptyset_{(x)}$ OF NO CONCERN
 - ONLY LONG-WAVELENGTH LIMIT OF FIELD IS OF INTEREST
 - VACUUM ENGINEERING IS ONLY A REMOTE POSSIBILITY
 - ACTION AT A DISTANCE IS NOT POSSIBLE
 - LOCAL SPACETIME NOT CURVED

IN SCALAR EM

- \emptyset_{ART} • REPRESENTS A LOCAL CURVATURE OF SPACETIME
[LOCAL GENERAL RELATIVITY]
- MICROSCOPIC STRUCTURE OF $\emptyset_{(x)}$ IS DETERMINISTIC AND COHERED INTO MACROSCOPIC STRUCTURE
 - ALL WAVELENGTHS OF THE FIELD ARE OF INTEREST
 - \emptyset_{ART} WAVES ARE REAL, ENGINEERABLE AND ELECTROGRAVITATIONAL
 - VACUUM ENGINEERING IS A REALITY
 - ACTION AT A DISTANCE IS POSSIBLE

Table 21. ASPECTS OF STRONG LOCAL ASYMMETRY

- **PROPERTIES OF AN OBJECT MAY DIFFER APPRECIABLY FOR**
 - DIFFERENT OBSERVERS
 - DIFFERENT DETECTING MEANS
 - ONE TIME TO ANOTHER
 - ONE POSITION TO ANOTHER
- **CONSERVATION LAWS MAY BE APPRECIABLY VIOLATED**
 - ENERGY
 - CHARGE
 - SPIN
 - MOMENTUM
 - ANGULAR MOMENTUM
- **LOCAL SPACETIME IS CURVED**
- **LORENTZ INVARIANCE OF VACUUM IS VIOLATED**
- **MAY BE A LOCAL "SINK" OR "SOURCE "**
- **GRAVITATIONAL/INERTIAL EFFECTS FROM EM**
 - **TRANSLATION BETWEEN VIRTUAL AND OBSERVABLE**
- **ELECTROGRAVITATIONAL SOLITONS**
- **ACTION AT A DISTANCE**
 - **TRANSMUTATION EFFECTS MAY EXIST**
- **SCALAR/PSEUDOSCALAR FIELD TRANSLATION**

For years the idea of conservation of parity convinced physicists that it would never be possible to tell right from left in the universe. Then in 1956, Yang and Lee pointed out a class of reactions where parity need not be conserved. This effect — broken parity — was confirmed experimentally, and so certain parts and interactions of the universe do possess asymmetry.

The result of all this was that particle physicists established that

Extraordinary Physics

(1) symmetry can be, and is, sometimes broken, (2) individual conservation laws can be, and sometimes are, broken.

Particle physics, however, concerns itself primarily with microscopic interactions. Most of the delightful new things discovered in the microworld have not yet been applied — by *physicists*, that is — in the macroworld.

If you can successfully apply broken symmetry in a major system, for example, you should be able to violate the conservation of energy law and thus produce a "free energy" engine. Several inventors with whom I work have done precisely that. The techniques and technology are still primitive and they need much further development, but the principle has been clearly established and replicated.

Physics is correct in certifying broken symmetry, and you can do it in large systems as well as in microscopic particle interactions. Of course you also *curve local spacetime* as well, something which Einstein and his followers have assumed cannot be done.

Charge-Parity-Time and Negative Energy

The upshot of all this is that the physicists came up with the idea that what is really conserved is a consolidated thing called Charge-Parity-Time. You don't have to conserve any one or two of these three, but only the combined product.

Here they overlooked one key factor that is very important to our thesis: In the photon interaction, if you reverse charge and time, you reverse the sign of the energy.

That is, a photon that is emitted from a positive charge carries negative time negative energy. It is different from a photon that is emitted from negative charge, for that one carries what we have conventionally established as positive energy.

Thus physics has not considered the exclusive use of negative-energy / negative-time photons, even when some of its interactions produced them. Instead, it has just lumped together photons and antiphotons, and considered them both to have positive energy.

Antimatter systems don't have positive energy, for example; they have negative energy. *Here we don't use the positive and negative signs to indicate the direction the energy is traveling, but the fundamental kind, of energy that it is—time forward or time reversed.*

For example, consider the local conservation of energy. As conditioned, one almost always unconsciously thinks of the conservation of *positive* energy, without so stating. Yet one is perfectly free to build a system into which he inputs 100 joules of positive energy, and from which he outputs 300 joules of positive energy and 200 joules of negative energy!

For the real conservation law, that's the equivalent of putting in 100 joules of positive energy and outputting 100 joules of positive *energy*.

Now negative energy will run motors, light lamps, etc. — often much better than positive energy. It can be transmitted, transformed, stepped up or down in "voltage," rectified, received, etc. It can be translated into positive energy or vice versa.

Circuits run "cool" when using negative energy. If you short out a circuit of negative energy so that a violent discharge occurs, it produces cooling instead of heating, greatly lessening the danger of fire and destruction. If you mix negative energy onto a line that is carrying the same amount of positive energy, however, the two negate each other and there is suddenly "no power" on the system.

Think of what you were taught in simple arithmetic. You can take a zero — the absence of any single specific number — and replace it with any set of multiple numbers whose algebraic sum is zero. The presence of this special set of numbers you choose does not violate the condition that the zero means that you could not use just a single number.

Although zero is the absence of just a *single* thing, it can be the presence of *multiple* things.

The same thing works with energy. In the microworld, everything is fantastically energetic, and wildly fluctuating. For example, in a copper wire carrying a current of one ampere, wild momentary fluctuations at extremely high frequencies are occurring.

According to classical electrodynamics, the instantaneous current in a single one of these micro-micro fluctuations may reach thousands of amperes, and the instantaneous voltage may reach 10^{40} volts or more. As can be seen, the instantaneous energy and power are enormous. Yet outside the wire, we see a very placid and peaceful situation.

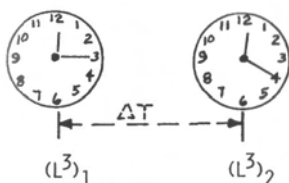
TIME IS NOT OBSERVABLE**WHAT THEN IS TIME?****WHERE THEN DOES TIME EXIST?**

Figure 33. The riddle of time. Unsolved by both physicists and philosophers.

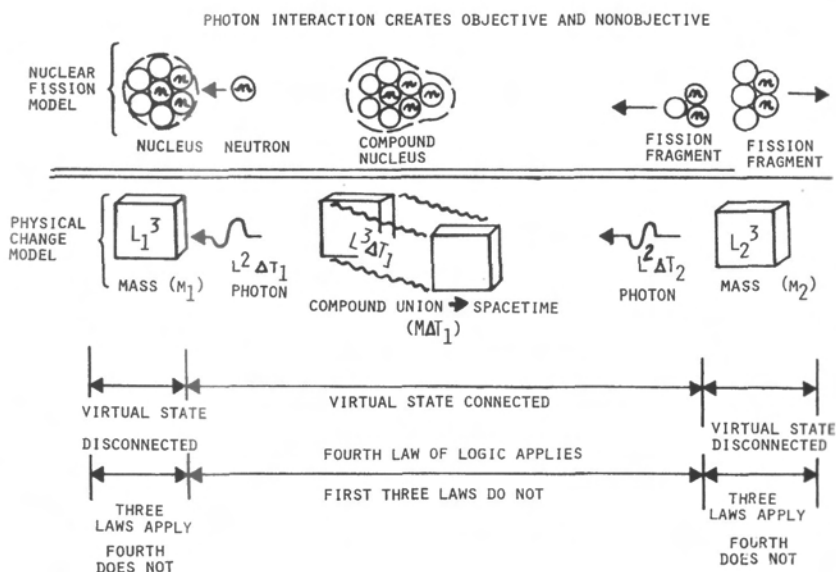


Figure 34. Raindrop model of physical change.

Table 22. FLOW OF TIME

- PHOTON INTERACTION CONSTITUTES TIME CHANGE

$$\bullet \rightarrow \langle \text{NEGATIVE CHARGE} \rangle \rightarrow + \Delta T$$

$$\bullet \rightarrow \langle \text{POSITIVE CHARGE} \rangle \rightarrow - \Delta T$$

- CHARGE-PARITY-TIME [CPT]

$$\bullet \rightarrow \langle \theta \rangle \rightarrow + \Delta T \quad (\text{note: } \sim = \text{photon})$$

- UBIQUITOUS
- PREDOMINANT

- ANTIPHOTON IS A PHASE CONJUGATE REPLICA

Table 23. PHYSICAL CHANGE

- COMPOSED OF ACTION

- h = BASIC QUANTUM

- TWO CANONICAL VARIABLES

- ENERGY/TIME (dE/dt)
- MOMENTUM/LENGTH (p/L)
- ETC.

- ENERGY/TIME

- $h = (+E)(+t)$
- $h = (-E)(-t)$

Free Energy and Antigravity

Let's say the current flowing in the wire is alternating current at a frequency of one megahertz. Let's say we have one watt of power in the wire (there's one volt on it, and one ampere of flowing current). As a working rule-of-thumb for engineering use, the available absolute micropower in an alternating current in a wire can be taken as:

$$P_a = 40 \times f \times P_c \quad (4-10)$$

where P_a is the absolute power available, in watts; f is the frequency in Hertz; P_c is the conventional power available, in watts; and 40 is a constant of proportionality.

In our example, the absolute power actually available in the current is 40 million watts! We've got about 20 megawatts of positive power, and about 20 megawatts of negative power, in there — *in the microstructure of the electrical current itself--but disintegrated*

By applying unconventional scalar EM engineering techniques, we ought to be able to take such an "input" (a straight wire with one watt of power at a frequency of a megahertz) and get an "output" of up to 40 megawatts. It is relatively straightforward to get out 1 megawatt; such ratios have actually been achieved on the laboratory bench by my associates.

Of course we will have curved the local spacetime to do such a thing. But it is absolutely permitted to do that, by the laws of nature as best we know them from particle physics.

It is also possible to do that by Maxwell's original theory. And it has been proven in the laboratory.

Table 24. NEGATIVE ENERGY

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • CAN BE - GENERATED - TRANSMITTED - TRANSFORMED - RECTIFIED - RADIATED - TRANSLATED | <ul style="list-style-type: none"> • EASILY POWERS - AC MOTORS - DC MOTORS - LAMPS - TRANSFORMERS - RECTIFIERS • CIRCUITS STAY COOL |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

In scalar electromagnetics, we deliberately seek to produce such effects and systems by nonclassical application and extension of the modern conservation law CPT. And we include negative energy/negative time production in those systems and effects.

Here's the extended magic rule: First we write down the expression **CPTEGS**.

In this expression, C stands for charge, P stands for (space) parity, T stands for time, E stands for energy, G stands for gravity,

and S stands for entropy.

We are referring here to the algebraic sign of each term, and to a complete photon interaction (absorption and re-radiation) with a charged particle inside an atom of matter. Specifically, we are referring to the result, after the reaction has occurred.

Normally the photon interacts with one of the electrons in the atom's outer shell. This interaction with the negative electron charge *produces* the "normal" physical world/physical reality we see around us. In the interaction, normal parity is produced, and normal gravitation (attraction of mass) is produced. Also, in a series of such interactions, the normal entropy (movement from order to disorder) is experienced and produced.

So in the expression CPTEGS normally the charge term is negative, and every other term is positive, for the complete photon interaction in an atom.

Now here is the magic engineering rule: In the complete photon interaction with a charged particle in an atom, if one of these terms is reversed in algebraic sign, all the others will be reversed also.

For example, if the photon interacts with the positively charged nucleus, then parity is reversed, the bit of time-advance is reversed, a negative/time-reversed photon is emitted, a tiny bit of antigravity is produced in the nucleus, and negentropy is produced. By negentropy, we mean that the emitted photon exhibits the strange characteristics of time reversal, and hence it will return from disorder to order.

This rule is actually a statement of phase conjugation and time reversed waves, as we shall see later.

For example, using the rule, the production of antigravity is straightforward. Simply produce a great excess of negative energy and negative time in an object or generator by scalar photon interaction with the nucleus, at a sufficient rate.

In negative time, gravitational force is reversed. Thus in negative time gravity is a repulsion, not an attraction. Production of excess negative time in the atomic nuclei of a system produces antigravity in that system. Period.*

*At 100 Hz about 500 negative watts/lb is required for flotation. At 1 GHz, the effect is so weak it cannot be measured, and no amount of power will float the mirror.

Let me amplify that statement. There are two kinds of energy, negative and positive. Normally, everyone thinks only of positive energy.

Take Einstein's formula for the amount of energy that's "bottled up" and stored in mass:

$$E = mc^2 \quad (4-11)$$

That's positive energy and positive mass. It automatically implies that we are looking at things where time is forward-going.

Now suppose we "charge up" that mass with negative energy: Then the mass is negative, like this:

$$-E = (-m)c^2 \quad (4-12)$$

And negative mass is repelled by positive mass. (Like mass G-charges attract, unlike mass G-charges repel.)

That's all there is to it! Simply charge up the protons/neutrons of the atomic nuclei of a mass with excess phase conjugate (negative) energy/time, and it exhibits antigravity compared to the earth. Nothing could be simpler.

Again, it's been done in the laboratory by an associate.

So, with respect to a negative energy/negative time generator, you just add more load and draw more negative power from the machine, forcing it to produce more. It produces more negative time, and hence more antigravity and more "repulsion." When the repulsion balances the earth's attraction, the system "floats in air." Draw still more power by adding still more load, and it accelerates upward. Draw less power by decreasing the load, and it sinks downward again. That's all there is to it.

We should have been working upon this, shortly after the U.S. Civil War.

Again, there exist two completely different kinds of electromagnetic energy: positive and negative. These have been totally and hopelessly confused by modern physics, even though physicists sometimes use these terms.

But in dealing with CPTEGS in the photon interaction in an

atom, we must clearly keep in mind what kind of energy we are dealing with.

The basic engineering rules are these: (1) If any one of the factors - C, P, T, E, G, or S — is reversed, all the others are reversed. (2) If positive charge is involved in the photon interaction, then time (carried by the emitted photon) is negative and so is the energy carried by it. (3) The simplest scalar EM wave may be considered as two EM waves locked together (modulating each other), where one component wave carries positive energy and time and the other component wave carries negative energy and time. (4) Separation of the two components by interaction with charged particles creates both positive and negative time and energy. (5) If the interacting particle is negatively charged, the positive energy/positive time component will interact with it. (6) If the interacting particle is positively charged, the negative energy/negative time component will interact with it. (7) The interacting particle phase conjugates (time reverses) the component with which it interacts. (8) The primary interaction with negative electron shells of atoms yields positive energy and positive time: constituting ordinary physical reality as we observe it. (9) The secondary interaction with the positive atomic nucleus produces phase conjugated (time-reversed) physical reality. (10) Secondary interaction (nuclear phase conjugation) normally produces Newton's third law of motion. (11) In Newton's third law, the reaction force need not be equal, and need not be antiparallel. Note, however, in such case local spacetime is curved. (12) The present law of entropy is only the positive-time half; the other (negative time) half is the negentropy law.

Phase Conjugation (Time Reversal)

It is a most remarkable fact that Soviet radar engineers and radar scientists are also trained in optics. While this seems little short of astonishing by Western standards, the Soviets have an exceedingly good reason: As a matter of course, most Soviet radar systems are also operable in, or associated with another system that is operable in, a time-reversed (phase conjugate) mode.

In this mode the radar and/or its associated system is also an

extremely powerful directed energy weapon, having capabilities undreamed of in the West.

A phase-conjugate (time-reversed) wave actually is a wave that travels backward through time.* That is, it is capable of precisely retracing the path through space, taken by another wave that traveled that path to a nonlinear mirror, stimulating the reflection of the time-reversed wave.

Further, in retracing its invisible path through space, the phase conjugate replica wave does not diverge as do normal waves. Instead, it continually converges upon its invisible trace.

Consequently all its energy arrives back at the distant source that emitted the stimulus wave originally. This was Tesla's original secret of his "wireless transmission of energy at a distance with no losses."**

It can easily be shown, however, that the phase conjugate wave is a legitimate solution to the wave equation. Hence it is a general property of all types of waves: sound, magnetohydrodynamic, etc. It is not confined just to the optical band.

Obviously such a startlingly different wave has phenomenal uses. Literally it ushers in a new physics.

Let us turn now to look at this strange wave that has emerged on our scientific horizon.

In the late 1960's, Soviet researchers cautiously pointed out the possibility of a time-reversed wave. Papers appeared in the open Soviet scientific literature, and shortly thereafter U.S. physicists began to read about it.

In 1972, Soviet scientists visited Lawrence Livermore Laboratory and specifically briefed U.S. scientists on the optical phase conjugation (OPC) phenomenon. Thereafter the effect became of increased interest to American scientists.

(Note, however, that phase conjugation (PC) is a major phenomenon of all physics. It is not confined merely to the optical spectrum, nor just to electromagnetic waves. Phase conjugation is a general phenomenon true of all waves, regardless of type. We will primarily discuss OPC, since most Western experimentation has

*The external positive-time observer sees this time reversal as length (space) reversal.

**The great electrician had actually discovered what today is known as phase conjugation or time reversal of EM waves.

been in the optics domain, and the literature is rich in that respect. However, we also point out that Western scientists have absolutely no inkling of the mechanism causing OPC. They have simply written a model for a time-reversed wave by taking the equation of a normal wave and writing the conjugation (adding an asterisk exponent) to the appropriate term, and pointed out that this new equation also satisfies Maxwell's wave equation. They also do not clearly recognize that an EM wave carries time and energy, and that a time-reversed EM wave carries negative energy and negative time. Further, they do not at all comprehend the startling implications for generating gravitational fields, including antigravity and inertial effects, directly on the laboratory bench.)

In optical phase conjugation, when an input EM wave (ordinary) enters a nonlinear medium, the medium "reflects" or produces a strange, time-reversed EM wave in response.

Figure (35a) shows the effect. In the figure, E_1 is the normal input wave, entering a distorting, nonlinear medium (the "blob") as shown. Wave E_1 moves on through the blob, emerging on the other side and continuing, though now in distorted form.

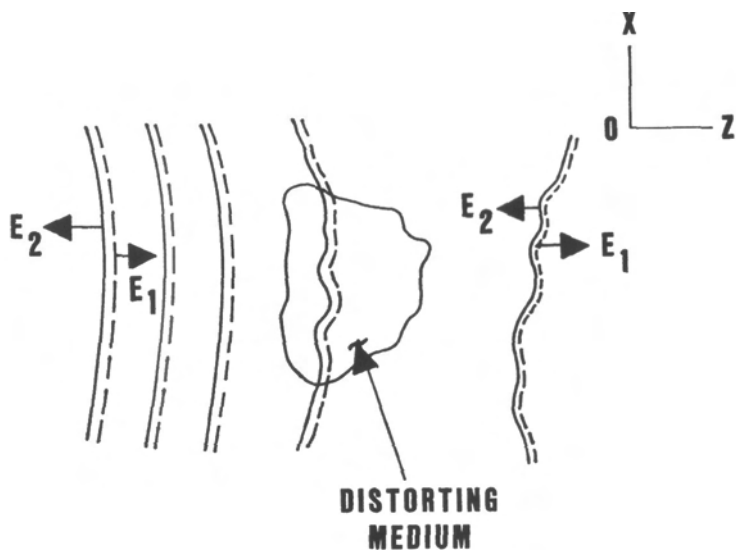
The medium produces a second wave, E_2 , which precisely retraces the steps of E_1 . That is, everywhere E_1 is, E_2 now appears. The phases of the E_2 wave are precisely reversed from those of E_1 . The only difference in the two waves is that wave E_1 carries positive time and positive energy, while wave E_2 carries negative time and negative energy.

(U.S. physicists are well aware of everything in the above statement except for the negative energy portion.) The historical background of the phase conjugate wave is given in Table 25.

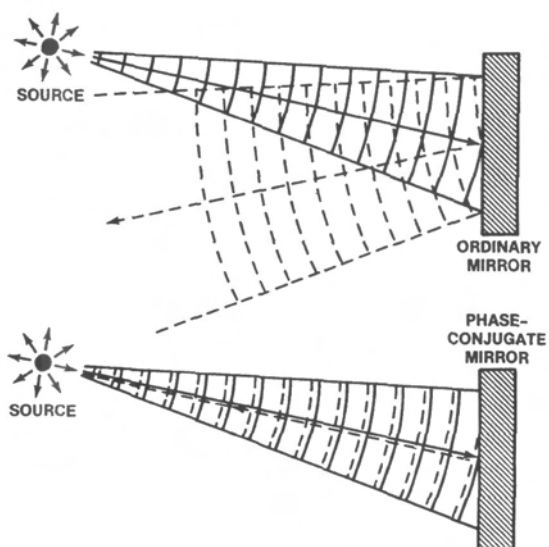
(We strongly stress that the West did not discover the time-reversed wave; the Soviets did. At the time (late 1960's) this appeared in the open Soviet literature, the Soviets had already been using it for about two decades in their giant energetics (scalar electromagnetics) weapons development program.)

However, to return.

The time-reversed wave is called the phase conjugate replica of wave E_1 . The overall characteristics of the phase conjugate replica E_2 are summarized in Table 26.



a. Phase conjugation by a nonlinear, distorting medium.



b. Ordinary mirror reflection versus phase conjugate mirror reflection.

Figure 35. Phase conjugate reflection of a time-reversed wave.

Table 28. PHASE CONJUGATE WAVES

- NONLINEAR OPTICS TRANSIENTS
 - DISCOVERED BY SOVIETS
 - LATE 60s- EARLY 70s
- **PRESENTLY** "HOT ITEM"
- INITIALLY THOUGHT RARE
- NOW KNOWN WIDESPREAD
- THIRD POWER OF E-FIELD
- **STILL** MUCH UNEXPLORED

Table 26. PHASE CONJUGATE REPLICA

- TIME-REVERSED
- CARRIES NEGATIVE TIME
- CARRIES NEGATIVE ENERGY
- "HEALING" PROPERTY
- DISTORTION CORRECTION
- **FROM** DISORDER TO ORDER
- **MAY** DWARF INPUT WAVE

Table 27. DISTORTION CORRECTION THEOREM

"If a scalar wave $E_1(r)$ propagates from left to right through an arbitrary but lossless dielectric medium, and if we generate in some region of space [say near $z=0$] its phase conjugate replica $E_2(r)$, then E_2 will propagate backward from right to left through the dielectric medium, remaining everywhere the phase conjugate of E_1 ."

We point out here that the basic nonlinearity (nonlinear medium) in spacetime is a single particle of mass. In a photon interaction with that particle of mass, the interacting (input) photon (positive energy, positive time) causes the generation and emission of a phase-conjugated (time-reversed) photon. This time-reversed photon provides the precise mechanism for generating Newton's third law: **For every action there is an opposite and equal reaction.** This will be covered later.

But back to our nonlinear medium, and the two waves E_1 and E_2 . E_1 and E_2 are "locked together" as a scalar EM wave unless something else is specially done to separate them. That is because the nonlinear medium is a *modulator*, and the two waves modulate each other (lock together as a single wave).

(We interrupt again to strongly point out this fact: This directly shows that all EM waves in vacuum exist as scalar EM waves, not as the so-called Maxwell-Hertz transverse waves of conventional theory. Nikola Tesla, the greatest electrical scientist the world ever produced, always adamantly insisted that EM waves were "sound" type waves, not "transverse" waves. For one thing, the vacuum-medium would have to be a solid to produce transverse waves! Tesla even visited Hertz in Europe and tried to convince him of the error of his so-called "proof of transverse EM waves." Tesla found Hertz, adamant on the subject, however, and returned without changing Hertz's mind. Ironically, Tesla was right and all the textbooks in **the** Western world have been consistently in error as to the nature of the EM wave in vacuum.)

We simply state here that, for a single-frequency EM sine wave in vacuum, a "full photon" of that wave in vacuum is actually a *single sine-wave oscillation*. The positive (positive energy, positive time) half of that sine wave is the same thing as a virtual electron (negative charge). The negative (negative energy, negative time) half of that sine wave is the same thing as a virtual positron — a virtual **electron** travelling backwards in time, or "time-reversed", which we detect as length-reversed and charge-reversed.

Further the vacuum — including the vacuum inside each relatively empty "mass structure" such as an atom or molecule — is **a** seething inferno of activity of virtual particle fluxes. It is upon that

medium that all physical reality and physical changes are im-pressed. Thus there is nothing static in the world; what actually exists is *switching of virtual particle fluxes*. What we call a "static thing" is only an equilibrium in this switching activity. And, once switched on, any stream continues until switched off or switched to change it.

For that reason, the full photon has always contained twice as much absolute energy as is provided by the presently used equation

$$E = hf \quad (4-13)$$

Where E is energy, h is Planck's constant, and f is frequency.

One half the photon carries negative energy and negative time, while the other half carries positive energy and positive time. In the full photon interaction, one half of the photon interacts and "switches off" the stream. Thus the photon interaction makes a single change of action, energy x time, both switching on the beginning of the quantum change and switching off the ending of it.

The full photon in vacuum is, and has always been, a scalar EM photon. It rigorously is the presently accepted photon plus its directly "hooked on" and accompanying phase conjugated replica photon.

That is, in terms of the present physical view, the scalar electromagnetics view of a full photon in vacuum is that it consists of a photon and its antiphoton, directly combined in serial fashion. Further, this antiphoton part is not identical to the photon, since it is time- and energy-reversed.

The present physics makes no distinction between the two types of photons, hence makes no distinction between positive and negative photon energy. It also still considers "static" things to independently exist. It does not pursue the fact that all things appearing "static" are equilibrium states in nearly unbelievably intense virtual particle streams. Since it does not pursue that fact, it does not build a "switching" model for quantum change, nor does it arrive at a method of directly engineering these "switching" operations.

For that reason, present physics has totally missed local general relativity and the engineering of spacetime curvature by electrogravitational methods, as was contained in

Maxwell's original theory.

For the same reason, present Western physics has not worked out the basic mechanism that produces phase conjugation, and it has not realized that all conservation laws can be locally violated with the new methods — methods actually hailing back to Maxwell's original theory!

Now returning again to our nonlinear medium and waves E_1 and E_2 :

It is possible to separate (demodulate) wave E_2 from wave E_1 . In that case, E_1 is an ordinary EM wave, carrying positive energy and positive time. E_2 is a phase conjugate replica, carrying negative energy and negative time.

Irradiation of an atom in a new sample of material with a normal EM wave such as E_1 , just provides the normal photon interaction with the electron shells. That is, the electron part of the full photon adds to the orbital electron's energy state in positive time, raising the orbital electron to an "excited state." (Remember, this has switched on a continuous process of "keep raising the energy level of the electron" in positive time.) The "state-increasing" orbital electron then interacts with the second, positron-part of the full photon, which switches off the increasing, leaving the electron in its "static excited state." Simply put, one half of the full photon turns on an uplifting spray, and the second half of the full photon turns off the uplifting spray, leaving the electron in equilibrium state at a new level.*

Thus in orthodox physics we have taken the view that an electron in a shell absorbs a "photon" from the incident wave, taking extra energy and being raised into an excited energy state.

In the orthodox view, the excited-state electron then decays to release another ordinary photon (since it comes from a negative charge).

What actually happened was that, when the "full photon" of the incident wave is absorbed by the orbital electron, increase of the electron energy is switched on, then switched off, leaving the elec

*We state here a magnificent principle without proof. When one furnishes (inputs) electrical power to a system, all the "input work" is expended purely upon switching fields by fighting against them in brute-force fashion. E.g., electrical power furnished to an electric motor does **not** run the motor, but only continually wrestles the internal fields to switch them. Obviously, to build an over-unity device, one must get it to switch its own fields, at least a significant fraction of the time.

tron in equilibrium at a new energy level.

What happened in the middle was phase conjugation. In absorbing the first half of the incident full photon, the electron acted as a phase conjugate mirror (we will explain that term shortly). It emitted a forward-travelling phase conjugate replica (PCR) of that first photon half, and this conjugate replica entered the nucleus, where it is absorbed to cause the Newtonian reaction force. Note that this PCR emission by the electron does not generate recoil in the electron-PCM, as is well known in OPC theory and experiment.

The same type of phase conjugation happened when the state-increasing electron absorbed the second half of the incident full photon. It phase conjugated again, sending this half to the nucleus to accompany the former PCR half. In the nucleus, this second half switches off the increase in excited state of the nucleus that was engendered by absorption of the first half.

The photon interaction is a process for switching on and off a continuous rate of action increase or decrease.

At the conclusion of the full photon absorption, both the orbital electron and the nucleus are in excited states. The nucleus has increased its gravitational mass.

Then the situation precisely reverses. Both nucleus and electron decay, again emitting full photons and again phase conjugating.

The PCR photon emitted by the nucleus reduces the positive mass of the nucleus. The PCR photon emitted by the electron is reversed from the electron's absorption record, reducing the negative charge's energy state, and the electron is said to "decay" from its excited state. The PCR photon emitted by the electron now (to the observer) will appear to carry positive time and positive energy.

(In passing, we point out that, actually, the situation is far more complicated. Both the electron and the positively charged nucleus are enmeshed in continuous streams of virtual particle flux, including intense streams of virtual photons. One must go to n-wave mixing, where n is greater than 4, to fully understand the total reaction. The main points are, the Newtonian reaction forces within the atom are generated by phase conjugation, the photon emitted by the decay of an excited state electron will normally carry what we call positive energy and positive time, and the photon emitted by the decay of an excited state positive charge will normally carry what we

call negative energy and negative time. Full coverage of these interactions is beyond the scope of this book, and must wait for another effort in the future.).

Now once again we return to our simplified model of phase conjugation, and waves E_1 and E_2 in our nonlinear, modulating medium!

As we stated, we can engineer the situation so that the phase conjugate replica E_2 can be separated from E_1 . A separated E_2 , however, is a quite different breed of cat. It is a phase conjugate wave, carrying negative energy and negative time.

E_2 is a magic wave indeed!

Irradiation of the nucleus of an atom in a new sample of material with a phase conjugate replica such as E_2 causes the nucleus of the atom to interact in reverse of its normal interaction.* That is, one of the positive charges in the nucleus interacts with a photon resulting from wave E_2 , and goes into an excited "negative energy" state. That state, in decaying, emits an ordinary virtual photon which promptly interacts with a virtual positive charge in the nucleus, which decays to emit the virtual photon, which interacts with another positive charge in the nucleus, etc.

In other words, the negative energy of the absorbed antiphoton is captured by the nucleus, and the nucleus overall does not *immediately* decay to discharge the negative energy.

Instead, the nucleus acts as an accumulator or capacitance, charging up and then discharging far more slowly than the normal photon/electron interaction.

(For the purist, the nucleus does phase conjugate the input negative energy/negative time wave, and phase conjugates it again — upon an electron in the electron shells, through spin coupling. This second phase conjugate replica is now just a normal EM wave, and the electron exhibits a normal EM interaction. Thus **our** instruments (Which are electron wiggle detectors) detect a normal

*Irradiation of the nucleus with a PCR wave is easily accomplished by using ordinary magnetic resonance, and modulating the PCR wave upon the magnetic carrier, as Antoine Priore did.

EM wave detection and do not discriminate between photon and antiphoton halves of a full photon. For that reason, scientists have not clearly noticed the difference between positive and negative energy, and between photons and antiphotons. They have also not resolved the basic conflict between the particle and wave theories of electromagnetics. *Note that the full photon concept, where the full photon is a normal photon and phase conjugate replica of that photon hooked together into a single sine wave, resolves the long-standing wave-particle controversy.)*

In most of their instruments, present scientists are detecting a secondary normal EM wave for the phase conjugate replica interaction, since the phase conjugate interactions in the instrument are not sorted out, and since the instruments measure only one kind of PCR, that emitted by a negatively charged electron. Hence scientists think the antiphoton has positive energy, and interpret it in positive time. Consequently they tend to accent that the wave is "phase-reversed," and not accent the negative time/negative energy implications since they have not clearly sorted them out.

Let us return to our consideration of the irradiation of the nucleus of an atom (with an incident E_2 phase conjugate replica wave carrying negative energy and negative time, with respect to our electron-wiggle-detecting observer).

As irradiation continues, the actual "structured charge pattern" existing on the incident E_2 waves slowly charges up the nucleus of the atom with that exact charge structure, in the negative energy/negative time state.

We shall find that most interesting fact of great utility when we later discuss the mind, thought, cellular control systems, and generating a specific electromagnetic phase conjugation pattern to reverse cellular disease.

We shall also find that it is of great interest in accomplishing antigravity when we use extremely low frequency PCR irradiation.

The Phase Conjugate Mirror

Any system which phase conjugates the input wave and returns a phase conjugate "reflection" is called a phase conjugate mirror, or PCM for short.

But the phase conjugate mirror has some very unique properties, as can be seen in figure 35b.

For example, if you look in a *normal* mirror, you see your own reflection. You see your shoes and legs, for example. Light from your shoe scatters across the mirror, and it hits one spot on the mirror which reflects it at the proper angle to strike your eye.

But that simply doesn't happen with a *phase conjugate* mirror! If you were looking into a phase conjugate mirror (PCM), the light that left your shoe and scattered across the mirror would be reflected right back to the shoe, since it would retrace the path taken by the previous light striking all across the PC mirror from the shoe. So all you would be able to see would be two black dots: the retinas of your eyes. Light reflecting off them and striking the PCM would be reflected back to the source — the retinas — so you could see that light and that light only.

This path reversal is most important to keep in mind. With a phase conjugate signal, you are not functioning with an ordinary signal. Further, it has a "precursor" path taken by the incident wave that stimulated its emission from the PCM. Unless interfered with, the PCR will trace back down the invisible vacuum trace of that incident wave, or back down its wave path, like electricity goes down a wire.

This, by the way, is the secret of Tesla's wireless transmission of energy at a distance with no losses.

When broadcast into space, a normal EM wave (positive time, positive energy) diverges or scatters from its path.

Precisely the opposite happens with a PCR wave. When broadcast (reflected) into space, the PCR wave continually converges back upon the invisible trace taken by its incident stimulus precursor. Thus all the PCR energy is continually converging upon an invisible beam or "wire" through the vacuum, back to the source of the original incident wave.*

If the PCR wave is highly amplified (and means to do this are now well-known), then large amounts of EM energy can be precisely

*One can effectively move the entire imprinted vacuum path, however, by adding an additional input vector wave computed so that the **resultant** input would have come from the desired shifted distant point. In this way the PCR can be steered in space to lead and intercept a distant moving target.

returned to distant points from which a stimulus wave of any kind is received.

If a micro-microwatt is received from a point thousands of miles distant, then a gigawatt can readily be returned precisely to that distant point.

This was Tesla's magic secret. The great electrician had discovered phase conjugation, though he did not use that term. He did, however, point out that he could create an invisible wire through space to a distant point, and could send any amount of energy to that distant point without any scattering losses along the way.

He also accomplished the same thing with sound waves and mechanical waves. He pointed out that he could produce an undiminished physical (mechanical) effect at any distant point, and could eventually split the earth if he added power long enough.

Tesla had given the principles of radar in World War I! He later even spoke of his "big eye that can see at a distance." Here he was probably referring to stimulating the emission of a PCR return from that target. The PCR would automatically correct for the distortion in the intervening medium, and fairly sharp pictures of the distant scene — without showing the size dispersion of distance — could probably be obtained. Note that a non-scattering signal to a distant observer does not make him suffer any loss in field or apparent size and detail of the scanned object, which can be recovered to any resolution, limited only by the state of the art of the physical realization technology.

The implications for far greater resolution microscopy — far beyond the present limitation to about 4,500 — should be immediately obvious. The implications of such a microscope - that can see directly inside atomic nuclei; photograph nuclei and fundamental particles directly; see living viruses, molecules, and atoms directly; and theoretically see even into the virtual state itself — should be immediately obvious.

In discovering phase conjugation, the Soviet Union was attempting to break Tesla's secret of wireless transmission of energy without losses, and the Soviet scientists did so by about 1950. They highly weaponized the effects of phase conjugation, phase conjugate mirrors, and amplified phase conjugate mirrors, both in radar waves,

mechanical waves, and sound waves, for nearly two decades. Then the Soviets cautiously stimulated the open literature with a limited paper on optical phase conjugation, to ascertain whether or not we realized the severe weapon implications of time-reversed waves, their production and use, and their amplification.

So phase conjugate mirrors can do very useful things. For example, look again at figure 35a. Suppose we are trying to photograph something on the other side of the distorting medium, say through a distorting gas, such as a turbulent atmosphere. In that case E_1 on the left is, say, light coming from an object on the left and passing through that distorting medium. If we just used ordinary waves in a camera on the right, we would see a very distorted wavefront, as represented by the distorted E_1 .

However, if we illuminate the object by sending a wave through the distorting medium, and detect the *phase conjugate* signal that returns, it will have reversed the distortion when it gets to us, and we will get a clear picture. A very nice photo of just this process is contained in David M. Pepper, "Applications of Optical Phase Conjugation," **Scientific American**, 254 (1), Jan. 1986, p. 75.

Phase conjugation has many more uses than we have covered in this brief paper, of course, but this is an important use: the removal of distortion effects from optical systems.

It would, however, be nice to be able to amplify the effect. And so we can.

Amplifying the Phase Conjugate Effect

Let's look now at figure 36, where we will develop how to amplify the phase conjugate replica.

Be careful to notice that we are changing subscripts on you. By convention, optical scientists use A_1 and A_2 as two additional waves, called the *pump waves*, that are used to stress the nonlinear medium, and input signal wave A_4 . Wave A_3 then is the stimulated PCM output, or the phase conjugate replica (PCR) wave.

In this figure we show a scheme for amplifying the phase conjugate signal that is generated and returned by the phase conjugate mirror (PCM).

We do this by adding two opposing waves of the same frequency

(in this simplified case). These are the two "pump waves", and impressing them upon the PCM is called "pumping" the PCM.

Actually, in producing the pump wave, we are adding two input waves of the same frequency, 180 degrees out of phase with each other. Since the nonlinear medium is a *modulating* medium, the waves are forced to modulate each other and "lock together" as a *single scalar* EM wave of most interesting characteristics. Indeed, its E fields sum to a zero resultant vectorially, and its B-fields sum to B zero resultant vectorially. However, the scalar parts remain and are multiplied together, as in the original Maxwell quaternion theory. Since the magnitudes of the vector components in the scalar summation (quaternion multiplication, since we are addressing modulation) are varying, then the magnitude of the remaining scalar part is varying. We have therefore produced a standing scalar wave in the nonlinear material medium, having zero vector EM gradient components. We have produced a purely scalar EM wave of pure potential — and this is an electrogravitational wave, rigorously, since it represents a time oscillation of the local energy density (local virtual particle flux density) of vacuum. This scalar EM wave passes through the electron shells and enters the nuclei, where it is phase decoupled by the extreme nonlinearity of the violent virtual particle currents of the nucleus. Its energy is then absorbed by the nucleus, raising it to an excited pseudopotential. This potential decays, returning the scalar EM stress wave into the local vacuum and area. We are now pumping the atomic nuclei of the nonlinear PCM material with our two pump waves, and we have created an oscillating local gravitational field around the PCM.

This increased nuclear G-potential, looked at in Kaluza-Klein theory, is a 5-space potential. It is ready to burst out in the 5th dimension (as electromagnetic bleedoff) at the slightest provocation. That provocation is the entrance and absorption of the input signal wave, E_4 . Note that E_4 acts as an "initiator" (or a pinprick into a highly inflated balloon, if you will) on the built-up, excited 5-dimensional gravitational pseudopotential of the nuclei. The moment so initiated, the entire 5-space G-pseudopotential collapses, emitting a time-reversed phase conjugate replica (PCR) of E_4 . This

emitted, highly amplified PCR is labelled E_3 . It now "backtracks" down the invisible trace through space taken by the incident stimulus wave E_4 , returning to the distant source that originally emitted

Voila! Tesla's wireless transmission of energy to a distant point without losses. *Voila!* The Soviet Launch Phase ABM system and the Soviet Launch Phase Anti-Bomber System, when used in conjunction with an over-the-horizon radar (such as the giant Wood-

Table 28. FOUR-WAVE MIXING

- **NONLINEAR MEDIUM**
- **OPPOSING PUMP WAVES**
 - **CROSS MODULATION**
 - **SCALAR WAVE**
 - **INTO NUCLEI**
- **TRANSMISSION WAVE**
- **REFLECTION WAVE**
- **REFLECTION GAIN**

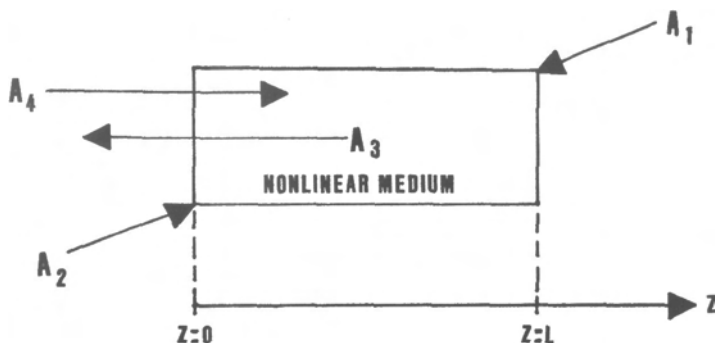
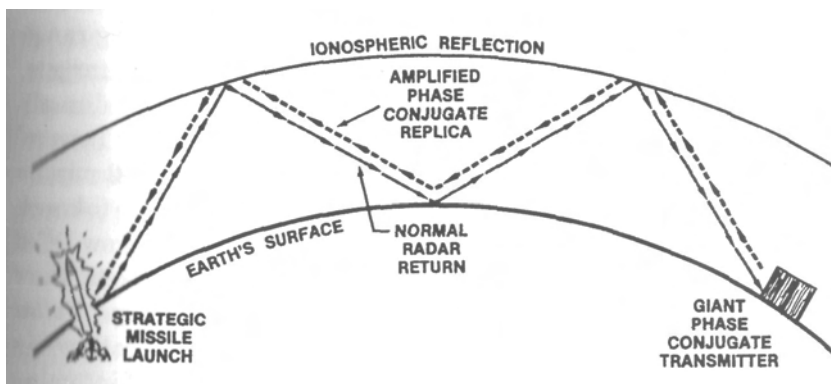
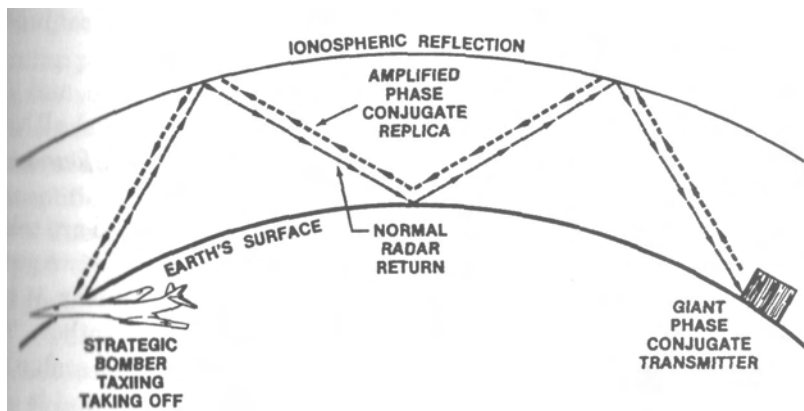


Figure 36. Phase conjugation by four-wave mixing.



a. Soviet Launch-phase and midcourse ABM system.



b. Soviet launch-phase and midcourse anti-bomber system.

Figure 37. Soviet launch-phase and midcourse strategic defense system.

peckers) to provide a reflection signal from a distant target. *Voila!* The true use of Soviet Stand-Off-Jammers to knock out enemy antiaircraft, air control, and anti-tactical missile radars wholesale. *Voila!* The Intermediate Phase ABM system, where a long range strategic radar is used to provide reflections from incoming targets. "Fire and fire again!" is the rule, and 100% defense is directly achievable. *Voila!* How the Soviets knocked down Gary Powers' high-flying U-2 reconnaissance aircraft. *Voila!* How SA-2 missile system radars were temporarily modified in North Vietnam to knock down several hot new F-111 aircraft. *Voila!* How the Arrow DC-8 aircraft, Titan missiles, Delta rocket, and Ariane rockets were "electromagnetically surged" from inside to destroy them. *Voila!* Why the Soviets almost never throw away old radars, since they can now add PCMs and make them formidable destroyers of incoming targets. *Voila!* How one solves the ABM problems of discrimination and weapon kill; simply pulse-fire everything — nuclear material explodes in a full nuclear explosion when struck with potential pulses of sufficient magnitude and duration.

Summarizing figure 36 and amplification of the phase conjugate replica:

When we consider the addition of the input wave and the resulting phase conjugate wave that will be produced, we shall have a total of four waves. Thus this particular process is called four-wave *mixing*.*

On the diagram in Figure 39, A_1 and A_2 by convention are taken to be the two opposing EM pump waves. Notice that these two pump waves stress the medium. Since the medium is nonlinear, it is a modulator. Hence the two pump waves modulate each other. The two waves thus lock together into a scalar EM wave. This scalar EM wave is an oscillating artificial scalar EM stress wave, and it goes directly into the atomic nuclei of the medium and pumps the nuclei themselves.

The atomic nuclei are now rhythmically stressed with the oscillating scalar wave.

*Probably the best single introduction to optical phase conjugation in the English language is David M. Pepper, "Nonlinear optical phase conjugation," **Optical Engineering**, 21(2), Mar./Apr. 1982, p. 156-183. Especially read Pepper's footnote on p. 166.

We now input a weak signal (wave A_4) into the "pumped nuclei" medium.

By our CPTEGS rule, the positively- charged nuclei generate a negative energy/negative time wave—in short, a phase conjugate replica wave. Further, it is a highly amplified PCR, and may contain as much raw energy as was fed into the pumped mirror by our pump waves. This "seeker wave" or "electromagnetic missile" wave then sets out on its invisible path through space, seeking a distant "A₄ source point" and delivering all its energy intact to that point.

The Phase Conjugate Mirror as a Vacuum Triode

The pumped phase conjugate mirror (four wave mixing) can best be understood as a special kind of vacuum triode.

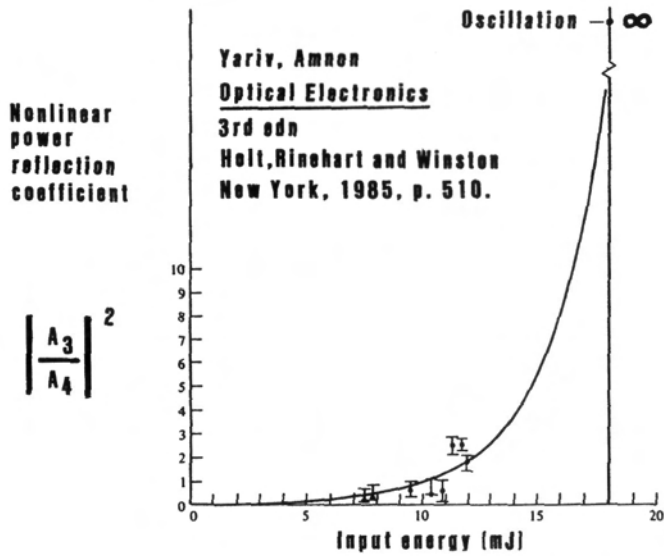
The pumped artificial potential on the atomic nucleus provides a powerful cathode in positive time, and a powerful plate as well in negative or reversed time. The electron shields, in their spin coupling to the nucleus, act as a grid in positive time. The input signal A_4 itself acts as a relatively weak signal onto the grid of the triode.

The positive charge difference in potential between the powerful pump potential of the nucleus (cathode, in forward time) acts as the plate voltage. The decrease of this potential when discharging (increase of the negative time, negative aspect) acts as the production of a plate signal to the negative time operation (production of the amplified, time-reversed PCR wave).

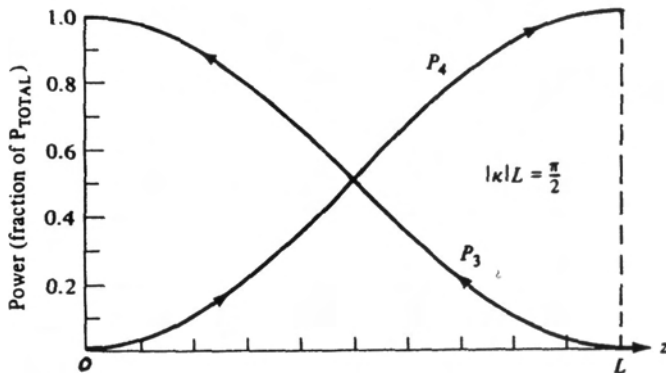
The excited nucleus immediately decays upon stimulus by the "grid signal" A_4 , emitting a "time- and energy-reversed" strong signal — in short, amplified phase conjugate replica wave E_3 .

The amplified phase conjugate signal moves from the cathode (nucleus) out to the electron shells and beyond, precisely because it is time-reversed. To a time-reversed signal, the grid (normal input) acts as the final plate (external output) — that is, in negative time, the elements of the triode are reversed. This makes it possible for the material to emit the powerful PCR.

I have called this effect/analogy a vacuum triode, to accent the direct engineering possibilities. My associates have already engineered this effect to obtain enormous amplification of energy ("free energy") and practical anti-gravity, from solid-state devices, directly



a. Typical nonlinear power reflection coefficients.



b. Intensities for the oscillation condition.

Figure 38. Power reflection coefficients and oscillation.

on the laboratory bench.

The actual "amplitude gain" of the vacuum triode is the ratio of the amplitude of A_3 to the amplitude of A_4 . The square of the amplitude gain is proportional to the power gain; this entity is called the nonlinear power reflection coefficient.

Figure (38a) shows the typical nonlinear power reflection coefficient for a pumped phase conjugate mirror, as a function of the input energy and the depth of the material. As the input signal increases, the gain increases. The ultimate condition would be that the "free oscillation" condition is approached. This occurs when the angle between the input wave A_4 and the pump waves A_1 and A_2 is 90 degrees.

Figure (38b.) shows the oscillation condition and the fraction of the total pump power that is in the input wave A_4 and its output **phase** conjugate replica A_3 .

At the oscillation condition, an "infinite" gain exists at the correct depth in the medium. This means that essentially all the energy being fed into the pump waves A_1 and A_2 will now be emitted **in** the output wave A_3 . At that point, "saturation cutoff" of the triode output occurs, and it cannot output higher energy, since it has no more.

Notice that, at the oscillation condition, for the slightest output, the full power of the pump waves is fed into the phase conjugate replica. This powerful wave then retraces the path taken by the **original** input signal, unless something else is done to divert it.*

The interesting question then arises: Since we can have infinite **gain**, can we get a special oscillation condition so that the pump wave furnishes its own energy? In other words, can the pump wave "resonate" with the vacuum flux in such a fashion that it is self-pumping and self-perpetuating?

In at least three materials, the answer is yes. Such effects have **been** experimentally accomplished in special forms of barium titanate. See, for example, J. O. White et al, "Coherent oscillation by self-induced gratings in the photorefractive crystal BaTiO_3 ," **Appl. Phys. Lett.**, vol. 40, 1982. p. 450.

*Recall that the PCR can be steered by introducing a minute wave A_5 to vectorially sum with input A_4 . In that case, the effective input is the vector resultant of $(A_4 + A_5)$. The apparent distant source point and invisible vacuum path are shifted correspondingly.

Phase conjugation is a universal phenomenon. Theoretically it applies to any sort of wave: electromagnetic, scalar, sound, mechanical, etc. By using it, incredible new effects and an entirely new physics can be accomplished. It is a new and exciting field, little-known outside specialist circles, and still not well-understood. Most discoveries in the field are yet to be made.*

Newton's Third Law and the Full Law of Entropy

For example, the present author noticed that Newton's third law—for every action there is an opposite and equal reaction—is actually a result of phase conjugation. To explain that, we diverge a bit.

First, phase conjugation is also involved in the fact that a charged particle of mass is a little "dynamo" or engine.

Actually, a particle of mass is itself a "nonlinearity" in vacuum spacetime. When a photon (virtual or observable) strikes a particle of mass and is absorbed by it, it's the same as "interacting with a nonlinear medium."

In terms of virtual photons, the charged particle is continually bombarded with them, from the vacuum flux. The charged particle, being a "nonlinear medium", phase conjugates each input virtual photon, emitting a phase conjugate replica.

If it absorbs a normal virtual photon, it emits a "negative energy, negative time" phase conjugate replica.

If it absorbs a normal virtual photon, it emits a "negative energy, positive time" phase conjugate replica—just a normal virtual photon. Note that the particle of mass thus does not exist in time. Or, it exists equally in positive and negative time. Since we only observe particles, it follows that time is not normally an observable, as quantum mechanics has assumed.

The emission of a phase conjugate replica does not affect the momentum of the emitting PCM, as is well-known.

For an observable photon, the particle (nonlinear medium) absorbs the normal photon, which does not affect the energy and momentum of the PCM particle of mass.

If there is no other mass to accept the PCR, it just moves off.

*The U.S. may finally be waking up. SDI is now starting to study EM missiles "in the time domain" as opposed to frequency. See *Av. Wk. & Spurn Tech.*, Feb. 29, 1988, p. 56.

If there is another mass to accept the PCR, the PCR is absorbed and phase conjugated by it.

A charged particle in vacuum is continually bombarded by a flux of essentially "randomized" fluctuations. However, on the average these all "average out" to zero. Any particle is automatically in a very high vacuum potential, and is in a state of great agitation at all times, even if it's "at rest" with respect to ordinary observers. It's really "smeared all over the place," so to speak.

When we expose a charged particle to a *normal* potential, the interior virtual particle flux of that potential is disorganized. Hence the particle just "wiggles a bit more frantically," so to speak, randomly in every direction.

However, when we expose a charged particle to an *artificial* potential made by zero summed/multiplied EM force fields or waves, the particle wiggles more frantically in *organized directions*.*

This is just as true for virtual particles as it is for observable particles.

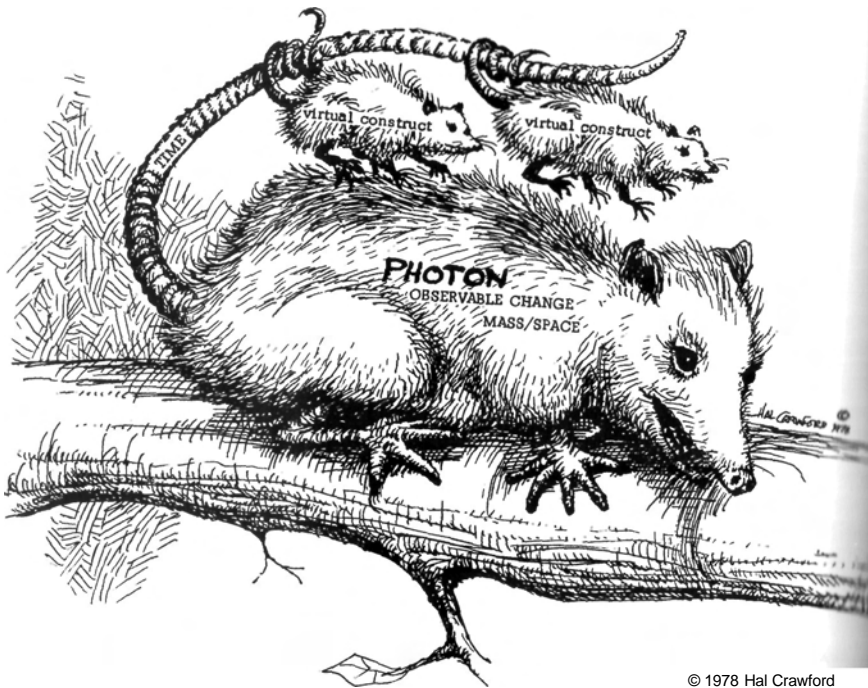
Thus the use of such artificial potentials in scalar electromagnetics enables us to overcome the disorder of the internal structure of normal electromagnetics. By this means, we can structure the vacuum, organize electricity and electromagnetic waves, accomplish negentropy, curve local spacetime in complex, deterministic fashions, produce free energy and antigravity, reorganize and transmute nuclei (transmute elements) with miniscule input energy, etc.

Rigorously, this means that the present law of entropy is only half of the full law of entropy. Specifically, it is the "positive time, positive energy" half of the law, and it states that in closed real physical systems, continuing operations of ordered "positive time, positive energy" effects tend to inevitable "disordered" effects produced in the apparatus or system.

In other words, the present law of entropy really states that no ordered system is totally closed. The system will inevitably have energy and actions that escape the system's order, and hence (to the system) this escape represents "loss of order" — or in short, disorder.

The present law of entropy specifically excludes (by implication)

* I.e., the electronic noise is partially organized. This is a major key toward building scalar EM detectors. It is also a primary cause of many solid-state circuit malfunctions. The exact principle: (Random changes) + (artificial potential) equals (chaos).



© 1978 Hal Crawford

Figure 39. Photons have virtual substructures. These may be statistical or deterministic.

negative time aspects, where external (disordered) energy time-reverses to again enter the ordered system, in perfect order. By implication, it also excludes negative energy production and operations.

However, **experimentally we can produce both negative energy and negative time, in deliberately time-reversed operations such as phase conjugation and with devices that serve as phase conjugate mirrors. Further, we can amplify the phase conjugation and disorder-to-order operations.**

Hence the present law of entropy is incomplete, and states only half the true possibilities. The other half of the law is the **law of negentropy**. In this law, disordered operations outside the **ordered** system undergo time-reversed (and possibly amplified) effects. These reordered energy effects — which may be highly amplified in

comparison to the disordered escaped energy—reenter the "ordered system", restoring order. Since this process moves in negative time, it goes from disorder to order. Hence it is negentropic.

Therefore we have solved the old thermodynamic problem of the "eventual decay of the universe into disorder." Not to worry; the other half of the full law of entropy prescribes negentropic operations in negative time/negative energy, and these restore the order of the universe. That takes care of the problem.

It also means that, in highly disordered systems of many degrees of freedom and far from thermodynamic equilibrium (that is, when the disorder law is saturated), then one can expect to see further stress "create" negative time and hence create order emerging and stabilizing from disorder.

And of course that is exactly what is seen. Ilya Prigogine was awarded the Nobel Prize in 1977 for writing a new thermodynamics predicting precisely such effects, and experiments have proved his case.

But to return to Newton's third law:

Newton abstracted his third law from the classical interaction between two colliding balls.

If one ball is at rest and another approaches it at some velocity, the approaching ball carries momentum and kinetic energy. As it "collides" with the resting mass, quantum mechanics tells us what actually happens: Particles of mass in the moving ball are producing virtual photons continually, and these virtual photons strike the particles of mass of the resting ball and are absorbed by it.

The resting mass now acquires extra energy and momentum from the absorbed photons. At the same time, it acts as a nonlinear medium. It produces phase conjugate replica virtual photons, and these time-reversed virtual photons are emitted. These photons produce no change in momentum or energy upon the emitting mass. However, being phase conjugates, they precisely follow back along the paths taken by the first or "stimulus" virtual photons, striking the moving ball. They are absorbed by that ball, producing (to the external observer) negative momentum and negative energy in it.

These subtract from the kinetic momentum and kinetic energy of the moving ball, reducing them.

The virtual photons emitted by the approaching ball perform positive work upon the target ball.

The virtual, phase conjugated photons, emitted in return by the mass of the struck ball as a PCM, reverse to strike the approaching ball to do negative work upon it.

Notice that twice as much absolute work is always done on the system of two balls as we "input" with the approaching ball.

Also notice that, if we directly "engineer" the phase conjugation of the struck system, we can directly tamper with, and drastically change, the production of the negative energy and negative momentum in the moving ball. Hence we can drastically alter Newton's third law. We can now make a Maxwell's Demon.

This alone clearly establishes that it is perfectly possible to build a so-called free energy device. Though subtle mechanisms must be used, it's nothing more spectacular than putting a paddle wheel in a river, and extracting shaft power from the wheel, furnished by the river's current. Phase conjugation yields other exciting possibilities

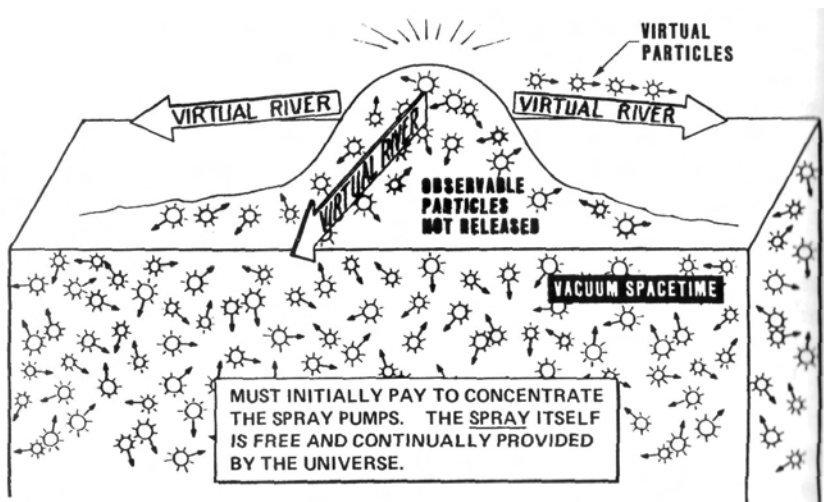


Figure 40. Once established, a virtual river is for free.

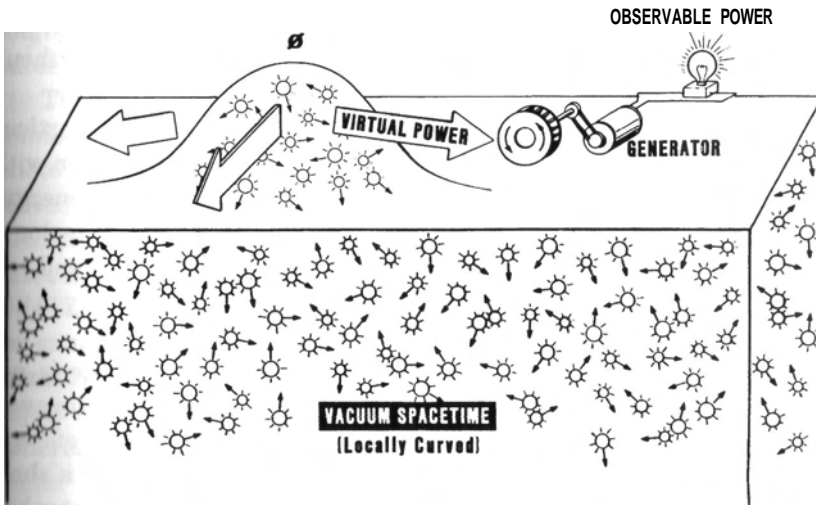


Figure 41. Local energy conservation can be violated.

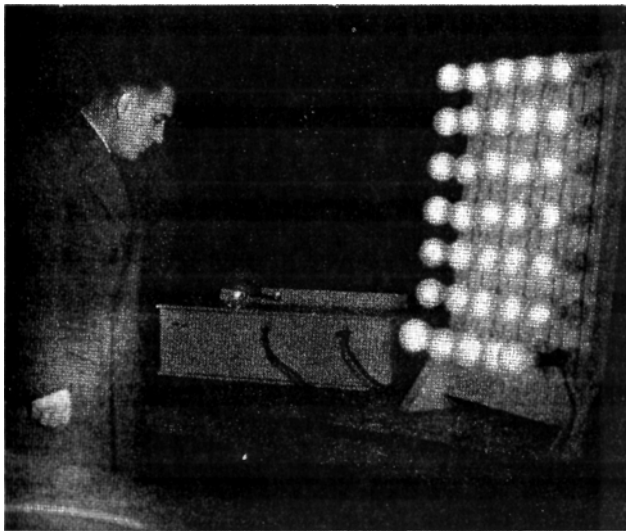


Figure 42. T.H. Moray adjusts the controls of his radiant energy device. Salt Lake City, Utah, in Feb. 1937. Moray obtained 50 kilowatts of power from a 55-lb. device, **straight** from the ether. Its characteristics (cool circuits, brilliantly lit lamps) reveal **that** It was negative energy.

too numerous to explore here. For just one example, by phase conjugation, real-time holography can be accomplished without having to separately make and illuminate the holograms.

Now with holography and multiple projectors — and particularly with two intersecting "normal" beams to backtrack upon with ever-converging PCR signals—you can assemble a "form of energy" at an appreciable distance from the projectors in three dimensional space. With phase conjugation, you can do it in real time. And you can do it at a great distance back along the path of any signal you use as an input.

By using PCM holography, degradation with distance is not appreciably experienced. After all, the PCR waves utilized are ever-converging. The energy does not diverge and spread. Therefore, if you can make a 6" diameter ball of intense EM energy at a short distance in the laboratory, you can make that same 6" diameter ball of intense energy at several thousand kilometers distance, using PCR real-time interference holography.

With highly amplified PCM's, you can put far more energy into the distant interference form than you can with normal holography. Conceivably it is possible to assemble so much energy in the holography "object" that it condenses into a real material object! In other words, it materializes or semi-materializes.

Both the "intense light form" usage and semi-materialization of forms (such as light forms, flying geometrical forms, etc.) have been created worldwide by the Soviets for decades, to stimulate UFO reports and provide a deception plan for their development and testing of large, strategic energetics weapons using highly amplified PCMs and PCR holography.*

Other bizarre considerations also arise. For example, in **radi-
onics** one utilizes a "witness"—such as a photograph—of the object one is attempting to send "energy" to. (For example, this might be a sickly plant one is attempting to spruce up). Now when the plant was photographed, the light from it struck the photoemulsion of the film, producing a photochemical reaction. It also produced phase

*For an example of highly reliable detection and observation of "Soviet holography UFOs," see Leif Havik, "Project Hessdalen," MUFON UFO Journal, Jan. 1988, p. 4-7. The present author certainly does not imply that all UFO phenomena are due to Soviet PCR holography, only that some UFO phenomena are.

conjugation in the atomic nuclei of the film emulsion, since the emulsion acts in some respects as a nonlinear medium.

There exists a continuous, invisible "stimulus photon and its connections" trace in time and space, between the plant when the photo was taken and that photo now, even if one or both of them have moved. That trace is highly persistent (as Australian experimenters Reid and Barsamian have shown). A phase conjugate (time-reversed) signal can be made to retrace that track and travel all the way back to the plant, in the present. The effect of using the photo (or sample of the object) as such a "witness" of the real plant and directing weak PCR energy back along the invisible trace into the object is called radionics. In most cases, the two cerebral hemispheres of the operator's brain are depended on to form the necessary scalar "pump wave" to pump the "witness" and produce phase conjugated signal energy, time-reversed to travel back into the distant object.*

The problem with present radionics is that it is far too weak, and it is "operator dependent", changing with the mood, temperament, and skill of the operator. It does objectively work, however, though often erratically. In countries such as England, France, and Germany, use of radionics to treat human disease is legal and permitted, though operators (for example, in England) must undergo extensive training and certification. Its results are roughly comparable to the results of normal medical doctors. Radionics does not replace orthodox medicine. It can successfully treat certain things that orthodox doctors have little or no success with (such as lupus), and orthodox medicine can successfully treat many things that radionics has little success with (a broken leg or ruptured appendix, for example). The two treatments are best used in conjunction with each other.

However, we must point out that a new, amplified PCM radionics is likely to emerge in the near future. Such a new approach will offer highly effective, powerful treatment of diseases, even at a distance, by amplified PCR electromagnetics. Again, the radiation in and from a photo or witness of a diseased patient can be used as a "grid signal" into a powerful, pumped phase conjugate mirror. The

*Again recall that we observe time-reversal of waves as **spatial path** reversal, not as time travel.

PCM will produce a specific, powerful, amplified signal that will travel directly to the patient, be absorbed in his entire system, including the atomic nuclei comprising his cells, and directly reverse the chemistry, toxins, and cellular damage in the patient from that disease. It will also kill or destroy the harmful viruses, bacteria, etc. causing the disease, and it can even reverse the actual genetic changes in the cell caused by disease-inducing viruses.

Ofcourse, any powerful tool is two-edged. It can be used for harm as well as good. I think the reader can appreciate the damage that can be done to systems and persons at a distance by means of such powerful new amplified PCM radionics devices.

You can also see the security problems posed to large computing facilities in banks, federal facilities, state and municipal facilities, the IRS, U.S. military weapon systems, ships, aircraft, etc.

Obviously such devices are going to have to be highly regulated and controlled. Else criminal operators will be killing people and destroying things wholesale, secretly and at a distance, and they will have perfect legal alibis to allow them to escape prosecution.

To summarize: if a photograph or witness pattern of an object or person can be correctly stimulated by phase conjugate electromagnetics so that the emulsion acts again as a PCM, can one not argue that—theoretically — phase conjugate energy from the photograph and the instrument can be sent back along all paths, all the way back to the original object? After all, this has been rigorously demonstrated by University of Sydney researchers. Is there not an actual physical mechanism for radionics? For highly amplified, powerful radionics where the operator himself is removed from the circuit? Just because it changes our present notion of physical reality, must we dogmatically reject the results being shown on the laboratory benches, some of which are in the hard-core scientific literature?

Phase conjugation and time-reversed engineering have a diversity of applications unparalleled in the history of science. They literally present us with a new physics. New rules apply.

Most of the major discoveries in phase conjugation have yet to be made.

Scalar Electromagnetics

The scalar electromagnetic approach modifies classical electromagnetics (EM) to include gravitational waves and effects.

To do this, scalar EM utilizes summed-zero vector forces and force fields to construct polarized vacuum potentials.

Although externally it has zero E and B vector gradients, an "artificial" potential possesses an internal, dynamic E and B vector field structure. This "infolded" (Bohm's term) structure has finite size and is deterministic. The infolded structure of the artificial potential in turn deterministically structures and polarizes the vacuum and curves spacetime locally, contrary to presently assumed limitations of general relativity.

Since in free vacuum a potential normally extends to infinity in a decaying exponential fashion, then this infolded E and B vector structure of an artificial potential extends to infinity in a decaying exponential fashion.

The artificial potential itself may be rhythmically varied either in structure, magnitude, frequency, or all of the above. This produces waves of potential, and waves of the structure of vacuum/spacetime — again, in the free vacuum case, reaching to infinity in a "decaying exponential" fashion. These "scalar EM waves" are gravitational waves.

Each photon (one major wave length of the "carrier", complete with modulations) of the scalar EM wave also has structure (its included modulations).

Modulated waves have compound or "giant" photons — photons containing infolded photons.

Each compound photon of such a scalar EM wave is a vacuum engine. It deliberately structures and patterns — dynamically — the energy density and charge of vacuum.

(1) By canonically varying two or more components of the electromagnetic vector structure of the zero-summed EM force vector system, the local structure of vacuum spacetime is macroscopically varied in its internal composition. This is the compound variation of "curvature within curvature" — and hence hyperdimensional.

Table 29. A ZERO VECTOR SYSTEM:

- **IS AN ACCUMULATOR**
- **DOES "INTERNAL" WORK ON MEDIUM**
- **HAS NO "ENERGY" EXCEPT STRESS OF VACUUM, YET**
- **CAN YIELD THE ENERGY OF ITS COMPONENTS WHEN DISSIPATED**
- **IS A SPECIAL SORT OF "PUMP"**
- **CAN YIELD CONTINUOUS ANENERGY FLOW IF NOT DISSIPATED**

(2) By prohibiting internal canonical variance while coherently varying the amplitudes of all the EM components, the total stress of vacuum/spacetime — and hence its overall curvature — is locally varied, without modifying its structural form. This is simple variation of overall curvature of local spacetime, involving primarily relativistic effects.

Rigorously, each of these two methods produces a localized gravitational wave, where the local stress of vacuum is deliberately patterned as well as oscillated in amplitude.

Both methods may be applied simultaneously (and multiple infolded times) to produce an even more sophisticated gravitational wave, and more sophisticated structuring of the local stress energy density of vacuum.

The resulting unified electromagnetics/gravitation is called **scalar electromagnetics**, since the electrogravitational effects are obtained by deliberately opposing EM vector force fields so that they vectorially sum or multiply to a zero vector EM resultant, while **the** infolded (Bohm's term) EM vector components structure and vary the stress energy density of vacuum.*

*Gravitational potential is just "in-folded and locked in" dynamic electromagnetic forces. The infolded EM energy is locked-in, representing a change in the local energy density of vacuum and hence a curvature in spacetime. Electromagnetic force fields are just the out-folding of the G-potential's inner EM contents into the 5th dimension. Ordinary gravitational force field is just the "trickle leakage" of the G-potential's infolded contents, out into and through 3-space.

Note immediately that scalar EM also deals with internally structured and patterned electricity and electromagnetism.

"Normal" electromagnetics has no deterministic internal structure.

The new electrogravitational (EG) wave is called a scalar EM wave, and is believed to have been originally discovered by Nikola Tesla.

James Clerk Maxwell was aware of the potential for electromagnetics to stress and structure the vacuum ether.

His original electromagnetic theory — written in quaternions, not vectors (which had not yet been completed by Oliver Heaviside) - can allow for these effects to be expressed.

Unfortunately Heaviside's interpretation of Maxwell's work

Table 30. STRESS IS FUNDAMENTAL

- **THE MOST FUNDAMENTAL REALITY IS STRESS**
- **THE COMPONENTS COMPRISING STRESS ARE THE GREAT CAUSATIVE AGENTS**
- **MOST OF THESE ACTIVE AGENTS ARE HIDDEN INSIDE ZERO-VECTOR SYSTEMS**
- **THE COMPONENTS OF STRESS MAY BE STATISTICAL OR DETERMINISTIC**

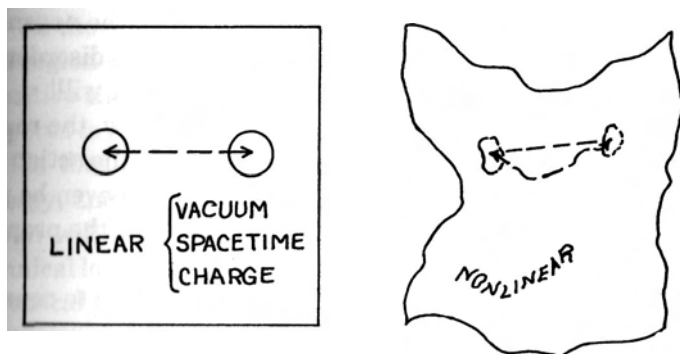


figure 43. Charge affects anything existing in spacetime.

eliminated these effects, and they have remained eliminated from the Western EM theory to the present day.

The use of the scalar EM wave directly engineers the virtual state and the vacuum itself.

Hooper's work represented important work in this respect, as does other related experimental work by Bedini, Watson, Golden, Dea, Faretto, Beck, and other inventor colleagues who do not wish their names mentioned.

Scalar EM theory also bears a strong relationship to the Kaluza-Klein unified theory of gravitation and electromagnetics. At least five dimensions — four spatial and one time — are required as a minimum.

Nested levels of virtual state may be modeled as identical to successive hyperspaces.

Interested levels of zero-summed vector EM force fields allow the direct engineering of those hyperspaces.

Negative energy and negative timeflow are especially important when building free energy devices and antigravity. The mechanism producing negative energy and negative time flow is the forced amplified production and absorption of phase conjugated waves.

In addition, phase conjugation is a basic phenomenon of nature: for example, as previously pointed out, it is the direct mechanism that generates Newton's third law of motion. It also adds a negentropy law (for negative energy/negative time).

Accordingly, if we engineer phase conjugation, we can change Newton's third law to our will. And we can invoke the negentropy half of the total law of entropy, so that we can go from disorder back to order. Again, we can make a Maxwell's Demon at will!

In Newton's third law, when manipulated locally, the reaction force need not necessarily be equal in magnitude to the action force. It also need not necessarily be parallel to it. It can even be phase conjugated itself to yield an addition force, assisting the propelling of a particular engine or device.

Phase conjugation may also be manipulated so as to cause like magnetic poles to attract, and unlike poles to repel.

Magnetic "force field lines" of a bar magnet normally exist in conjugate co-existing pairs. One of the pair is in observer positive

time, and (by convention) runs from the north pole to the south pole. The second line of the pair is a phase conjugate of the first, and exists in negative observer time. Thus, to the "positive time only" observer, it will appear to run from the south pole to the north pole, perfectly retracing the path of its twin.

Howard Johnson uses a "two particle" theory of magnetic field, for example, where one particle (photon) is the phase conjugate of the other. This is identically the same as the scalar electromagnetics concept of phase conjugate pairs of field lines. By very complex, specialized, compound permanent magnets, Johnson is able to partially separate the two lines, and spatially concentrate or diminish the phase conjugation (negative time) component in a given area of operation.

If the negative time component lines are concentrated to outweigh the positive component lines in a local region, then the laws of magnetism are reversed in that region. There like poles attract and unlike poles repel.

In his rotary permanent magnet motor design, he concentrates the negative time component in that part of the rotation where a north rotor pole is approaching a north stator pole. Normally, in this part of the cycle, one has to overcome the repulsion of like poles to "force energy" into the device for later extraction.

However, *now* in that region *like poles attract*. There the north pole of the rotor is attracted toward the north pole of the stator, adding impetus to the rotor.

As the rotating north pole passes the stator north pole, it leaves the region of negative time concentration and returns to a normal "positive time" region again. Now the north poles repel again, and impetus is again added to the rotor.

In that manner Johnson is able to violate local conservation energy, and make a "free energy" permanent magnet motor. The motor will rotate itself and deliver constant shaft power to a mechanical load. By attaching a standard electrical generator, normal electrical power is continually and freely produced by the complete motor generator power system.

Johnson's complex nonlinear magnets severely curve local spacetime, allowing *local* violation of energy conservation.

Scalar EM View of the Vacuum

In the modern quantum mechanical view, the vacuum is not an emptiness, but instead is a plenum.

Today the vacuum is considered to be filled with incredible virtual particle activity. From nowhere, virtual particles continually arise — even with fierce energy — then disappear again into nowhere, so rapidly that they cannot be individually observed.

However, these virtual particles are quite real, for they cause all the forces of nature when they interact in the aggregate with observable particles.

To the observer, the fleeting particles also appear and disappear in both positive time and negative time. That is, the flux consists of both particles and antiparticles.

Thus the vacuum is a seething inferno of virtual particle fluxes.

The concept of an **ether** is again accepted. It refers to this "virtual flux" vacuum.

Note, however, that this is an ether far different from the old material ether that was theorized prior to relativity.

In the new vacuum ether, every imaginable type of particle continually and spontaneously arises (creation) and disappears (annihilation) at every point in the vacuum, according to modern quantum mechanics.

The rate of this seething virtual particle creation and annihilation is essentially unlimited. Hence the "flux density" of vacuum is essentially unlimited.

Further, any virtual particle created has a flux of even finer virtual particles associated, and so on without limit.

The vacuum's virtual particle flux is thus comprised of nested levels of ever finer virtual particle fluxes, in the modern view. We state without proof that **each deeper virtual level may be modeled as a higher dimension (hyperdimension). This yields an infinite-dimensional vacuum spacetime (hyperspace) that is identically the infinite nested levels of virtual state.**

At the same time, every nucleus in the universe is continually absorbing and emitting scalar EM (electrogravitational) waves. The emitted scalar EM waves of pure potential are waves in the stress and structuring of the vacuum itself.

**VACUUM IS IDENTICAL TO:**

- VIRTUAL PARTICLE FLUX
- SPACETIME
- AN ENERGY
- \emptyset_0
- MASSLESS CHARGE

VACUUM IS:

- MADE OF UNQUANTIZED ACTION
- WITHOUT DEFINITE LENGTH INTERVALS
- WITHOUT DEFINITE TIME INTERVALS
- N-DIMENSIONAL (UNFIXED)

Figure 44. Vacuum/spacetime is pure virtual particle flux.

Table 31. VACUUM IS:

- SPACETIME ($L^n T$, WHERE $n \geq 3$)
- CHARGE (MASSLESS)
- ELECTROSTATIC SCALAR POTENTIAL
($\emptyset_0 \neq 0$)
(ERROR IN PRESENT THEORY)
- BROKEN BITS OF ENERGY (SUBQUANTAL)
- PURE VIRTUAL PARTICLE FLUX
- \emptyset -WAVE FLUX
- MULTILEVEL, STRUCTURED, PATTERNED
- A VIRTUAL PLENUM
- AN OBSERVABLE EMPTINESS

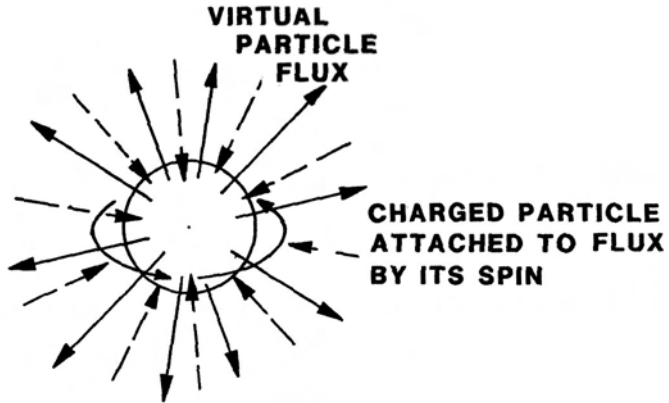
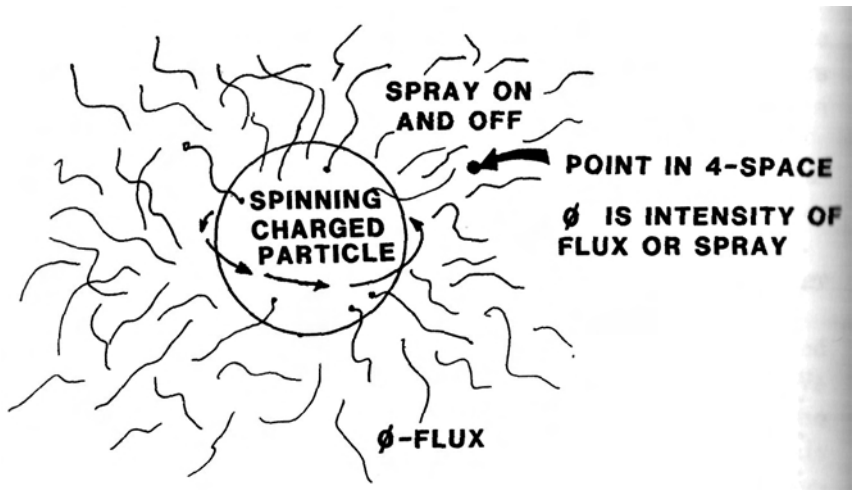


Figure 45. A simplified charged particle.



SPRAY IS THROUGH 4 OR MORE DIMENSIONS, NOT JUST 3

Figure 46. A charged particle is a special kind of "spray nozzle."

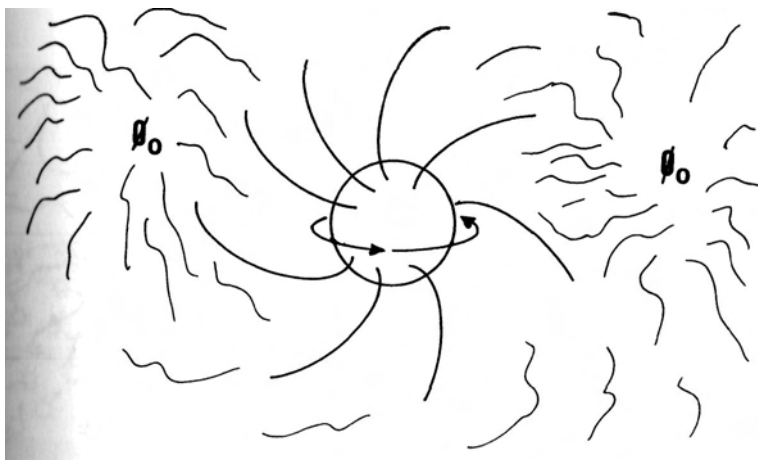


Figure 47. An observable charged particle is directly connected to virtual particle vacuum flux.

Table 32. SPIN COUPLES VACUUM TO PARTICLE

- **SPHERICAL ROTATION IS THE KEY**
- **A PARTICLE CAN BE MODELLED AS
A SPHERICALLY ROTATING VORTEX OF SPACETIME**
- **ITS MASS IS DUE TO ITS SPIN**
- **THE SPINNING OBJECT IS CONTINUALLY CONNECTED
TO ITS ENVIRONMENT**
- **VERY HIGH VALUES OF ELECTROSTATIC POTENTIAL
CAN INDUCE RELATIVISTIC CONDITIONS**
 - **CHANGE RATE OF FLOW OF TIME**
 - **EVEN THOUGH VELOCITY IS NONRELATIVISTIC**

E.P. BATTEY-PRATT AND T.J. RACEY,
 "GEOMETRIC MODEL FOR FUNDAMENTAL PARTICLES,"
INTL. J. OF PHYS. 19. NO. 6, 437-475, 1980

**$\nabla\phi > 0$ IMPLIES A MOVING RIVER, AND THE
CHARGED PARTICLE IS "HOOKED TO" THE RIVER**

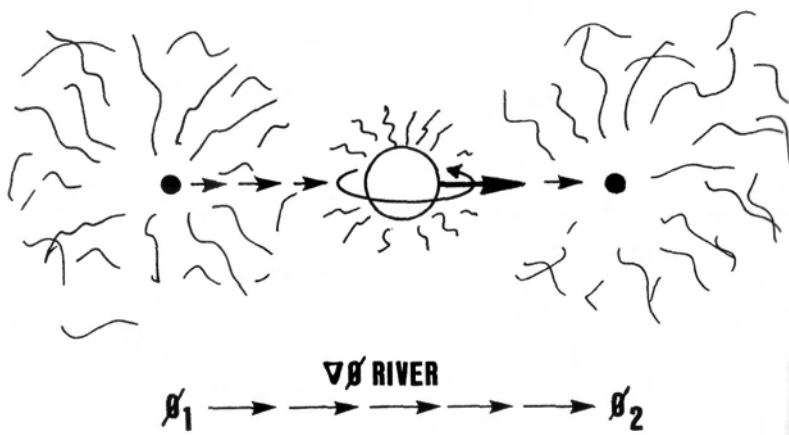


Figure 48. In a flux gradient (virtual particle river), a charged particle moves itself.

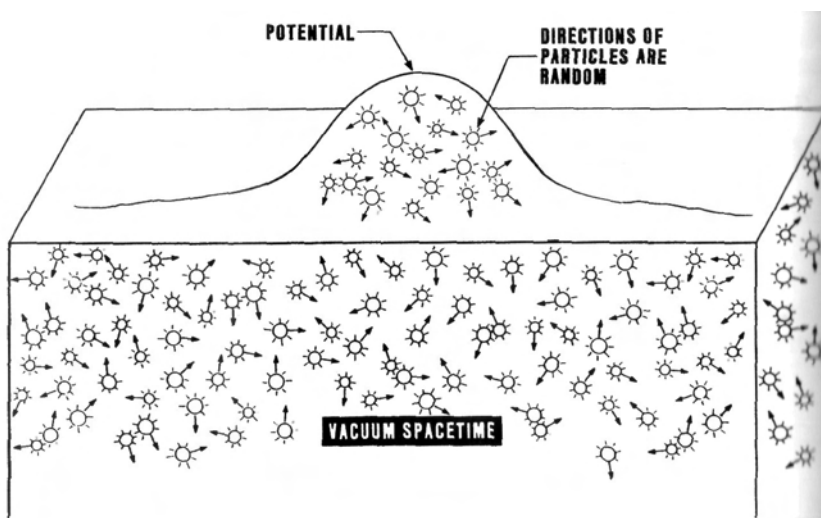


Figure 49. A natural potential is a **disorganized change** in the **stress** of vacuum. It has a random virtual substructure.

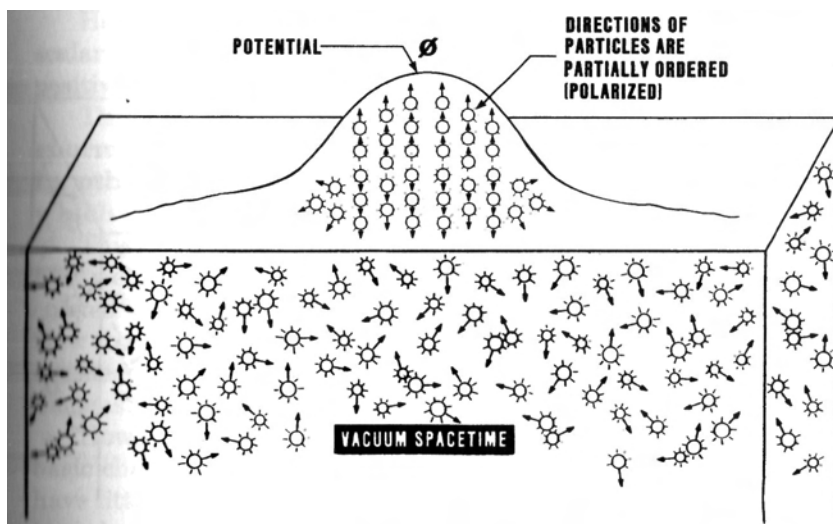


Figure 50. An artificial potential is an organized change in the stress of vacuum. It has a deterministic virtual substructure.

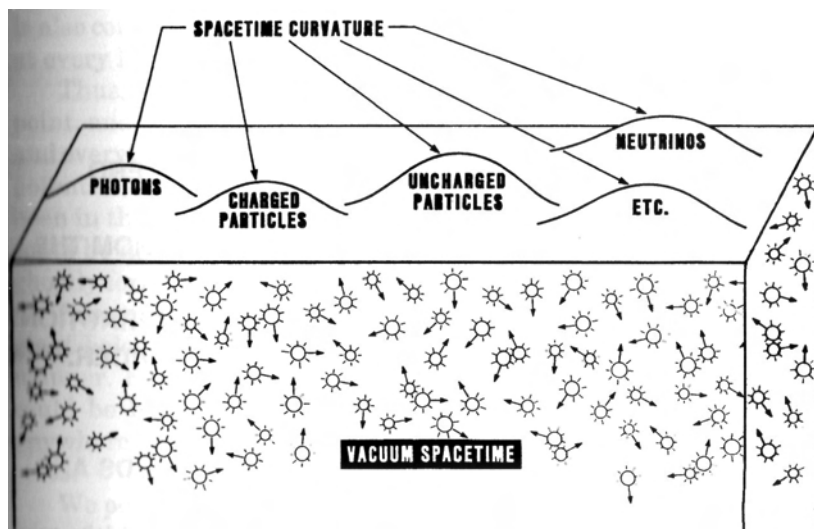


Figure 51. Gravitational potential is a conglomerate of stresses, organized or disorganized.

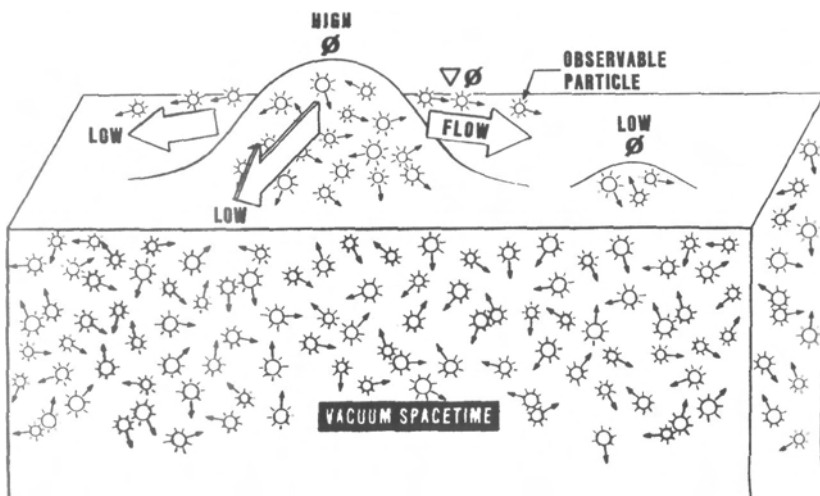


Figure 52. EM force fields are releases of gravitational potential via observable charged mass flows.

Table 33. RESIDUE UNIVERSE, RESIDUE SCIENCE

- **VECTORIALLY, STRESS IS SUM-ZEROED**
- **THE VECTOR FORCE FIELDS REPRESENT NON-ZERO GRADIENTS IN MORE FUNDAMENTAL STRESS**
- **FORCE FIELDS ARE THE RESIDUE LEFT OVER FROM THE SUM-ZEROED STRESSES**
- **PHOTON INTERACTIONS ARE FORCE-FIELD INTERACTIONS**
- **PHOTON-DETECTED REALITY IS ONLY "FIRST ORDER."**
IT SHOWS ONLY "RESIDUE-LEVEL" REALITY
- **WE HAVE BUILT A "RESIDUE SCIENCE" AND A "RESIDUE PHILOSOPHY" BASED ON FORCE FIELDS AND PHOTON DETECTION**

Hence at every point in the vacuum, an intense flux of these scalar EM waves, with concomitant interferences, exists — in both positive and negative observer time.

This scalar EM flux causally drives (constitutes) all the enormous quivering of the vacuum spacetime medium itself. In other words, it drives subquantum (virtual) change, which in turn drives quantum change.

This is a drastic reorientation of quantum mechanics. In scalar EM, we view that the virtual flux of vacuum is *causally driven or created* by interacting scalar EM waves. This replaces the present **view** that the virtual flux is entirely chance. It opens up the direct engineering and structuring of the vacuum — and hence the atomic nucleus — by scalar EM means.

However, it does not replace the normal *statistical nature* of the **basic** changes of the background vacuum medium. We normally **have** little or no knowledge of the myriad of drivers that cause the basic background waves of that medium. We may, however, deliberately create special vacuum potential waves which are deterministic, and which we have knowledge of.

To the observer, from a purely statistical viewpoint, in this violent vacuum flux *any* and *every* finite pattern of virtual particles is also continually being momentarily created and destroyed — and at every level and in every hyperdimension.

Thus, in the vacuum there continually exists — at any and every point, and in any and every region — the ghostly image of anything and everything, whether in the past, present, or future; and whether **potential**, probabilistic, or actual. Even everything that could have **been** in the past but wasn't, or might be in the present but isn't, or could be in the future but won't be, is continually present in thin, ghostly form.

Rigorously, the universal vacuum may be taken to be a sort of **giant** hologram, for the whole is in each part, albeit in ghost-like manner. Everything that is, or was, or shall be; and everything that could be but isn't, wasn't, or shan't be; already exists *at once*, *anywhere* and *everywhere*, in this ghostly, holographic, virtual state.

We point out in passing that, conceivably, one can engineer any **part** of this "potential for reality." That is, one can directly engineer physical reality itself, in the scalar EM view.

All that must be done is to amplify (continuously and coherently

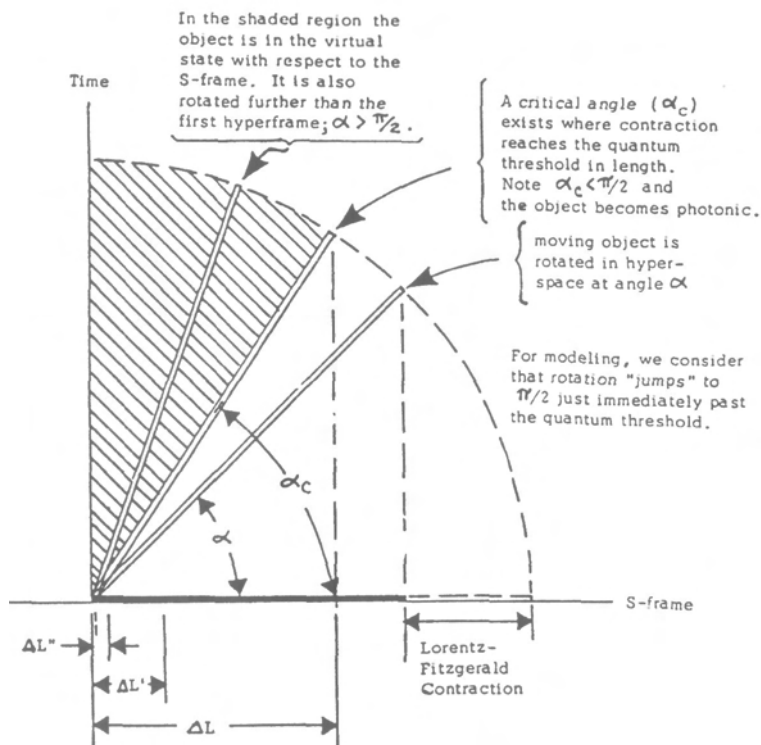


Figure 53. As beyond (without), so within. Hyperspaces are interested virtual states, and rotated orthogonal frames. They are also substructures within and of vacuum state potentials.

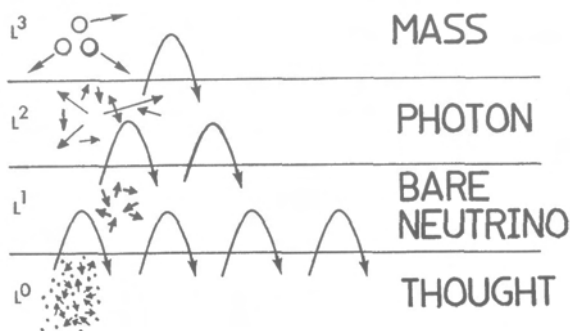


Figure 54. Interested levels of virtual state vacuum interact with neutrino, photon, and mass. "Thought" or "mental state" refers to the third and more levels down in virtual state.

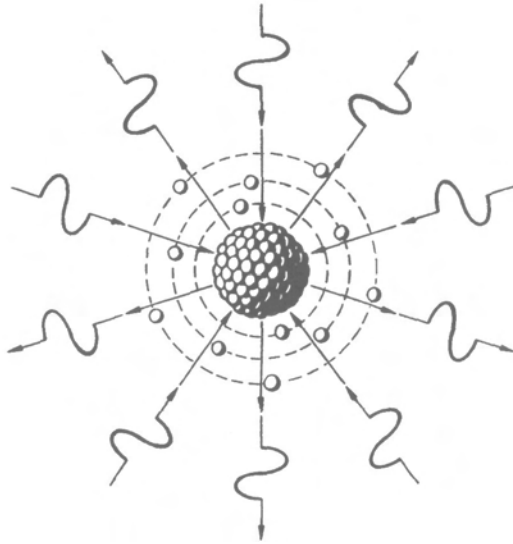


Figure 55. Virtual state patterns are absorbed and emitted by the atomic nucleus. The built-up nuclear "charge" in that particular pattern is a partial potential — for that pattern only.

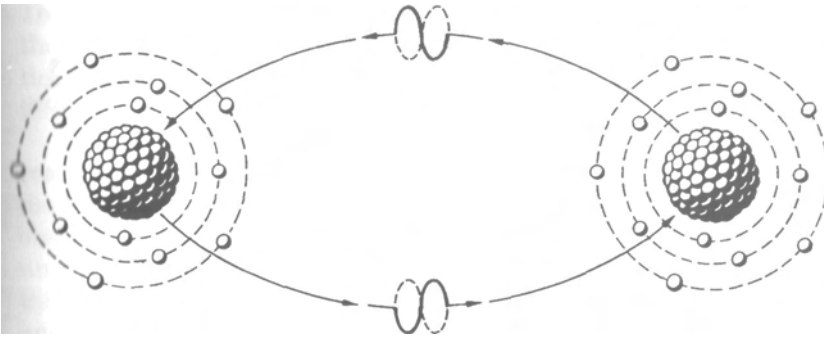
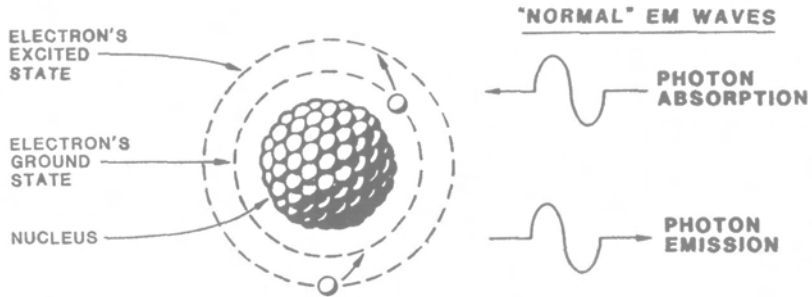
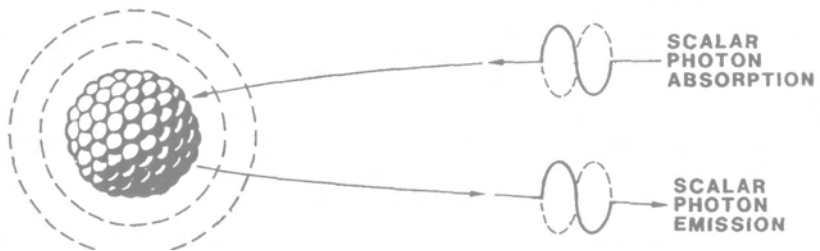


Figure 56. Nuclei of the universe continually exchange scalar EM waves and virtual particle fluxes.



- HEAVY NUCLEUS RELATIVELY UNAFFECTED
- MACROSCOPICALLY. MASS APPEARS STABLE AND "BRICK-LIKE"
- SPECIAL RELATIVITY APPLIES

Figure 57. First order reality. Rough-hewn by observable photon interaction with electron shells of the atoms of physical mass. This process is "physical observation."



- HEAVY NUCLEUS AFFECTED
- MACROSCOPICALLY. MASS APPEARS FLUID AND CHANGEABLE
- GENERAL RELATIVITY AND KALUZA-KLEIN GEOMETRY APPLY

Figure 58. Higher order (hyperspatial) reality. It exists as stored in the potentials of the atomic nuclei of physical mass.

add energy to) one of these "ghost images" virtual state forms. In that case, the form becomes "denser and denser," until eventually it starts to breach the quantum threshold. At that time, the form will be seen emerging as a sort of "coalescing form of light," where the light seems to be forming in little "chunks" or pieces. As the coalescing operation continues, the light-form will eventually become fully formed. If it continues, it will start to coalesce further into *thin, ghostly material* form, appearing much like a faint fog-form. With continued coalescing, it will become a very solid, material form which exerts pressure on tree limbs, breaks them, leaves traces, etc.

Long ago I dubbed this process *kindling*. It is rather widely met in paranormal phenomena of many types.

But back to the basic idea of ghostly images in the virtual states of vacuum.

In this view, Everett's many-worlds interpretation (MWI) of quantum mechanics is literal and real, albeit the additional worlds are to be taken as virtual and hyperdimensional to the laboratory observer.

(It is rather simple to show that ever deeper, nested levels of the virtual state are exactly the same thing as ever higher dimensions. By "rotating" an object in many-dimensional space, one can show that, after three rotations, a physical object has lost all physical intersections with our normal 3-space, to us now only occupying time. Since this is the precise characteristic of a *thoughtform*, I used this phenomenon and spatiotemporal model to make a multidimensional space model directly including thought, mind and matter. That is, one is thus able to form a unified field theory of mind, **thought**, life, and matter — a model that is testable, makes predictions, and actually unites physics and metaphysics. That work and

its plications, however, are largely beyond the scope of this book.)

It is stressed that the basic scalar EM image (interpretation) of reality is directly implied by quantum mechanics. It is not idle metaphysics. Other than the scalar EM wave causality for the observer's statistical microscopic dynamics (and the extended model unifying mind, thought, life, and matter), it is not the construct of this author. Instead, it follows from interpretation of the equations and axioms of quantum mechanics (QM) itself, as changed and extended by the "zero vector system" dynamics.

Charge, Potential, and Curvature of the Vacuum/Space-time

The flux of one type of virtual particle through a point in the vacuum may be examined.

A single type of virtual particle flux (VPF) at a point constitutes one particular type of charge at that point. For example, the flux of virtual photons constitutes the electrical charge.

Further, the magnitude of the selected flux (usually expressed as a flux density) through the point may be taken as the magnitude of the vacuum's charge there in that type of particle. In other words, at a point the magnitude of the vacuum's charge (VPF) is one type of *potential* at that point.

Various kinds of fluxes constitute various kinds of charge, and comprise various kinds of potentials. Immediately we see that one type of charge may always be decomposed into other kinds of charge, as can potentials. This point is beyond the scope of this book and will not be further amplified.

Continuing our example, the magnitude of the electrostatic scalar potential at a point in vacuum represents the magnitude of the flux of virtual photons through the point, and hence the electrical charge at the point.

Table 34. REALITY IS A HOLOGRAM

TO ESTABLISH THIS:

1. ALL DETECTION IS INTERNAL
***PHYSICAL REALITY CONSISTS OF THE INTERNAL
 DETECTIONS OF THE PERCEIVER/OBSERVER.***
2. THE OBSERVER MAY BE AT ANY POINT IN THE UNIVERSE
***THE UNIVERSE CAN BE DETECTED FROM ANY POINT
 INSIDE ITSELF.***
3. THE PHYSICAL UNIVERSE IS TOTALLY INSIDE EACH POINT
 IN ITSELF
***THIS DEFINES A HOLOGRAM: THE WHOLE IS IN EACH
 PART.***

Twin Flows of Time

In quantum mechanics, each virtual photon is continually turning into an electron/position pair, and vice versa.

By Dirac theory, *a positron is an electron traveling backwards in time.*

Further, pair production produces time-smeared particles — an electron and a positron.

Pair production, then, actually produces two *electrons*, one coupled to (smeared in) a positive piece of time and one coupled to (smeared in) a negative piece of time.

Thus in the vacuum two discretized streams of time, one positive and one negative, are continually created in conjunction with pair production, and destroyed by pair annihilation.

Further, integration of tiny virtual pieces of time (from virtual photons) to form "passage of time" macroscopically is directly associated with the charge (the absorption and emission of virtual particles) of an observable particle.

This is what is meant by an object "existing" (persisting). Its continual virtual photon interactions are integrated by its mass (timeless part) to continually create its energy states and its march through time.

The absorption and emission of an observable photon, however, moves the mass (timeless part) in (comparatively) larger jumps through time. The absorption of the photon connects a positive piece of time to the mass of the particle, converting it to masstime. The subsequent emission of an observable photon "tears off the little time-tail," so-to-speak, and leaves behind a totally spatial mass entity, having no large connection to "the flow of time."

This is what is really meant by "observation."

Because the "observation" disconnects time from the previously "excited mass" (masstime), then it follows that time is not an observable.

It also follows that the twin streams of time are not continuous. Each is broken into incredibly tiny bits.

The bits of time are continually interlaced between negative and positive, and neither of the two streams of time bits is integrated in the vacuum. The vacuum is disintegrated!

A photon — the basic quantum — is composed of discretized energy and time, bound together (integrated) as action (angular momentum). That is, a photon is a little piece of energy, welded to a little piece of time, with no seam in the middle.

Two kinds of photons exist: the normal photon exists as $(+dE) (+dt)$. The phase conjugate photon exists as $(-dE) (-dt)$.

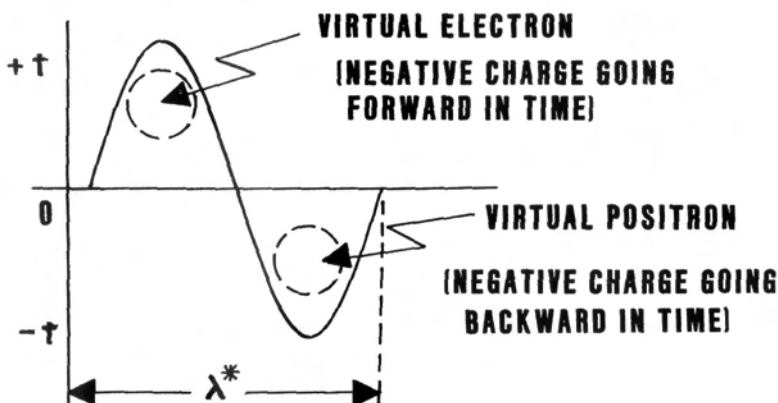


Figure 59. A photon is a single oscillation of a carrier wave. It is also two virtual electrons, one going forward in time, and one going backward in time. With interested modulations (subphotons), the structure of the photon becomes extremely complex.

Table 35. PHYSICAL CHANGE

- **COMPOSED OF ACTION**
- **h = BASIC QUANTUM**
- **TWO CANONICAL VARIABLES**
 - **ENERGY/TIME ($\Delta E \Delta t$)**
 - **MOMENTUM/LENGTH ($\Delta p \Delta L$)**
 - ETC.**
- **ENERGY/TIME**
 - **$h = (+\Delta E) (+\Delta t)$**
 - **$h = (-\Delta E) (-\Delta t)$**

If the photon is of a certain magnitude, given by Planck's constant, then it is an **observable photon**.

If the photon is less than h in magnitude, then it is a **virtual photon**.

A simple photon in vacuum can also be considered to be one cycle of a sine wave. One half of the sine waves exists in positive time, hence is/contains a virtual electron.

The other half of the sine wave exists in negative time, hence it is/contains a virtual positron — an electron traveling backward in **time**. This second half of the full photon (a single sine wave oscillation) is the phase conjugate (time reversal) of the first half.

As we stated previously, the full photon in vacuum actually exists as a presently visualized "positive time" photon and a phase conjugate "negative time" photon, a "serially linked pair," where **each** photon is only one-half the sine wave. This resolves the conflict inherent in wave/particle duality.

It also has a great deal to say about engineering the vacuum and about detectors and the detection process.

In the spontaneous decay of a virtual photon, it can be seen that one part (the virtual electron) is associated with positive energy and positive time; the other part (the virtual positron) is associated with negative energy and negative time.

The continual "switching" between positive and negative time in an observable particle's absorption and emission of virtual photons (**and** the associated electron/positron $+t/-t$ pairs) means that the positive flow of time, to the macroscopic observer, is continually being "started" and "stopped" (created and destroyed).

This continual attachment and detachment of positive time to and from the "observer particle" creates the "past" and the "future" to which the observer seems somehow to be connected, and yet not connected.

Engineering Local General Relativity

In a flat spacetime (linear vacuum), the two time flows are balanced, as are pair creation and pair annihilation. In this case, conservation of charge and energy hold.

Table 36. ORDINARY GENERAL RELATIVITY (OGR) IS A SPECIAL CASE

- **OGR HAS ASSUMED AWAY MOST LOCAL GR SYSTEMS, OF THE TYPE WHERE MAXWELL'S EQUATIONS AND THE CONSERVATION LAWS CHANGE LOCALLY.**
- **PHYSICISTS ARE THUS STRONGLY DISCOURAGED FROM CONSIDERING THAT GR CAN EASILY BE ENGINEERED IN A LOCAL EM SYSTEM.**

In a curved spacetime (nonlinear vacuum), one of the two triplets (positive electron/energy/time or negative electron/energy/time) predominates. Hence in a curved spacetime the rate of flow (production) of the two time streams is unequal, as is the production of the two kinds of energy and the two kinds of electrical charge.

A locally curved spacetime thus produces a predominance of either positive or negative electrons, and either positive or negative energy, and a predominance of the addition of either positive or negative time production.

The curved spacetime acts as a local source or sink accordingly, and both conservation of energy and conservation of charge can be locally violated in such a curved spacetime region.

As we stated, the locally curved spacetime produces either positive time or negative time more predominantly, acting as a source or sink for normal (positive) observer time. The local rate of flow of the observer's time can thus be speeded up or slowed down, depending upon the type of local spacetime curvature utilized.

It follows, then, that standing local gravitational waves can result in localized, stable gradients in the vacuum virtual particle flux, between the "high potential" part of the standing wave and the "low potential" part.

This allows the violation of conservation laws such as charge and energy in the local gravitational gradient, utilizing the localized curvature of vacuum to provide a special source.

For proof that conservation laws need not apply to a curved

spacetime, see A.A. Vlasov and V.I. Denisov, "Einstein's formula for gravitational radiation is not a consequence of the general theory of relativity, **Theoretical and Mathematical Physics**, 53(3), June 1983 (**English translation**); Russian, Dec. 1982, p. 406-418. Quoting:

"This result is a particular consequence of the general assertion to the effect that in general relativity there are no energy-momentum conservation laws for a system consisting of matter and the gravitational field."

See also V.I. Denisov and A.A. Logunov, "New theory of spacetime and gravitation," **Theoretical and Mathematical Physics**, 50(1), July 1982, p. 3-76. This paper (p. 3) points out that:

"... the gravitational field in general relativity is completely different from other physical fields and is not a field in the spirit of Faraday and Maxwell."

A 1984 Soviet paper by senior Russian physicist C. Yu. Bosgolovsky, "Generalization of Einstein's relativity theory for the anisotropic spacetime," is also very relevant.*

In composing his theory of general relativity, Einstein assumed that the local spacetime of the observer could never be curved, and instead would always be represented by a Lorentz frame (flat spacetime).

This severe assumption had the effect of "saving" the sacrosanct conservation laws, and maintaining the exclusion of electrogravitation.

Since then, Western physicists have raised Einstein's assumption — and the conservation laws — to a dogmatic belief system — in some cases, to near fanaticism.

To see a clear statement of these limiting assumptions imposed on general relativity to provide the severely restricted version taught in almost all Western universities, see Charles W. Misner, Kip S. Thorne and John Archibald Wheeler, **Gravitation**, W.H. Freeman and Co., San Francisco, California, 1973, p. 19-21, 71-72, 367-369.

In other words, Western physicists still use a sort of "special

*See also V.I. Denisov and A.A. Logunov. "The inertial mass defined in general relativity has no physical meaning," preprint p. 0214, Institute of Nuclear Research, USSR Academy of Science, Moscow, 1981.

relativity with distant curved spacetime perturbations," and call it *general*relativity!

The Soviets do not limit themselves to the same restricted general relativity theory as does the West.

Santilli (Ruggero Maria Santilli, **Ethical probe on Einstein's followers in the U.S.A.: An insider's view**, Alpha Publishing, Newtonville, Massachusetts) has documented what essentially amounts to a conspiracy in Western physics to shut out any generalization of Einstein's severely limited relativity.

It is precisely this near-total Western scientific prejudice — along with Heaviside's mutilation of Maxwell's original theory — that has excluded electrogravitation from being developed in the West.

Note also that, by embracing a "locally flat spacetime" assumed to be decreed by the "laws of the universe," in their rigid mindset Western physicists have excluded any possibility of performing simple laboratory experiments in locally curved spacetime.

They do not believe it can be done, so they have never tried.

But let us further address the importance of the negative triplet (electrical charge/energy/time) and its concomitants parity, gravity, and entropy:

Engineering Antigravity

In negative time flow, gravity is a repulsion, not an attraction.

Producing antigravity in an object is simply the production of excess negative time flow in that object.

That is readily achieved by curving local spacetime in the appropriate direction, and forcing the object to produce excess negative energy.

Mass, for example, is just a special form of trapped energy—and trapped energy (potential) is just trapped charge of one kind or another, whether observable or virtual.*

As such, mass represents a "localized potential" in the ambient vacuum, of a certain kind of "trapped energy/time charge."

*Actually, since it is in equilibrium in a dynamic and continual flux, a mass particle is actually a special trapped **rate** of action flow. A defining equation for mass in terms of the rate of action flow was given by the author in **Quiton/Perceptron Physics**, NTIS, 1973. Report AD-763210.

The mass/potential is continually being charged by the vacuum flux, and discharging and emitting charge flux into the vacuum flux. The mass is "in equilibrium" at its fixed potential.

Normal ("positive") mass is simply charged up with positive energy and positive time. And its external electron shells result in it presenting a "negative charge" face to the world.

If we charge up the mass, however, with negative energy and negative time, so that some of its charge potential now is of this second type, the trapped energy will now consist partially of negative energy. In addition, the mass will partially exist in negative time (be charged up partially with negative time).

When excess negative time flow is produced in a mass, the mass begins to be repelled by the earth as well as still being attracted to it in its positive time stream. The net result of the object's fixed attraction and increasing repulsion is that the object begins to lose weight in the earth's gravitational field and gets lighter.

When a sufficient rate of excess negative time flow (sufficient local spacetime curvature) is produced, the mass floats freely.

With additional negative time production rate, it accelerates ("falls") upward.

The rate of excess negative time produced may be controlled very simply by using a "negative time/negative energy" generator and varying the amount of the load applied to the device.

The negative time/negative energy generator can be rigidly affixed to a flying apparatus, serving as a sort of gravitational rocket or gravitational propulsion system.

Of course, the negative energy produced in the propulsion process can be used to light lamps and power electrical loads, as well as host of other things. (Yes, Virginia, it can also be used to generate force fields, power weapon systems, etc.)

Thus one can "eat his cake and have it too"; by using negative energy flow for power, a very practical antigravity spaceship can be developed.

An additional side benefit to the passengers probably exists: they should age at a slower rate when traveling in the vehicle.

As can be seen, since many kinds of VPFs exist in vacuum, the vacuum is filled with (and consists of) many types of "potentials."

Overall, this matches very closely the view of general relativity, if we

regard the vacuum itself as indefinite "spacetime", where no ordered universal frame with a fixed metric has yet been associated or prescribed.

Curved Spacetime and the Disintegrated Vacuum

From general relativity, additional characteristics of the modern vacuum/spacetime may be inferred or interpreted.

First, we may take a "flat spacetime" to consist of a charged vacuum, such that both the magnitude and structure of the VPF are essentially unchanged from point to point, and the flux of virtual particles and virtual antiparticles are balanced. Equal positive and negative time flows/charges exist.

Note, however, that we can have what casually may appear to be a "flat spacetime" but instead is "warped." This case exists when the magnitude of the overall VPF comprising the vacuum does not change from point to point, but the component structure of the VPF does vary from point to point.

In other words, the overall vacuum potential remains the same from point to point, but two or more individual potentials may canonically vary. Let us further clarify this point by analogy.

Suppose we view the vacuum/ether/spacetime as a special sort of gas, where the "gas" is actually a mixture of many, many gases.

It is a rather peculiar sort of gas; it exists in five or more dimensions and is composed of very strange, fleeting particles which spontaneously are created and destroyed, each arising out of nowhere and returning to nowhere almost immediately.

There is only minuscule (negligible) time overlap (integration) of the existence of these virtual particles in the main.

That is, mostly each virtual particle — along with its associated energy, movement, momentum, charge, and increment of time — exists almost entirely as an individual.

The energies, movements, momenta, charges, and time increments of the individual virtual particles do not integrate or sum to any appreciable degree in vacuum.

Thus, although casually this ether/gas may seem to contain enormous "energy density", momentum density, charge density and time increment density, these are not *integrated* energy density, momentum density, and time density in the normal sense.

Instead, they are the densities *of disintegrated* energy, *disintegrated* momentum, and *disintegrated* time flow.

In scalar electromagnetics, we have called the disintegrated energy of vacuum **anenergy**. This clearly distinguishes that it exists in a fashion altogether different from normal, *integrated* energy with which we are accustomed.

By integrating anenergy, of course, one obtains ordinary energy—but it first requires an integrating agent. The most usual integrating agent/operation is the spin of an observable particle of mass.

Similar considerations apply to momentum and time.

With this more precise interpretation, the vacuum contains enormous anenergy, but essentially no energy. It contains enormous virtual energy, but no observable energy.

Unfortunately, however, orthodox physics does not yet clearly differentiate between the two states of energy, virtual and observable (disintegrated and integrated).

Instead, it continues to loosely utilize the term "energy" for both states, whether integrated or not. Thus it exclusively uses the term "**energy** density of vacuum." Rigorously, the term should be "anenergy density of vacuum."

Indeed, most physicists are not clearly aware of the distinct difference between the two different states of energy, insofar as the implication of integration or nonintegration.

Regrettably, then, we will continue to utilize the orthodox term, "energy density of vacuum." but the reader should be clearly aware that the vacuum "energy" and vacuum "stress energy density" as **such** are totally disintegrated.

Separation of Vacuum and Observable States

Because the energy density of vacuum is unintegrated, an integrated physical body — including one's personal body — can **exist** "in" the vacuum medium of incredible "energy" density, yet observably exist in a medium of zero energy density.

The unintegrated vacuum ether has enormous spatial density of *virtual* energy, but essentially has zero spatial density of *observable*

energy.

Note, however, that in our hyperdimensional interpretation of the levels of virtual state, the vacuum spatially does not exist in the normal 3-space of observable matter.*

The vacuum occupies the 4th dimension (time) and all spatial dimensions (hyperdimensions) greater than the third — it occupies all levels of virtual state, but not observable state. It occupies all levels of disintegration, but not the levels of observable integration.

Exchanges occur between normal 3-space and the hyperspatial vacuum, through the common connecting dimension, time.

These exchanges (of virtual particles) are integrated by the spinning observable mass particle into the first quantally excited state — a delta (change) representing a single entrapped quantum — of the 5-space potential represented by the particle and its accumulating VPF. At that time a sharp electromagnetic (fifth dimensional) discharge of the quantum occurs, converting the accumulated 5-G quantum to the ordinary EM quantum of the 4th (time) and 5th (infolded space) dimensions.

This accounts for the so-called "collapse of the wave function", the production of unitary quantum change, and the discretizing of observable change.

We note in passing that time is the only "dimension" where everything can be considered to occupy the same "point" or "interval", but it is discretized and chopped into pieces (disintegrated), quite different in nature from the familiar three spatial dimensions of the observable (integrated) universe.

The dimensional separation (spatially) of the seething vacuum "energy" (anenergy) and the 3-space of normal matter allows a physical body to enormously interact with the vacuum at or near equilibrium at the microscopic level, but maintain its macroscopic form and stability as if no interaction were going on.

Partial Potentials, Curvature, and Warping

At any rate, we view the magnitude of the overall "potential" of this vacuum gas mixture, as the magnitude of the entire "**stress**

*Here we sharply differ from conventional physics, which hopefully confuses the concepts of vacuum, spacetime (indeterminate), spacetime (determinate), and frame.

ENERGETICS OF A POTENTIAL

Running in Place and Getting Nowhere



Figure 60. A potential is trapped energy. A potential in vacuum is trapped virtual-state "energy" or flux. A natural potential is trapped random energy. An artificial potential is trapped organized energy.

energy" or "pressure" of the mixture — IF AND ONLY IF this stress energy or pressure were somehow integrated.*

As can be seen, we can now look at each of the component gases in the mix as contributing a partial pressure or partial stress energy (an individual component potential) of the vacuum conglomerate.

We may have the overall pressure remain the same, yet canoni-

*Thus it's really the **potential** stress energy density. The vacuum is nothing but potential!

cally change the partial stress energies (individual potentials).

In that case one has an internally twisted or "warped" spacetime.

A warped spacetime may prove quite useful, for example, for direct translation of one type of "energy" into another. In that fashion, one may conceivably obtain radiation energy at the expense of mass, or mass at the expense of radiation energy.

Or one may convert between potentials where one or more of the converted potentials are as yet unknown to orthodox physics.

Kaluza theory, for example, contains many potentials that are as yet unknown and undiscovered in nature. When undue simplifications are made to arbitrarily exclude the unknown potentials, the adapted theory leads to error in its predictions.

This was originally regarded as a great imperfection, and Kaluza theory fell into disfavor for decades. Then as modern particle physicists began to produce fundamental particles of an astounding variety, a Kaluza-Klein theory of 11 or more dimensions was found to very reasonably describe the emerging situation. Once again, then, Kaluza-Klein theory became a moving force among modern theorists.

One may also convert electromagnetic field energy into gravitational field energy, for example, and obtain enormous amplification of gravitational effects.

This is precisely what scalar electromagnetics seeks to do.

Since the electrical field between two electrons is about 10^{42} times as strong as the gravitational force between them, conversion of the EM charge flux into gravitational charge can conceivably yield up to 10^{42} times as much gravitational force as normal, depending upon the efficiency of the conversion process. Even with a process or device that uses electron currents and has an efficiency of only 10^{-22} , gravitational/inertial gains of 10^{20} are possible.

Note, however, that the levels of vacuum may also be compared to horizontal planes beneath the ocean.

For example, we may take a particular level of vacuum potential, and that level constitutes a sort of included "flat spacetime" of its own. By biasing the potential of a scalar transmitter and receiver to a given level, one may transmit (in either direction) at that level only. Receivers at higher or lower levels will detect nothing.

The immediate application to engineering the nucleus for such things as nonradioactive transmutation of elements, controlled nuclear fusion, electromagnetic healing, and processing nuclear wastes to render them harmless should be apparent.

To recapitulate our analogy, a true "flat spacetime" is a vacuum whose VPF does not essentially vary overall or in each constituent part, between two comparative points.

A "curved spacetime" is a vacuum whose overall VPF varies in overall magnitude, between two comparative points.

A "warped spacetime" is a vacuum whose VPF may or may not **vary** in overall magnitude between two comparative points, but whose partial VPFs vary their ratios, between the same two points. Note that a vacuum/spacetime can be both warped and curved.

It is stressed that we have not limited the number of dimensions **that** can be placed on the vacuum to Minkowski's four. We hold the number of dimensions necessary to represent both vacuum and observable matter to be arbitrary, but greater than four.

To unify electromagnetism and gravitation (which is what scalar electromagnetics is about), we must take five dimensions — four spatial and one time — to be the minimum necessary in modeling the unified theory, similar to Kaluza.

We state now a major characteristic: **Vacuum/spacetime consists entirely of potentials, nothing else, and these are hyperspatial a priori.**

The vacuum does not contain observable force fields nor any **Other non-potential** entity.

We also state without proof that in scalar EM theory it seems **very** possible to model the mind and its unification with physical **reality**, in a fashion subject to experimental verification.

Force and Mass Are Inextricably Intertwined

In foundations of physics, it is well-known that, paradoxically, force and mass can only be defined one in terms of the other.

We may use that paradox for a new interpretation of force and **force** fields: a force may be interpreted **to consist of** the time rate of changing the "mv" momentum of a mass system or object, instead of **being the cause of** its dp/dt .

That is, we may take the view that

$$\mathbf{F} \equiv d\mathbf{p}/dt \quad (4-14)$$

not just that

$$\mathbf{F} = d\mathbf{p}/dt \quad (4-15)$$

We have previously pointed this out and called it the "strong definition of force."

This immediately suggests the question: If force is an effect and not a cause, what, then, causes force?

Quantum mechanics already provides the answer: A differentiating operator must be applied to (coupled to) potential in order to produce a force field. The most usual "differentiating operator" is an observable spinning charged particle.

A charged particle exposed to the variation of electrostatic scalar potential between two points is exposed to a gradient (flow) in the virtual photon VPF, and hence to a directional "stream" of virtual photons. The observable charged particle couples to that stream. **Its** spin integrates the unobservable, disintegrated anenergy of the gradient flux into integrated, observable energy of the particle.

With greater integrated "pressure" on one side of the particle than on the other, the observable particle accelerates and translates. This produces or "detects" (and comprises) an electric force between the two points.

Force is the mass particle(s) accelerating, either in time or in mass. Observable force is observable particle(s) accelerating. **Virtual** force is virtual particle(s) accelerating.

In **Quiton/Perceptron Physics**, I gave a new definition of mass that is consistent with this viewpoint:

$$1 \text{ kg. mass} = 17.053 \times 10^{50} \text{ switches/sec} \quad (4-16)$$

where a switch is $\hbar/4\pi p$, having the units of action/time, or energy. This directly defines mass in terms of energy accumulation, where

the energy accumulated is in equilibrium in a differentiated action flow.

Note that "energy" is the time rate of flow of action. Energy can only be accumulated (as a mass or a potential) by possessing two rates of flow of action simultaneously, one in positive time and one in negative time. This is a very deep statement that affects all of physics, but unfortunately it is beyond the scope of this present book.

To return:

The observable electric force field does not exist as such in vacuum. The vacuum and all its constituents are totally virtual. Only the potential ("potential for the electric force field, given a coupled charged observable particle") exists in vacuum, as pointed out by Richard P. Feynman et al, *The Feynman Lectures on Physics*, Addison-Wesley, Reading, Mass., 1964 vol. 2, p. 2.

The Concepts of Zipped and Unzipped Forces

As noted previously, the potential exists as an unintegrated virtual particle flux (VPF). Further, each little moving virtual particle is smeared in length and time, is coupled to finer VPF, and thus may be said to constitute a minute "force vector" while it exists.

Thus, the electrostatic scalar potential is composed of a myriad of little individual "virtual particle force field" vectors.

Since these little virtual vectors are essentially separate and unintegrated, one may say that the electric field is *unzipped* in vacuum. By "unzipped" we mean that the individual virtual particle E-field vectors are unintegrated.

A potential, for example, is composed of unzipped vector fields since it is comprised of unintegrated, virtual vectors.

To be static, the potential must be comprised of a pair (at least one pair) of unzipped vector fields, one in positive time and one in negative time. These unzipped vector fields must in turn be locked together. In this case, the positive time observer sees nothing (vacuum only), until he "observes" or detects. Normal detectors detect (and in so doing, they zip together) only the positive time unzipped component. The negative time (phase conjugate) vector held retraces the positive time field, in Newton's third law. Or, if generating a wave or pulse, it would be seen as a phase conjugate

replica which affected the disturbing source.

Let us be very plain. A **"scalar EM potential" is actually two vector fields zipped together: one is in positive time, and the other is in negative time.** Each half is composed of microvectors. A dynamic gradient in this scalar EM potential (i.e., a scalar wave, for example) actually consists of two waves: one is the normal "positive energy/positive time" EM wave, while the other is the phase conjugate replica. When we detect the normal half (with electron detectors), we actually detect the second half with the atomic nuclei. Since it is a phase conjugate, it produces a negative momentum change on the nucleus {since one has $p/(-t)$ } instead of LeSage's positive momentum change. In other words, it produces a drawing (attracting) force on the absorbing nucleus, instead of LeSage's assumed repelling force on it.

That is the entire secret of gravitation. And of electro-gravitation. Knowing that, you can easily work out how to apply the necessary engineering to get antigravity.

But to return.

The potential can also be comprised of many unzipped vector fields at once. These may be deterministic (artificial potential) or randomized (natural potential).

The "force field" is disintegrated (unzipped) in vacuum, and integrated (zipped) on, of, and by an observable charged particle. In vacuum, it is always accompanied by its phase conjugate twin. When detection by an observable particle occurs, the spin of the particle acts as the "zipper," producing an observable force (which is actually of the particle accelerating, not "acting independently upon it.")

Vacuum is unzipped; observable mass is zipped.

Any zipped entity exists observably in 3-space; any unzipped entity exists in hyperspace outside 3-space, and is unobservable and virtual to the 3-space observer.

This interpretation is still consistent with the extended quantum mechanical view, where ultimately all observable forces are considered to be generated by absorption and emission of virtual particles by/from an observable particle (mass), at least insofar as what we may observably measure or detect.

Force, Force Field, and EM Waves in Vacuum

In the new interpretation, consistent with the quantum mechanical view, observable force becomes an effect, not a cause.

One may interpret quantum mechanics as stating that **any observable is an effect, since it is assumed to have a virtual state cause**. In the axioms of quantum mechanics, an operator is required for every observable.

The primary causative agents are potentials, not force fields, as is now firmly established in quantum mechanics.

The Aharonov-Bohm (AB) effect is a striking illustration of the primary reality of the potential rather than of the force field.

In the AB effect, potentials may still exist when the force fields are zero, and their interference can still cause real effects. The AB effect has finally become generally accepted by physicists after nearly three decades of controversy.

The immediate result is that, contrary to the outdated view imbedded in classical EM, observable E and B force fields do not exist *as such* in vacuum. This allows a totally new interpretation of the **nature** of the EM wave in vacuum: It is longitudinal. And actually, it exists in longitudinal pairs: the second is the phase conjugate of the first.

But of course we detect transverse waves with our detectors! However, this has a simple explanation.

Examine, for example, a straight-wire antenna. The spinning conduction electrons are longitudinally constrained, as is well known. The electrons are relatively unrestrained transversely in the **wire**, but can only "drift" longitudinally down the wire with a speed usually on the order of centimeters per second. The signal potential, however, moves longitudinally down the wire at almost the speed of **light**.

Obviously it is not the longitudinal movement of conduction electrons that constitutes the "signal", even though classical electromagnetics represents it that way.*

We note that a spinning electron whose movement is longitudi-

*Actually, we do not really know how current/electrons travel down a wire, or even if it does/they do. See three articles by Chappell Brown in Electronic Engineering Times: "Railgun Research Shoots Holes in Lorentz's Theory," April 6, 1987, p. 49-50; "Anomalies in Electromagnetic Law Spur Debate," Sept. 14, 1987, p. 58; "Electrons and Conduction: Not So Simple After All," Dec. 28, 1987, p. 21-22.

nally restrained, but is unrestrained transversely, may be characterized as a gyroscope. Further, the axis of this gyroscope may be taken as lying in a plane perpendicular to the straight wire conduction path, since the electron is relatively unrestrained transversely.

If now disturbed by a vacuum potential gradient, the gyroscopic electron is free to precess at right angles to the length of the wire. In other words, given a disturbing force, the electron will move transversely, or radially in the cross sectional plane of the wire, because of gyroscopic precession.

Thus, assuming a gyroscopic electron and its longitudinal constraint, we will detect transverse oscillations in the electron gas in the wire, IF AND ONLY IF the incoming disturbance in the vacuum is longitudinal, and IF AND ONLY IF the unzipped vacuum disturbance "couples" to (is zipped by) the gyroscopic conduction electrons.

Two things are certain in our electron-detector model: First, by the nature of a gyroscope, the conduction electrons move (precess) at right angles to the "disturbing force." Second, we only detect the movement of the electrons themselves.

Since we do detect transverse oscillations of the precessing electrons in the straight wire antenna, then it follows that normal electromagnetic waves in vacuum—that is, the component half that, interacts with the atom's electron shells and not with its nucleus — are (1) longitudinal, and (2) of such form that they couple to electrons.

Note that Tesla always insisted that electromagnetic waves in vacuum were longitudinal. For example, he called them "electromagnetic sound waves" in the ether. In "Tesla Maps Our Electrical Future," H. Winfield Secor presents Tesla's view of transverse waves in this fashion:

*"Tesla upholds the startling theory formulated by him long ago, that the radio transmitters as now used, do not emit Hertz waves, as commonly believed, but waves of sound... He says that a Hertz wave would only be possible in a solid ether, but he has demonstrated already in 1897 that the ether is a gas, which can only transmit waves of sound; that is such as are propagated by alternate compressions and rarefactions of the medium in which transverse waves **are** absolutely impossible."*

In his "The True Wireless," **Electrical Experimenter**, May 1919, Tesla himself further stated:

"The Hertz wave theory of wireless transmission may be kept up for a while, but I do not hesitate to say that in a short time it will be recognized as one of the most remarkable and inexplicable aberrations of the scientific mind which has ever been recorded in history."

It should also be pointed out that our analogy permits the option of making a longitudinal wave in the vacuum in such a fashion that It will not couple to electrons.

In that case a normal "electron gas" conduction detector will not detect the new wave. Such a noncoupling EM longitudinal wave is **referred** to as a **scalar electromagnetic wave**, where by use of the **term** "scalar" we call attention to the fact that the vacuum potential is varying, but electron coupling to form vector force fields in an **electron** gas does not occur.

Since according to general relativity the variation of a potential in vacuum rigorously is a gravitational wave, then the scalar EM wave is a gravitational wave.*

We often say it is an *electrogravitational* wave to call attention to its electromagnetic origin, and to the absence of EM force field "bleeding away" of the 5-space Kaluza-Klein gravitational potential. We will discuss the 5-space G-potential shortly.

The conventional equation

$$\mathbf{E} = -\nabla\phi \quad (4-17)$$

thus applies in the detecting electron gas, but not in the vacuum. Instead, in the nonmaterial vacuum, rigorously

$$\nabla\phi \neq -\mathbf{E} \quad (4-18)$$

and this states that a gradient in a vacuum electrostatic scalar

*It is also a very powerful gravitational wave, since for electrons it is some 10^{42} times as strong as "mass attraction" gravity waves.

potential produces an antiphased electric force on and of a particle, on condition that a particle is present. The intent of equation (4-17) should be stated as

$$\nabla\phi = -E \quad (4-19)$$

where the vertical line means "on condition that", and cp means "charged particle" (i.e., "that a charged particle is there.").

Equation (4-19) clearly shows that, in the vacuum, only the organized potential for an E field exists due to the quantity $\nabla\phi$ essentially as pointed out less strongly by Feynman et al in **The Feynman Lectures on Physics**.

Certainly, in the quantum mechanical interpretation, it is the potential that is real. The force field can only be made from the potential by a differentiating operation.

Since there is nothing in vacuum to perform this differentiating operation observably, one may interpret quantum mechanics as already prohibiting the existence of observable electromagnetic force fields in vacuum, at least in the form prescribed in classical electromagnetics.



Figure 61. A force-field vector is a movement of mass in one direction.

One may regard quantum mechanics — and physics in general - to be incomplete until electromagnetic theory is changed to incorporate the implications of quantum mechanics.

In scalar electromagnetics a new interpretation is taken, and the "overhaul" of electromagnetic theory is in progress.

We accent that scalar electromagnetics is still embryonic. It is at a stage similar to that where electromagnetism was when experimenters were still rubbing glass rods with cat fur and experimenting with little charged pith balls.

Early experiments are enlightening and encouraging; nonetheless, the phenomenology and the myriad of variables are not at all well-understood, even by the experimenters themselves, and certainly not by this author.

Zero-Summed Vector Systems: Shortcoming in Vector Analysis

It has long been pointed out by this author that a fundamental shortcoming exists in classical vector analysis itself when applied to physical systems. Let us briefly look at the construction of the vector mathematics theory, to clarify this shortcoming.

First, an abstract entity called a "vector" is conceptualized. This vector has both direction and magnitude, as contrasted to a "scalar" quantity, which only has magnitude.

Next, an abstract "vector space" is defined; this is a sort of "container" for mathematical objects called vectors, with certain inherent properties of the system specified. In other words, a vector space is an abstract "system" or "space" which can contain objects called "vectors."

Next certain other properties, operations, and entities are defined, one of which is the "zero vector".

Essentially the zero vector is defined by a set of operations; however, one simplified interpretation is "the absence of any vector of finite magnitude." By implication, in the abstract vector theory, all zero-vectors are defined to be identical.*

* Because, by their nature assumed in the concept, they have no internal structures. That is, effectively the zero vector has been too restrictively defined as "the absence of any and all finite vectors." It should be redefined as "the absence of any single vector being present alone." In that case the definition would admit "the presence of multiple translation vectors, where their combined translation action is zero."

In the vector addition operation, a group of finite vectors adds to a single vector called the "resultant."

It is standard practice in abstract vector analysis to replace a system of summation vectors by their resultant, since all appropriate properties of the summation system are retained by the vector resultant, in the abstract mathematical model.

This, however, is only possible because the abstract vector space has no such thing as stress, and a zero-vector has no substructure by definition. In the abstract space, only translation and rotation are possible, *by assumption*

It is also possible for two or more finite vectors to add to a zero resultant, in which case the system is replaced with a zero vector. Note that all further action by the summing vector components is eliminated by this assumption.

Again the appropriate properties of the summation system are retained by the zero resultant, in the abstract mathematical model, only because the *medium* (the abstract vector space) is not subject to stress, translation, rotation, and structuring.

Note however, that in physical systems, one cannot simply



Figure 62. The zero-summed vector system is an engine and an artificial potential.

replace a zero summation system of force vectors with a zero vector and retain all characteristic physical effects caused by the replaced system. The physical medium - including the virtual flux of the vacuum, *is* subject to stress, translation, rotation and structuring.

Physically, the presence of the summing vector component forces creates a stress and a dynamic macroscopic structure in the physical medium in and on which the forces are acting. Therefore the stress of the medium and its structure must be preserved and accounted for, even though a zero vector resultant force exists.

This is particularly true in the vacuum, where internal (in-folded) stresses cause charge and energy conversion between one kind of charge/potential and another.

Maxwell's Theory Was Altered and Curtailed

In fact, Maxwell seems to have been well aware of the electromagnetic stress of the ether and its importance. After all, he believed the ether to be material and mechanical, and developed his theory accordingly.

For example, in his *Treatise on Electricity and Magnetism*, he wrote:

"There are physical quantities of another kind which are related to directions in space, but which are not vectors. Stresses and strains in solid bodies are examples of these, and so are some of the properties of bodies considered in the theory of elasticity and in the theory of double refraction. Quantities of this class require for their definition nine numerical specifications. They are expressed in the language of quaternions by linear and vector functions of a vector."

Maxwell worked out his theory in quaternions since, at the time, the modern form of vector analysis had not been originated by Heaviside and Gibbs.

To recapitulate what we stated earlier: A quaternion consists of a vector part and a scalar part and can readily take into account the stress and strain of the medium. A vector consists only of the vector part, and does not take into account the stress of the medium.

It seems certain that Maxwell knew that the scalar part of the

quaternion could be present and vary, even though the vector part was sum-zeroed. Quaternions, however, are devilishly difficult, and even in the time of their founder, Hamilton, few mathematicians and scientists ever mastered them.

Maxwell's theory was transposed (shortly after his death) to its modern vector form by Oliver Heaviside. Many of the characteristics of the scalar part of the quaternion were effectively discarded.

In the remodeling, the "unified" basis was omitted, and electro-

Table 37. MAXWELL'S EQUATIONS

- **INVARIANT**
 - **UNDER CONFORMAL GROUP
OF TRANSFORMATIONS**
 - **IN 4-D MINKOWSKI SPACE**
- **GROUP INCLUDES**
 - **TRANSLATIONS**
 - **ROTATIONS**
 - **REFLECTIONS**
 - **INVERSIONS WRT HYPERSPHERES
OF M-SPACE**
- **HENCE MAXWELL'S EQUATIONS
INCLUDE TRANSFORMATIONS THAT**

**CHANGE INERTIAL FRAMES INTO
FRAMES THAT ARE NOT INERTIAL.**

**PROVED IN 1910 BY
H. BATEMAN AND E. CUNNINGHAM**

gravitation was accordingly discarded. Heaviside wrote a severely limited subset of Maxwell's theory; he did not by any means capture all of it.*

The new Heaviside vector reinterpretation of EM was far easier to calculate in than Maxwell's quaternions. Many physicists (there were really very few scientists in those days!) immediately loved it.

FitzGerald wrote glowingly of Heaviside's translation (and mutilation!) of Maxwell's theory:

"Since Oliver Heaviside has written, the whole subject of electro-magnetism has been remodelled by his work. No future introduction to the subject will be at all final that does not attack the problem from at least a somewhat similar standpoint to the one he puts forward."

Thus it was that Heaviside discarded the basis for scalar electromagnetics and electrogravitation from Maxwell's original work, and **the** so-called "classical Maxwell Equations" appeared for the first time in their modern vector form in Heaviside's work.

Then in the early 1890's a short but vigorous debate on vectors and vectorial methods occurred, involving eight journals, twelve leading publications, and over 30 scientists. Over half the publications were in the leading British scientific weekly journal *Nature*.

This debate, which Lord Rayleigh characterized by the statement "Behold how these vectorists love one another," together with **the** far greater difficulty of quaternion methods as compared to Gibbs' and Heaviside's vector analysis, spelled the death knell to the position of quaternions.

After some years, the Gibbs-Heaviside vector theory was firmly entrenched. The quaternion theory of Maxwell was forever modified **and** limited to the form we know today as "Maxwell's equations."

What really happened was that electrical physicists, faced with the formidable difficulties of quaternions, simply stampeded down the far easier road blazed by Heaviside, bowling over all protests against Heaviside/Maxwell/Hertz theory.

*Specifically, Heaviside wrote the subset of Maxwell's theory where gravity and electromagnetism do not interact and are mutually exclusive.

In Western universities today, no one actually teaches Maxwell's true theory! Instead, Heaviside's curtailed reinterpretation — a severely restricted subset of Maxwell's theory — is taught.

And so that is the EM theory that is learned and applied.

One may rightly argue, therefore, that **Maxwell's theory has only been partially applied in its modern translated form, and the modern form of the Maxwell/Hertz electromagnetic theory is very much incomplete.**

To recover the stress factor in Maxwell's original theory, electromagnetics must take into account the *artificial* potential, which has a deliberately ordered, dynamic, deterministic structure. Scalar electromagnetics takes the patterned stress into account and deliberately uses it. Normal electromagnetics only considers the *natural* potential with randomized VPF structure implicitly assumed.

Scalar Waves and Polarization of the Vacuum

Let us use a simple analogy. This will lead us into the profound implications of the deliberate vacuum polarization and curving of local spacetime that is provided by the vector zero summation (artificial EM potential) method of scalar electromagnetics.*

Visualize two sets of opposing and balanced forces pressing on the sides of a plate.

The forces sum to zero, so the resultant force acting on the plate for translation is zero. Hence the plate does not translate (move away or accelerate).

However, the plate is under internal stress (compression), and is in a quite different condition than when it has no external forces at all acting on it.

Now visualize the forces being applied with rigid rods welded to the sides of the plate, so that the forces may alternately "pull" as well as "push." Let the forces rhythmically vary, alternately "pulling" and "pushing", but always remaining balanced so that their summation for a translation resultant is constantly a zero vector.

The plate never accelerates or moves in translation, but it now contains an internal stress wave which rhythmically varies between compression and tensile stress. Rigorously the plate internally

*Vector **multiplications** that yield a zero vector product are also highly significant.

possesses a scalar stress wave, or a wave of "internal stress in the medium."

Now visualize a similar "plate-like" region of vacuum, with its virtual particle flux, instead of the material plate. Visualize two opposing sets of (unzipped) EM force fields, acting in and on the plate-like region, so that they rhythmically increase and decrease, changing direction also, but always with a zero vector summation.

In this case, there is an unzipped zero resultant EM force field (it is zero, by our assumed conditions), but there is a rhythmic oscillation of the intensity of the vacuum flux (intensity of the vacuum potential) and the vacuum structuring in the region. That is, there is a rhythmic and steady oscillation of the stress energy and structuring of vacuum, and hence of the curvature of spacetime, in **the** plate-like region.

Rigorously, this oscillation — which we call a scalar electromagnetic wave—is a gravitational wave, since the local curvature of spacetime is being oscillated.

Further, it differs from a "natural" gravitational wave in several respects:

1. It has a deterministic pattern or substructure,
2. It patterns or "polarizes" the vacuum,
3. It constitutes local curvature of spacetime, and hence localized general relativity - something which ordinary general relativity assumes cannot be accomplished,
4. It deterministically engineers the virtual state and local spacetime,
5. Since it is achieved by converting EM field energy into artificial G-field energy, one can expect tremendous gains of gravitational and inertial effects in and around electrical circuits utilizing such fields precisely,
6. It affects the Schroedinger wave and the probabilities of the

states being propagated forward by the Schroedinger wave. **With the scalar EM wave, one can thus deterministically engineer the emergence of quantum change, and violate one of the fundamental assumptions of quantum mechanics, that of the totally statistical nature of quantum change,**

7. The scalar wave can accomplish direct and localized change of the rate of flow of time (even to its reversal) and variation of mass and inertia, without concomitant translation of matter,
8. By locally curving and patterning vacuum spacetime, a stabilized standing scalar EM wave can provide macroscopic violation of the conservation laws, which rigorously depend upon a locally flat spacetime (Lorentz frame),
9. Since the components in the zero summation may be EM waves, and may be "locked together" and broadcast to a great distance and interfered there, effects at great macroscopic distances may be achieved, in violation of present assumptions of physics, and
10. Since excess negative time flow may be locally produced, anti-gravity, negative energy, and negentropy may be locally produced.

These are the startling implications inherent in correcting classical electromagnetics' improper treatment of zero-summed EM force vector systems in vacuum.*

By classically replacing the force vectors in a zero EM force field summation with a zero vector and discarding the components, one is totally discarding the fact that such a patterned system of oppositive forces forms a deterministically patterned stress in the vacuum medium.

By this innocuous error, classical EM discards electrogravitation, and avoids unification of gravitation and electromagnetics. It

*And its zero - multiplied force vector systems as well.

also avoids direct engineering of gravitation, vacuum/spacetime, inertia, rate of time flow, free energy, and quantum change.

Generations of Western physicists and electrical engineers have acquired a mindset in only one aspect of the vastly expanded electromagnetics actually available.

Vector Zero Systems and the Kaluza-Klein Approach

Prior to 1921, Theodor Kaluza applied Einstein's new general relativity to five dimensions.

He produced a unified theory of electromagnetism and gravitation.

In Kaluza's theory, the ordinary 4-dimensional gravitational field and the electromagnetic field are but two different aspects of a single more fundamental field: the 5-dimensional gravitational field.

Kaluza's theory was published in 1921, on the personal recommendation of Albert Einstein, who had had Kaluza's paper for two years.

In Kaluza's model, electromagnetics is the 5th dimensional aspect of the 5-d G-field, while the ordinary 4-d G-field is the intersection of the 5-d G-field with our ordinary world.

Five years after Kaluza's epochal paper, Oskar Klein explained where the extra space dimension — the fifth dimension — was. He modified it as "wrapped around" each point in our ordinary 3-space.

In the Kaluza-Klein model, then, an electromagnetic wave— which moves spatially only in the fifth dimension — does not move through our 3-space at all. Instead, on its trajectory it "flows around" each point in our 3-space along its path.

Using Kaluza's model, we may regard the EM field as the normal "bleed-off" or escape of the 5-dimensional gravitational potential in the 5th dimension.

Any gradient in a potential represents a bleed-off of the potential from the high point to the low point. The way to prevent effective bleed-off of a potential at a point is to add an equal amount of bleed-in! The bleed-out and the bleed-in at the point then become balanced, so that an equilibrium state exists in the potential.

By this mean, the magnitude of the potential can be fixed by the two opposing bleed processes in equilibrium.

Table 38. KALUZA GEOMETRY

- THEODOR KALUZA, POLISH PHYSICIST
- UNIFIED THEORY OF ELECTROMAGNETICS AND GRAVITY [1921]
 - 5 - DIMENSIONAL SPACETIME
 - 5 - DIMENSIONAL GRAVITY FIELD
 - ELECTROMAGNETISM IS THAT PART THAT OPERATES IN THE FIFTH DIMENSION

Table 39. 5-D G-FIELD BLEED-OFF [KALUZA 5-D THEORY]

- FAR EASIER TO BLEED-OFF AS ORDINARY EM FIELD
- VERY DIFFICULT TO BLEED-OFF AS ORDINARY 4-D G-FIELD
- E.G., BETWEEN TWO ELECTRONS:

$$\frac{\text{EM}}{G(4)} \approx 10^{-36}$$

- BETWEEN TWO PROTONS:

$$\frac{\text{EM}}{G(4)} \approx 10^{-36}$$

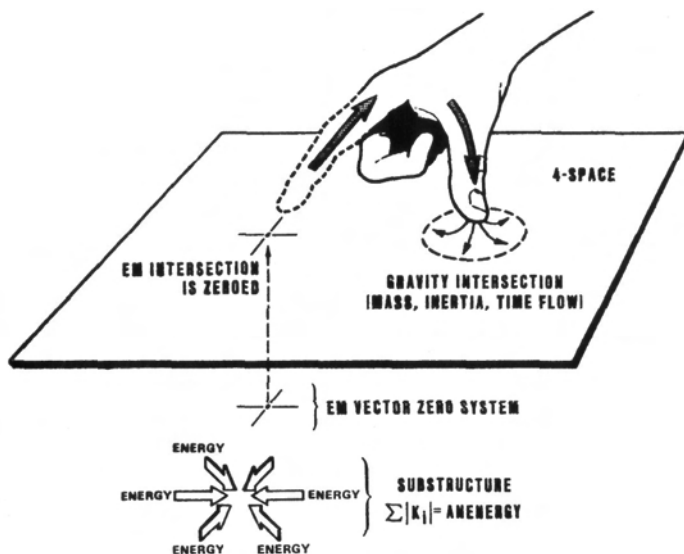


Figure 63. An analogy for how scalar electromagnetics can engineer Kaluza-Klein unified field theory.

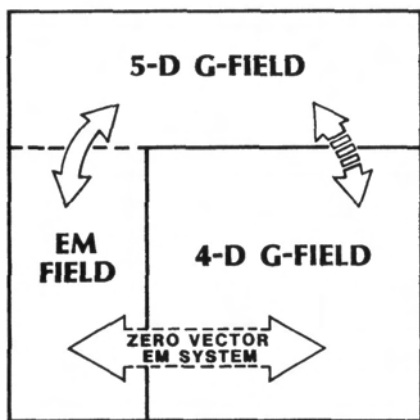
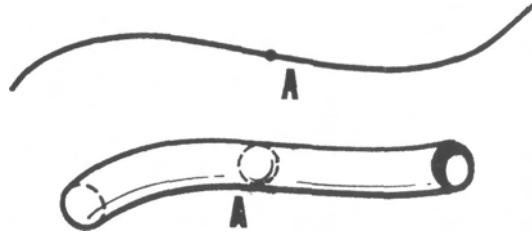


Figure 64. The zero-vector system can engineer Kaluza-Klein theory.

WHERE DID THE EXTRA DIMENSION GO?

- FROM A DISTANCE, A HOSE-PIPE LOOKS LIKE A WIGGLY LINE
- WHAT WE REGARD AS A POINT IN 3-SPACE IS REALLY A TINY CIRCLE AROUND ANOTHER DIMENSION OF SPACE

Figure 65. The basic idea of Klein's explanation of where the extra dimension is.

Table 40. PHYSICAL REALITY IS ELEVEN DIMENSIONAL

- IN THE KALUZA-KLEIN THEORY THE GAUGE FIELD SYMMETRIES BECOME CONCRETE
- THEY ARE THE GEOMETRICAL SYMMETRIES ASSOCIATED WITH THE EXTRA SPACE DIMENSIONS
- AN 11-SPACE IS REQUIRED BY THE GRAND UNIFIED FORCE THEORY

**PAUL DAVIES, SUPERFORCE.
1984, P. 160-161**

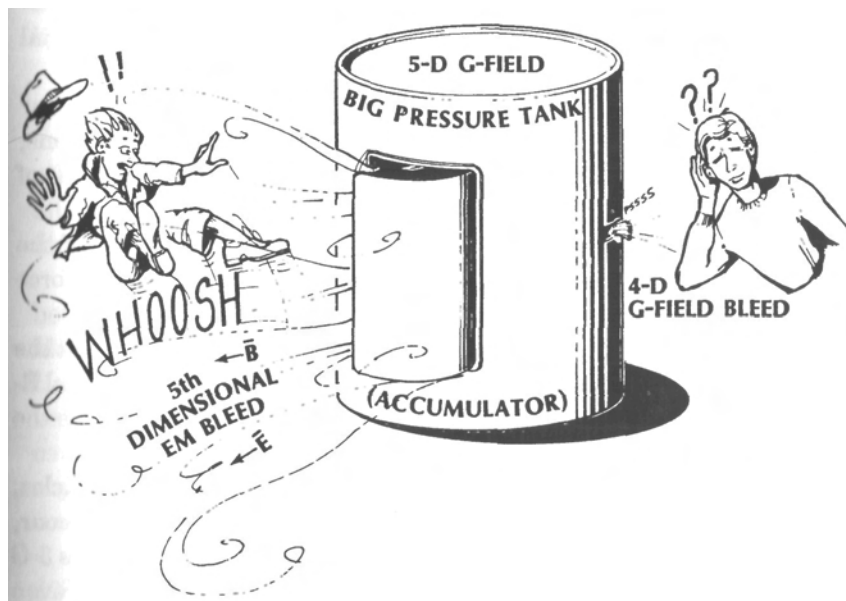


Figure 66. Normal EM bleeds off G-field.

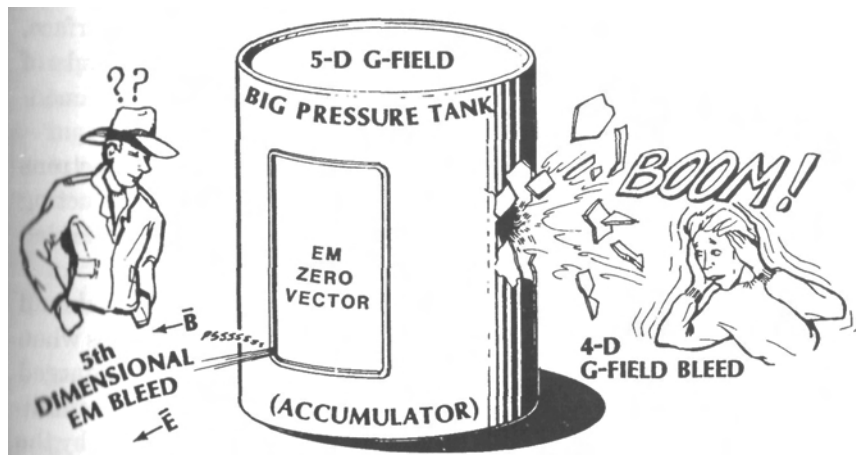


Figure 67. Scalar EM forces 4-dimensional gravitational field.

Note that this positively establishes that two or more zero-summed EM force field gradients produce and stabilize an artificial potential.

Usually, very little bleed-off of the 5-potential occurs in our normal 3-space. When the 5-space G-field is bled off on electrons, e.g., the resulting 5th dimensional E-field bleed-off is on the order of 10^{42} times as much as the 3-space G-field bleed-off.

This accounts for the enormous magnitude of the ratio of the electrical force between two electrons to the gravitational force between them.

Even when the 5-space G-potential is bled-off on and against the greater inertia of much more massive protons, its 5th dimensional E-field bleed-off is still on the order of 10^{36} or so times as much as the 3-space bleed-off.

Note that if we can stop the acceleration of the charged particles, bleed-off of the 5-space G-potential as EM force field cannot occur, and instead all of it must bleed-off as 3-space G-force field. This 3-G bleed-off normally occurs only minimally in electromagnetics, even for so-called "static" charges. This can be seen as follows:

When one charges a conductor such as a large metal sphere, for example, the electrons are unconstrained on the surface of the sphere. They are in constant agitation and motion on the surface, thus constantly bleeding-off the 5-space potential as myriads of squirming little E-fields. Only a very little is bled off as 3-dimensional G-field.

On the other hand, when one charges a dielectric, the electrons cannot be in as much agitation movement as they are on a conducting surface. Hence slightly more of the 5-dimensional G-potential is bled off as 3-dimensional G-field.

Therefore, charged conductors and charged dielectrics should exhibit slightly different gravitational and inertial properties when exposed to a gravity field potential difference. Highly charged capacitors, for example, should exhibit a small but detectable unidirectional thrust in vacuum. Apparently they do, as exhibited by the Biefeld-Brown effect.

In addition, different materials should exhibit slightly different fall rates gravitationally. Again there is some evidence that they do,

as exhibited by the Eotvos experiments in a modern reinterpretation by Fischbach et al.*

Electrogravitation Amplification Factor

If the movement of two free electrons could be entirely stopped, all EM bleed-off of the 5-d G-potential between them would be effectively zeroed or blocked. Then the 5-d G-potential would be forced to totally bleed-off into ordinary 3-d G-field.

For two electrons, this could increase the gravitational force between them by a factor of 10^{42} , if the EM bleed were perfectly blocked.

Such perfect blockage of the 5th dimensional EM bleedoff cannot be accomplished in practice. Normally, with the increase in potential caused by zero-summing, agitating electrons in a statically charged object agitate more intensely, moving and squirming in local, erratic constraints.

However, conversion efficiencies on the order of 10^{10} or even 10^{20} appear to be achievable in ordinary circuitry. In that case, gravito-inertial amplification gains of up to 10^{22} or even 10^{32} appear to be achievable. Gains of 10^{10} or more appear to be fairly readily achievable.

Time delay in producing the gravito-inertial effects may be experienced, however, because mass (nuclei) acts as a capacitance to incident scalar waves, exhibiting capacitive charging and discharging "time constants" when charging scalarly for a particular effect or to a particular pattern.

In these achievable amplification ranges, a single milliwatt of electrical power can control enormously powerful local gravitational and inertial effects, once the scalar EM charge is built up in the nuclei of the target material.

Excessive and frustrating "fiddling time" with the circuits is usually required, however, due to the charging "time constant" effect, the general lack of adequate measuring instruments, and the great uncertainty as to the phenomenology and major variables involved.**

*Ephraim Fischbach et al, "Reanalysis of the Eotvos experiment," *Phy. Rev. Lett.*, 56(1), Jan, 1986, p. 3-6.

••A series of scalar EM instruments, however, is being developed by Bedini, Schnur, Golden, and perhaps even Hewlett-Packard.

However, with persistence, in rather ordinary EM circuits and devices, the use of "summation to zero-vector" techniques and "multiplication to yield a zero-vector" techniques can lower the EM bleed-off of the 5-potential sufficiently to allow substantial local gravitational/inertial effects. By beaming and wave interference, effects at a distance can be achieved.

When gravito-inertial amplification of many orders of magnitude are involved, the assumption in ordinary general relativity of a local Lorentz frame (local special relativity, with local conservation laws applying) is readily violated.

Now one may have local general relativity, with concomitant violation of conservation laws, and local broken symmetry on a macroscopic scale.

Soviet papers already strongly point out that such unrestricted general relativity allows the violation of all conservation laws.

In the Soviet Union, scalar electromagnetics is called *energetics*.

Comparison of EM Concepts

Table 41 shows a comparison between three concepts of electromagnetics: classical, quantum mechanical, and scalar electromagnetic views.

As can be seen, scalar EM re-introduces Maxwell's original potential for electrogravitational variation and structuring of the stress energy density of vacuum spacetime. It applies Kaluza-Klein 5-dimensional unified theory in an engineering fashion.

It deliberately utilizes phase conjugation as a tool to achieve startling negative time/negative energy capabilities and results, including "free" energy and antigravity.

With scalar EM, it should be possible to overcome or circumvent most of the severely limiting assumptions of present physics and engineering.

The great conservation laws yield to direct manipulation and violation. The previously inviolate statistical structure of quantum change becomes deterministic and engineerable.

General relativity becomes an experimental scientific discipline in the laboratory, instead of a complex description of effects only observable in distant, massively curved regions such as on the

surface of a star or near a black hole.

God does not play dice with the universe after all, just as Einstein suspected.

The Aharonov-Bohm Effect

In 1959, Y. Aharonov and David Bohm published a fundamental paper in **Physical Review** which pointed out the quantum mechanical implications of potentials.

The seminal paper is Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," **Physical Review**, Second Series, 115 (3), Aug. 1, 1959, p. 458-491.

In classical electromagnetics, the potentials had largely been regarded as mathematical conveniences, having no real effects.

Table 41. Comparison of EM Concepts

CHARACTERISTIC	THEORY		
	CLASSICAL EM	QM VIEW	SCALAR EM (ARTIFICIAL ϕ)
VACUUM SPACETIME	LINEAR, NO CHARGE	LINEAR, CHARGED (VIRTUAL) STATISTICALLY	NONLINEAR, CHARGED (VIRTUAL) W/ DETERMINISTIC COMPONENTS
VIRTUAL SUBSTRUCTURE	NONE (FLUID EQUATIONS)	YES, STATISTICAL	YES, STATISTICAL, DETERMINISTICALLY WEIGHTED.
FORCE, IN VACUUM?	CAUSE, YES	EFFECT, YES	EFFECT, NO
ZERO FORCE FIELDS	NO EFFECT	BOHM-AHARONOV EFFECTS	SUBSTRUCTURE EFFECTS, ENGINEERABLE
POTENTIALS	FICTITIOUS	REAL, PRIMARY, STATISTICAL SUBSTRUCTURES.	REAL, PRIMARY, DETERMINISTIC SUBSTRUCTURES.
CAUSATIVE AGENT	FORCE FIELDS	POTENTIALS	POTENTIALS AND INFOLDED FIELDS OF SUBSTRUCTURES
CHARGE	WITH MASS	WITH MASS	MASSLESS
RELATIVISTIC EFFECTS DUE TO	VELOCITY	VELOCITY, INTERFERING POTENTIALS	INTERFERING POTENTIALS
HIDDEN VARIABLES	NO	STATISTICAL, NEGLIGIBLE	DETERMINISTIC, MAJOR ROLE.
VECTOR THEORY APPLIED TO EM	OKAY	OKAY	REQUIRES REVISION
VACUUM EM WAVE	TRANSVERSE	TRANSVERSE	LONGITUDINAL W/SWIRLS
ENERGY/MASS CONSERVATION	YES	YES	NOT NECESSARILY. AN ENERGY CONSERVED
CHARGE CONSERVATION	YES	YES	NOT NECESSARILY.
ACTION AT A DISTANCE	NO	NO, EXCEPT BOHM-AHARONOV EFFECTS	YES, SCALAR INTERFEROMETRY
RIEGLER (ZERO-VECTOR) RESONANCE	NO	NO	YES
INERTIA IS ELECTRICAL	NO	NO	YES
GRAVITY IS ELECTRICAL	NO	NO	YES
MASS IS ELECTRICAL	NO	NO	YES
ELECTRO-GRAVITATIONAL WAVES?	NO	NO	YES
PRIMARILY INTERACT W/ (IN ATOM)	ELECTRONS	ELECTRONS	NUCLEONS
SPACETIME DIMENSIONS	4	4	≥ 5
GEOMETRY	MINKOWSKI	PRIMARILY MINKOWSKI	KALUZA-KLEIN
ZERO SUMMED VECTORS REPLACED BY	ZERO VECTOR	ZERO VECTOR	ARTIFICIAL POTENTIAL
RELATIVITY ASPECTS: LOCAL, DISTANT	SPECIAL, SPECIAL	SPECIAL, MAY BE GENERAL	GENERAL, GENERAL
CAN AFFECT SCHROEDINGER EQUATION	NO	NO	YES, CAN ENGINEER IT.

Table 42. THE AHARONOV - BOHM EFFECT

- **IN FIELD-FREE REGIONS**
 - **E - FIELD IS ZERO**
 - **B - FIELD IS ZERO**
- **POTENTIALS STILL EXIST**
 - **CAUSE REAL EFFECTS**
 - **INTERFERENCE IS KEY**
 - **CONTAIN SUM-ZEROED SUBSTRUCTURE**
- **DOES NOT FOLLOW FROM**
 - **MECHANICS**
 - **CLASSICAL ELECTROMAGNETICS**

However, according to quantum mechanics, the potentials are the real entities, while the electromagnetic force fields are just effects derived from the potentials by imposed operations on them.

Aharonov and Bohm showed that, even in the absence of the EM force fields, the potentials may still exist and interfere to produce real effects in physical systems. They suggested experiments to prove these predictions.

Interference of the potentials is the key mechanism producing real effects in charged particle systems, even in the presence of zero E-field and zero B-field.

Unfortunately, Aharonov and Bohm did not address this issue of zero-summed systems of EM force fields as one way of producing artificial potentials having unique interference characteristics.

That is, by implication they did not consider the deterministically substructured "artificial" potential, but only the randomly structured "natural" potential.

At any rate the "AB effect," as it came to be called, was rather hotly debated and fiercely resisted over the years. Steadily, more and more experiments were added, validating the AB effect. Finally, in 1986 it came to be generally accepted as proven to any but the most die-hard skeptic.

The AB principle represents a violation of both classical mechanics and classical electromagnetics. It is absolutely required, however, by quantum mechanics. And experiments have now established it as proven beyond question.

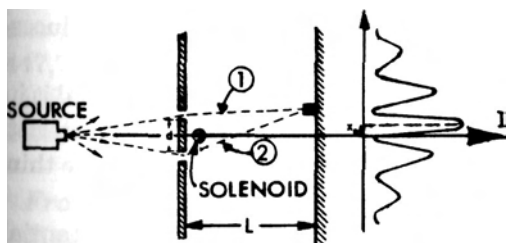
The potential, then, can be a free and independent field. Further, it can directly act on charged particle systems, even when classical electromagnetics does not recognize the interaction.

Curl-Free Magnetic Vector Potential (A-Field)

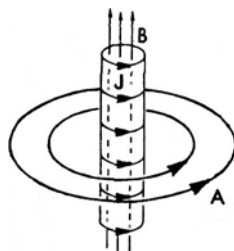
As an example, in classical EM the vector magnetic potential (the A-field) had been defined as a mathematical convenience by the equation

$$\nabla \times \mathbf{A} = \mathbf{B} \quad (4-20)$$

But if the potentials are real, then conceivably the A field can be loosed from its enchainment to the $\nabla \times$ operator. In that case, it



A - FIELD CAN INFLUENCE THE MOTION OF ELECTRONS.



MAGNETIC FIELD AND VECTOR POTENTIAL OF A LONG SOLENOID.

THE FEYNMAN LECTURES ON PHYSICS. VOLUME II

Figure 68. The curl-free A-field. The magnetic vector potential (A-field) may be freed from its attachment to the magnetic field (B-field) and electric field (E-field). It can interfere at a distance to cause real effects. From it, either E-field or B-field, or both, can be made at a distance.

becomes a free, new, and independent field of nature with potentially unique characteristics.

For instance, its defining equation shows that magnetic force field can be made from it, and the rightmost term of the equation

$$\mathbf{E} = -\nabla\phi - d\mathbf{A}/dt \quad (4-21)$$

shows that its time rate of change makes an electrical field.

Let us explain this in simpler terms, and somewhat more precisely than conventional theory. We will use the Kaluza unified G-EM interpretation and electron flow in our explanation.

In the A-field, we have a certain kind of 5-dimensional G-potential which can bleed-off as EM force fields in two ways: (1) in a swirl fashion, where the vortex producing the swirl moves parallel to electron movement, and the swirling is a torque or spin, and (2) in a linear fashion, where the time rate of change of the A-potential produces a linear E-field on the electrons.

The first bleed-off as given by equation (4-20) constitutes the magnetic B-field, and the second bleed-off as given by the rightmost term of equation (4-21) creates a component of the overall electrical E-field. Bleed off of the electrostatic scalar potential produces the other component of the E-field.

Now in general relativity (GR) theory, "the" G-potential is just a conglomerate of many things, each of which has the characteristic of curving spacetime. "The" gravitational field is not a single thing at all, but is composed of a collection of many things.

Thus if we realize that both the electrostatic scalar potential (ϕ -field) and the magnetic vector potential (A-field) are components of the 5-d G-potential, then we see immediately that bleed-off of these two components of the 5-d G-potential creates all normal EM fields.

It follows that, if we produce a zero-vector summation of the two or more EM bleed-offs, we are actually "putting as much back in" to the 5-d G-potential through its A and ϕ components as we are taking out electromagnetically.

In that case, the 5-potential is in a state of equilibrium with respect to EM bleed-off in the fifth dimension. It is now forced to bleed-off in the only other way it can: as ordinary 3-dimensional

gravitational field. Thus by vector-zeroing EM force fields, we turn KM field energy into G-field energy and vice versa, via the intermediary of the 5-potential.

At any rate, soon after publication of the Aharonov-Bohm paper, experiments showed that, if the magnetic field is trapped inside a long solenoid, a phase shift still is induced in the two-slit electron experiment, even though — classically — no contact of the enclosed magnetic field and the moving electrons occurs. This phase shift is explained by the fact that the freed A-field exists outside the trapping solenoid, even though the B-field does not. Consequently, interaction of this curl-free A-field with the electrons produces a phase shift of the QM interference detection pattern.

This proves that curl-free A-field is real and causes physical effects.

It also proves that a form of "action at a distance" is real, just as required by quantum mechanics.

Years ago, Frank Golden and this author — together with Dr. William Tiller — experimented with "free A-field" devices. Golden went on to develop prototype transmitters and receivers and a prototype underwater communication system.

Since that time, Gelinas has patented several curl-free magnetic vector potential (free A-field) devices. See U. S. patents numbers 4,447,779, May 8, 1984; 4,429,288, Jan. 31, 1984; 4,429,280, Jan. 31, 1984; and 4,432,098, Feb. 14, 1984. These patents are assigned to Honeywell.

Fractional Charges, Magnetic Monopoles, and Magnetic Currents

Fifteen years ago, a most distinguished gathering of physicists occurred in Trieste, Italy to review the physicist's conception of nature and how it developed. Seven Nobel Laureates were in the prestigious audience. The keynote address, appropriately, was given by P.A.M. Dirac, and — appropriately — was entitled "Development of the Physicist's Conception of Nature."

Dirac called attention to the possibility of fractional charges, and unexpectedly presented some of the data from experiments done long before by Felix Ehrenhaft.

Years earlier Felix Ehrenhaft, former director of the Physical

Institute at the University of Vienna, had reported a number of experiments where — purportedly — he easily obtained fractional electrical charges.

Whereas Millikan had used liquid oil drops in his experiments to determine the charge of the electron, Ehrenhaft used little solid, red selenium oxide spheres. Not only could Ehrenhaft get a fractional charge, but he could actually vary the size of the fraction by varying the size of the spheres.

(Knowing what has been discovered in the last two decades on the complex bond structuring of water and liquid hydrocarbons, one might very well suspect that a solid — which has one less degree of freedom than a liquid — could possibly yield a very different experimental condition from a liquid, from first principles. However, no one seems to have noted that, or taken it into account.)

(Also, Ehrenhaft's results were replicated by other researchers who used his experimental methods. They published scientific papers, but that made not a whit to the scientific community, which simply rejected the experimental evidence.).

Dirac pointed out that Millikan himself, in his oil drop experiments that established the charge of the electron, reported one anomalous experiment which yielded a fractional charge. He discarded the results of that experiment.

Ending his speech, Dirac stated that it all made him wonder if perhaps Millikan did have a fractional charge in that one experiment after all. And well he might wonder. Ehrenhaft — almost unknown now to the present generation of physicists — may have found not only fractional electrical charges, but the magic magnetic monopoles as well.

Over and over, Ehrenhaft reported the results of experiments which disagreed with the notions of magnetic theory at the time.

Again, some of these experiments were replicated, and reported by those researchers replicating them.

It didn't make any difference at all.

Now, finding a magnetic monopole — and the accompanying magnetic charge current — would be most satisfying to many theorists. That would make the equations of magnetics quite "balanced" with respect to electricity.

However, no one — at least whose results have been accepted -

has yet found a magnetic monopole or magnetic current.

Stanford researchers have perhaps come closest, and even reported the results of one exciting experiment that found the magnetic monopole. However, the team has consistently failed to be able to replicate those results. And in science, "no replication, no acceptance" is necessarily the dictum.

In a moment we will address a possible cause for this failure to find the magnetic monopole and magnetic charge current.

Some Ehrenhaft Experiments

Let's look at some simple, rather informal experiments that Ehrenhaft showed. We call attention to Alden P. Armagnac's excellent article, "Magic with magnetism," in **Popular Science Magazine**, June 1944, p. 130-133, 222, 226. In the first experiment, Ehrenhaft seems to have dissociated water with a permanent magnet.

First, Ehrenhaft seals two rods of pure iron, in holes through opposite sides of the U in a U-shaped glass tube filled with water. Then he uses the two rods — which protrude through the tube into the water — as the pole pieces of a horseshoe magnet — either an electromagnet or a permanent magnet. Dilute sulfuric acid — one percent by volume — is in the water, to give it a very slight acidity.

Bubbles of gas rise up through the twin vertical columns of water, and are collected and analyzed. Most of the gas is hydrogen, as is to be expected from common chemical interaction of the iron rods with the very dilute sulfuric acid. However, some of the gas — ranging from two to twelve percent — is oxygen, and most of the oxygen is produced at the north pole of the magnet.

The pole pieces may be short-circuited with wire, to insure they are at the same electrical potential and prevent any electrical dissociation of the water.

Without the magnet, all the gas liberated is hydrogen, as is to be expected. No oxygen at all is produced.

And another very interesting phenomenon occurs. A strong permanent magnet of the Alnico type gradually loses a marked fraction of its strength — say, 10% in 24 hours. It appears that the energy dissociates water — very similar to electrical energy from a **battery** draining away when electric current is used to dissociate

water.

The real question is: Is this experiment a demonstration of magnetic current?

If it is, then the textbooks are wrong, and there's another constituency in magnetism that has not been taken into account. Further, if it proves magnetic current exists, it has also proven magnetic charge — the magnetic monopole — exists.

If it is not a demonstration of magnetic current, then what is it? Why don't you get any oxygen liberated when the magnetism is removed? What causes the magnet to discharge its magnetic strength?

These serious questions do not appear to have ever been resolved.

In all fairness, however, we must warn the reader that other factors in the water can very seriously affect the outcome of this

EARTH • SUN - MOON TRIAD

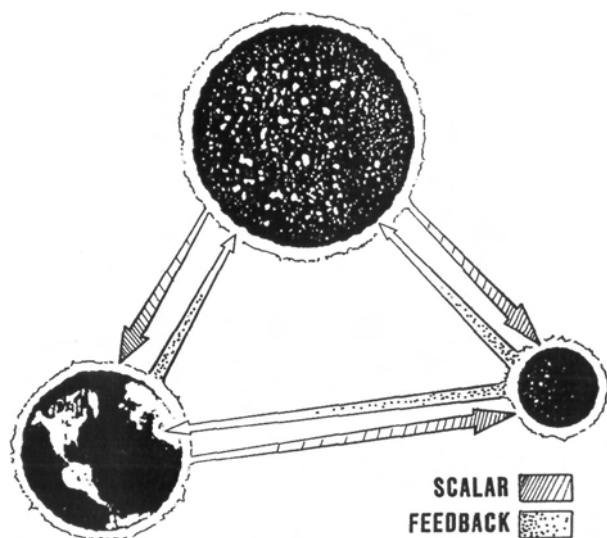


Figure 69. Earth, sun, and moon are locked into a triad system. They exchange both normal energy and phase-conjugate energy. The phase-conjugate energy (negative energy, negative time) streams affect all "subtle-energy" earth experiments

experiment. As we now know, the bonding structure of water is incredibly adaptive. Every bit of water you examine, for example, is absolutely unique in many respects. And in other respects, it's a sort of "single giant molecule."

Be forewarned also that subtle experiments with water are affected by just about everything under the sun. Including the sun!

Ehrenhaft himself was quite embarrassed when this "decomposition of water" failed to be 100% repeatable. It can be done — but you may have to work at it a bit. The best water for this experiment is the most natural, pure ground water you can obtain.

At any rate, it may be that these experiments of Ehrenhaft's are related to the old notion of "watergas" — the changing of water in some fashion so that, as it enters an internal combustion chamber, it decomposes into hydrogen and oxygen, and is ignited by the spark and burns as a fuel. In the typical watergas case, the experimenter has a "green powder" which, when added to water, will allow it to be burned as a fuel when it is used in an ordinary engine. Such a capability, for example, seems to have been exhibited at least once, to the U.S. Navy, by an unorthodox experimenter named Anderson.

Of course, if fractional charges exist and can be controlled (and Ehrenhaft's experiments certainly seem to confirm this), then it is conceivable that a material could be found that would do the "green powder" function. That is, if the bonding electron that bonds hydrogen and oxygen in water were replaced by a fractional charge, the "fractionated water molecule" could just barely be holding together as a liquid. A strong hydroshock — such as going through the jet nozzles in a carburetor — could then cause many of these molecules to break apart, effectively dissociating the water.

A possibly related phenomenon was reported by Le Bon in his *Evolution of Matter*. The experiment was to hold a piece of ordinary aluminum under the surface of mercury in a container for a period of time. Then the piece of aluminum is taken out and thrown into a container of water, where it violently dissociates the water. At least one colleague was able to replicate this experiment by holding the aluminum beneath the mercury for 36 hours.

These Ehrenhaft experiments may also be related to the extensive use in the Soviet Union (and to some extent, in the U.S.) of

magnetic treatment of water pipes so that boilers do not develop so much hard precipitate. Magnetic treatment of water, for example, can rigorously be shown to alter some of a liquid's properties.

Ament, for example, in numerous well-controlled repetitions has clearly shown an increase in auto gas mileage by using a strong magnetic apparatus on the fuel line. Best results are obtained by a magnet which only has one polarity facing the fuel line, and using three stages where the middle polarity is reversed. The effect of this apparatus is definitely scalar EM (gravitational) and expressed in the atomic nuclei in the molecules of the fuel flowing through the line.

Again, the Ehrenhaft experiments may be related to the strange results of Viktor Schauberger, who obtained motive results with water and natural energy that have not been duplicated before or since, so far as anyone can tell.

Schauberger utilized "implosive" energy rather than "explosive" energy — strongly suggesting he was using the negative time aspects of energy, hence negentropy. Schauberger also conceptualized this energy in a spiral form — and that is precisely the type of motion Ehrenhaft observed in many of his bubble experiments. That such negative time/negative energy is "natural" energy will be apparent from our next chapter, where we point out that all living things must use negative time/negative energy processes if they are to defeat the inexorable law of entropy — the increasing disorder of a system as its positive flow of time progresses.

Note, for example, that a system that is 20% efficient in positive time would be 500% efficient in negative time.

Let's look at another of Ehrenhaft's magnetic experiments.

Taking the air gap between two very flat, very parallel pole pieces of sufficient width, one obtains a very accurately-parallel, uniform magnetic field in between them. Now suppose you place some very small particles of material—both magnetic and nonmagnetic — in the air gap.

Common sense assures us that, if closer to the south pole, for example, one of the little magnetic particles will be attracted by **the** preponderance of south polarity. That is, a little magnetic north **pole**

will be induced on the side of the particle nearest the south pole piece, and a little south pole will be induced on the particle on the side away from the south pole piece. The little particle will then be attracted to the south pole piece.

Again, common sense assures us that, if closer to the north pole, the situation is reversed and the little particle is attracted to the north pole piece.

Well, that isn't quite what happens. Some move to the south pole piece, and some move to the north pole piece. And it seems to vary by the type of material the little particle is comprised of.

Now try another experiment. Let's make a permanent magnet motor. Understand, this one is not quite "for free," for we'll consume "fuel"—the strength of the magnet and the acidified water solution.

In this one, we use a glass cylindrical cell, with one vertical iron rod at the top and another at the bottom, and the rods serving as the pole pieces of a giant horseshoe magnet. (Or, for ease you can use an electromagnet). The cell is filled with the same acidified solution as before.

Without the magnet, hydrogen bubbles can be seen rising as before.

Now put on the magnet (or turn on the switch). Voila! the situation with the bubbles changes drastically. A spectacular miniature merry-go-round — a "whirligig" — of bubbles forms between the faces of the poles and parallel to them.

Add some copper particles to the solution. The particles will rotate in the same plane, but in opposite directions from the bubbles. The stronger the magnetic field, the faster the particles and bubbles will contrarotate.

If the magnetic field is reversed, the rotation of both the bubbles and the copper particles is reversed.

Only a few months after this was reported in *Popular Science Magazine*, Brother Gabriel Kane of Manhattan College and Charlea B. Reynolds of the Federal Communication Commission confirmed Dr. Ehrenhaft's discovery of magnetic currents.

They made a drop of copper sulfate solution spin between the pole pieces of a permanent magnet. They also made an interposed microscope cover glass spin from the rotation of the copper sulfate.

It was hinted they were heading toward power machinery. If so,

nothing else was heard — possibly because they never solved the problem of consuming the magnet's strength and the acidified solution.

Bill Mueller, the present inventor of a free-energy device, has also demonstrated the spinning of a piece of plastic in a magnetic field.

After WWII, Dr. Ehrenhaft returned to his post in Vienna, published later work in French and other scientific journals, and died not long after.

What is a magnetic monopole?

First, let's reiterate what we mean by "magnetic field." It'll take a little bit to get there, so please bear with me.

By electric charge, we mean the virtual photon flux connected with a particle of mass or an object (of mass). One type of charge (by convention, positive) is modeled to constitute a "source" of this flux. The second type of charge (negative) is modeled to constitute a "sink" of this flux.

Everything in electromagnetics is fluid flow, you see. The old guys who formed the theory believed that electricity was a thin material fluid. So they modeled it that way.

They modeled the positive charge as an everlasting "sprayer" and the negative charge as a "sink" or everlasting accumulator.

They reasoned that of course this "stream" of electric fluid could "swirl" or rotate, just as normal fluids can.

This "swirl" in the stream of virtual photons is magnetostatic scalar potential — or magnetic pole for short.*

Obviously there can be two directions of swirl — one right-handed, and one left-handed, with respect to the direction of the virtual photon stream. So there are two kinds of "magnetic pole" — north (right-hand swirl) and south (left-hand swirl).

The strength of one of these "swirls" can vary, of course, and that's a variation in the strength of the corresponding pole.

You can also think of the "pressure" of the swirl, so to speak, **at** least for modeling purposes. In that model, north swirl is "higher

*Rigorously, a permanent magnet does not produce an observable B field in vacuum! Instead, it produces the dynamic, swirling "potential" for that field — i.e., an **unzipped** field. A particle of observable mass placed in this field integrates and "zips" — producing the observed B-field on and of the spinning observable particle.

than ambient" pressure, and south swirl is "lower than ambient" pressure, where "ambient" means "with respect to right-hand swirl." The swirl pressure is then considered to "bleed off/flow" from north pole to south pole. This is modeled by Faraday's "flux lines of force." This bleed off (gradient) from north pole to south pole is called the magnetic force field, or just "magnetic field" for short, even though in vacuum it's really an *unzipped* magnetic field.

Note that the original modelers didn't consider negative time and negative energy at all. And they didn't know anything about phase conjugation — in fact, the electron had not even been discovered when all this model was originally put together.

But back to the model. Considering the swirling fluid as "conserved", if you produced a concentration of one kind of swirl at one place, you had to decrease the concentration elsewhere, which is the same as producing and adding opposite swirl there. Thus, conceptually, in the simplest case (only two swirls allowed), a north pole and a south pole always occur together in a pair — though of course there's no limit to the distance between the pair.

Notice that if you have a conservative field such as we assumed, you are keeping your overall frame of observation Lorentzian — in other words, conservative. You do not have a "curved spacetime" to speak of, by assumption.

Now of course, you can have compound and very complicated magnets and magnetic fields — you don't always have to have everything so neat and simple. In that case, conceptually you could have — for example — one north pole and two south poles.

In fact, it's easily possible to demonstrate that: a bar of magnetic material is simply magnetized so that a north pole is in the middle, and a south pole is at each end. Now bend it around a bit, and you get the point.

However, now let us suppose that we curve spacetime itself, locally — something they avoid in present physics by pure assumption.

Specifically, we curve our local spacetime in such a fashion that there's more right-hand swirl in the local region than there is left-hand swirl there.

In that case, we have a north-pole region there, all by itself. We

have a magnetic north monopole. If that "curved spacetime" region of trapped swirl is moving, that constitutes magnetic current, and it may be either positive (north polar) or negative (south polar) flow.

It's as simple as that! Only when you curve local spacetime can you get a magnetic "charge" or monopole. Everyone who's trying to demonstrate a magnetic monopole in uncurved spacetime is doomed to failure a priori. It takes but little reflection to see that, conceptually, a magnetic monopole is a curvature of local spacetime. Indeed, each of the two poles of a bar magnet is precisely that anyway.

Now a monopole can indeed be "made", by bending local spacetime correctly. It can be made in two ways: in the virtual state vacuum itself, or in and on physical materials. It's easiest to make it in the virtual state: just curving the local spacetime will do that. When this "excess swirl flux without corresponding ant swirl flux" is impressed into and onto matter, however, the atomic nuclei are affected, producing excited "magnetic states." In addition, a great deal of physical stress is created in the material, due to monopolar repulsion between the various "nuclear monopoles deposited in it."

If a sufficiently strong monopole intensity (magnetic charge) is produced in the material, the material will violently fragment from internal stress. When a metal, for example, undergoes such a "monopolar fragmentation", it is common to see "tiled edges" of the metal rupture, much as twisted little "planks" or tiles of metal unfurled and "split." Such a break may be a positive signature of the involvement of virtual magnetic monopoles (i.e., by the metal having acquired virtual magnetic monopolar charge, causing the disruption).

This precise type of metal fracture has been very well demonstrated in experiments by Canadian experimenter John Hutchinson. Anomalous, powerful breaks in metal have been obtained by Hutchinson where the two ends that break apart both have a north pole or a south pole.

The anomalous hole in the fuselage of the Arrow DC-8 destroyed at Gander Air Force Base, Newfoundland on Dec. 12, 1985, strongly suggests that an electromagnetic missile struck the aircraft, inducing monopolar effects. That would also match the **three** eyewitnesses' description of an anomalous glow on part of the

aircraft as it faltered and then fell.

Supercharges and Fractional Charges

Now without further ado, let me just state flatly that the only way to get a fractional charge is to have an appreciable curvature of local spacetime.

To get that local curvature, it's going to be very difficult to use liquid. For weak effects, it will almost always change its bond structure and not localize the curvature in the nuclei. So "fractional charges" in liquid are much harder to come by.

However, with solids it's a different thing, particularly if you make the solid material very, very small and nonlinear — precisely like Ehrenhaft's little red selenium oxide spheres. There you can get **the** curvature to localize without so much bleedoff through the bonding lattice.

The greatest electrical wizard of all, Nikola Tesla, reported producing electrons with 50 times the normal electrical charge of an electron. That's readily understandable if you look at what's happening to the charge of a particle: To have 50 times as much charge, the electron must be exchanging virtual photon flux with its surrounding vacuum at 50 times the rate of the normal vacuum.

In other words, *it's the vacuum (spacetime) which must be*

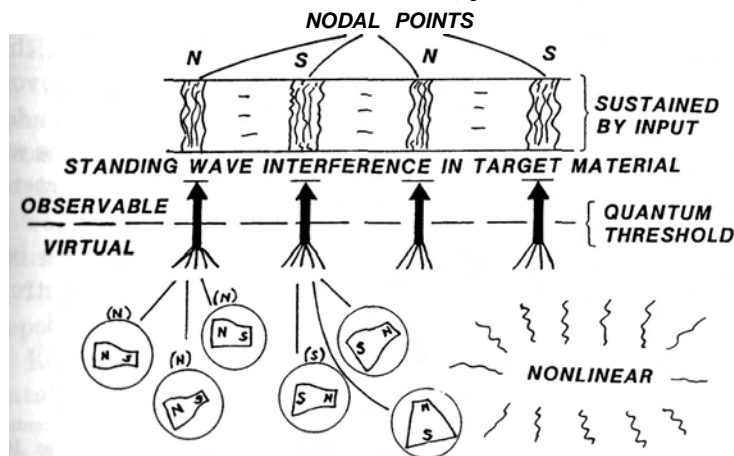


Figure 70. Forming magnetic monopoles with a standing scalar EM wave. In a nonlinear vacuum (locally curved spacetime), virtual magnetic monopoles can be formed and deposited in materials.

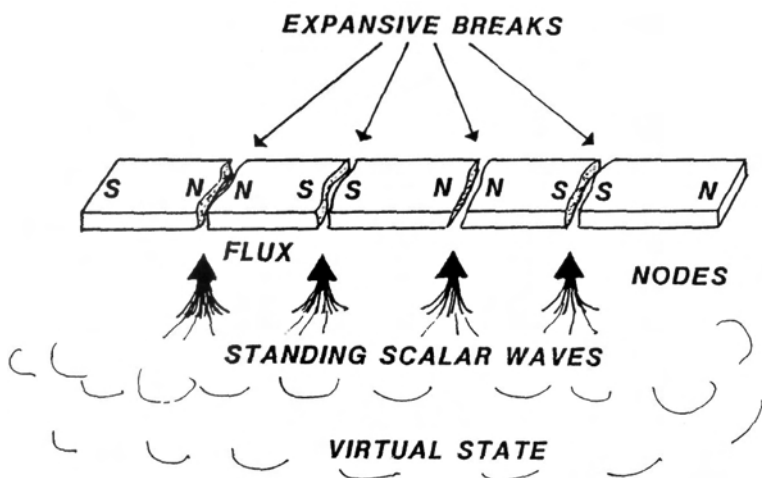


Figure 71. Metal fracture by depositing magnetic monopoles. Demonstrated by Canadian researcher John Hutchinson.

changed, not the electron! Actually, that happens anyway whenever the electron is in an electrical potential field. There are many unrecognized assumptions in the postulate that the electron charge is fixed.

If you curve local spacetime in one direction, you get the charge, of an electron increased. If you curve it in the other direction, you get the charge decreased. In that case it's called a *quark*.

At any rate, our own scientists have been looking in the wrong way and in the wrong place for magnetic monopoles and fractional charges.

Work such as that of Ehrenhaft and others should be re-evaluated. And, most certainly, the basis of the present electromagnetic theory should be both re-examined and reformulated.

*Such as the implication that the free electron is always free to move, and that potential surrounding the electron always possesses a translating gradient when it changes. It does not consider the case where the virtual flux exchange between electron and vacuum increases isotropically, centered on the electron. That, of course, represents an *excited charge* of the free electron.

CHAPTER 5

EXTRAORDINARY BIOLOGY

Kervran's Proof of Biological Transmutation

In orthodox chemistry, one of the strongest dogmas is the stubborn insistence that it is impossible to create another element by chemical reaction. Most chemists also insist that all reactions occurring in living systems are chemical in nature. They believe fervently that chemistry can and must explain life itself.

In the early 1960's, a French researcher named Louis Kervran published work which flew directly in the face of the accepted chemistry dogma. Kervran reported the astounding results of his research showing that living plants were able to accomplish limited transmutation of elements. Kervran was then the Conferences Director at the University of Paris, and his first paper was published in **La Revue Generale Des Sciences**, July 1960.

What was so revolutionary was that, according to the prevailing wisdom of science, you can't transmute elements (permanently change the nucleus) except with enormous energy — certainly not with the microvolts and millivolts (and microwatts and milliwatts) that living systems can muster electromagnetically. *

Rutherford, the British physicist who discovered the nucleus of the atom, had shown in 1919 that you can bombard elements with alpha particles and transmute them. The accepted wisdom of today is exactly the same, except that the physicists have used heavier and heavier "bullets" in their artillery approach. No one has tried a controlled approach, for the catchecism is that you have to use the *wham it harder!* approach.

In other words, to most scientists the whole thing had to be preposterous, and Kervran had to be deluded.

Kervran published further details of his work in a book, **Transmutations Biologiques**, Maloine, Paris 1962. But the initial reac-

*Note, however, that since gravity is infolded EM, one can have extremely powerful infolded EM, yet only have miniscule electrical (outfolded) residues. Thus the actual "available power" in artificial biopotentials may not be quite so small after all.

tion of most scientists was disbelief and skepticism. Few scientists would stoop to repeating Kervran's experiments, which of course they knew could not work anyway.

Actually the effect is widespread amongst living systems. As Kervran pointed out, the ground in Brittany contained no calcium; however, every day a hen would lay a perfectly normal egg, with a perfectly normal shell containing calcium. The hens do eagerly peck mica from the soil, and mica contains potassium — a single step below calcium in the standard table of elements. It appears that the hens may transmute some of the potassium to calcium.

Further, if one tests this assumption, it is quickly shown to be true. Hens denied calcium but not potassium, stay perfectly healthy and lay perfectly normal eggs. Hens denied both potassium and calcium will be sickly and lay only soft-shelled eggs. If these sick chickens are allowed to peck only mica — which they will frantically do — everything returns to normal again.

Most orthodox scientists nevertheless remained skeptical or downright hostile.

However, a few other scientists began to repeat Kervran's

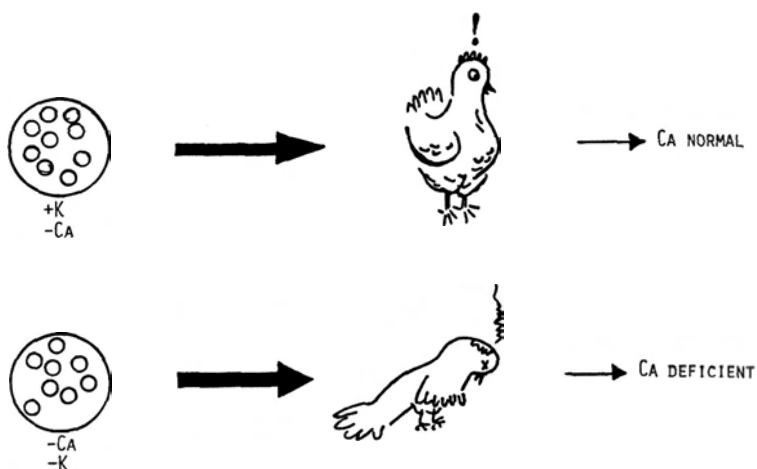


Figure 72. The Kervran effect. A biosystem can accomplish limited transmutation of elements.

experiments and replicate his results. Several of these corroborating scientists were (1) Professor Hisatoki Komaki, Chief of the Laboratory of Applied Microbiology at a leading Japanese university, (2) Professor Pierre Baranger, Head of the Laboratory of Chemical Biology of the Ecole Polytechnique in Paris, and (3) J.E. Zundel, then head of a paper company with a chemical analysis laboratory, and later a chemical engineer of the Polytechnicum School of Zurich, Switzerland.

Later work by Zundel was particularly decisive: he utilized the mass spectrometer at the Microanalysis Laboratory of the French National Scientific Research Center, and neutron activation mass analysis at the Swiss Institute for Nuclear Research in Villigen to positively confirm an increase in calcium of 61% to an accuracy of 2%. Such results and instrumentation, of course, removed any doubt that the effect could be due to statistical variation. In the same experiments, the plants increased their phosphorus 29% and their sulphur 36%.

Komaki became head of a research laboratory at Matsushita Electric Company. There he conducted research conclusively proving that microorganisms (including some bacteria and two kinds each of molds and yeast) could transmute sodium into potassium. In fact, he placed a brewer's yeast product on the market that, when applied to composts, increases their potassium content.

Extensive work in the area has been done in the Soviet Union, where results similar to Kervran's have been substantiated.

Thus all doubt (to an open-minded scientist) was removed: living systems are able to change one element into another by some unknown means, using very feeble energy.

A noted French physicist, O Costa De Beauregard, suggested a mechanism for the transmutations, using weak force interactions and advanced waves.

No one — even Kervran himself — thought of negative energy/negative time interactions. The jury is still out on the actual mechanism, but it is absolutely clear that the transmutation does indeed occur.

The Japanese researchers, having replicated Kervran's astounding results to their complete satisfaction, recommended him to

the Nobel Committee for a Nobel Prize for such epochal work. Thus Kervran became a Nobel nominee, though he was not granted the prize.

Kervran has since passed away, leaving behind his books and papers that point to a revolution in chemistry and physics - transmutation of elements at very weak energy.

Biological Transmutation Has a History

Actually biological transmutation — and transmutation of elements (alchemy) in general — has a history, of both results and suppression.

Louis Nicolas Vauquelin, a celebrated French chemist, discovered that chickens could produce more calcium in their eggshells than entered their bodies. Hence they had to be able to "create" the calcium, else their own bodies would have been completely depleted.

One of his contemporaries, however — Antoine Laurent Lavoisier — became the "father of chemistry." Lavoisier laid down the dictum that nothing was created. So chemistry fixed upon the notion that the combinations of elements could be shifted, but the element itself could not be transformed.

Not until the discovery of radioactivity did any crack in this solid wall appear. But still, the basic ideas of chemistry said the element couldn't be transformed chemically. It could only be transformed if one blasted the daylight out of it with an atomic or particle bullet.

Today most chemists still hold that exact same opinion, unshaken.

To resume: Over a century ago, a chemist named Albrecht von Herzelee proved that germinating seeds somehow transmuted elements in the process. In 1873 von Herzelee published a book, **The Origin of Inorganic Substances**, where he showed research proving that plants continuously create material elements.

Even earlier, in 1822 an Englishman named William Prout had studied chicken eggs in incubation. He found that hatched chicks had more lime (calcium) in their bodies than was originally present in the egg!

Another French scientist named Henri Spindler discovered that, a kind of algae called *Laminaria* could create iodine.

A German researcher named Vogel had planted cress seeds in a

bell jar. They were fed nothing but distilled water; still, when grown they contained more sulphur than had been in the seeds originally.

Lawes and Gilbert, two British researchers, also found that plants could "extract" more elements from the soil than the soil actually contained in the first place.

Baranger performed thousands of meticulous experiments in plant transmutation of elements. He proved that the transmutations do occur. He also discovered that many things affected the germinating seed transmutation process: the time the seeds germinate, the type of light they are exposed to, the phase of the moon, etc.

None of these experimenters understood the transmutation process used by the living organism. But they proved beyond question that the process existed, and universally occurred.

Surplus-of-Energy Mechanisms Proposed by the U.S. Army

There has also been other very positive support for the thesis that if living systems transmute elements, they can produce a net source of energy in the process.

In 1978 an officially-funded effort of the U.S. Army Mobility Equipment Research and Development Command, Fort Belvoir, Virginia positively confirmed that mechanisms for elemental transmutations could occur in biological systems, from an energy consideration.

The work was performed under the direction of Emil J. York, Chief of the Material Technology Laboratory. Solomon Goldfein was the principal investigator for the effort. Robert C. McMillan, Chief of the Radiation Research Group of the laboratory, provided guidance on matters of physics and nuclear physics.

The abstract of the final report (S. Goldfein, Report 2247, **Energy Development from Elemental Transmutations in Biological Systems**, U.S. Army Mobility Equipment Research and Development Command, May 1978. DDC No. AD A056906.) reads as follows:

"The purpose of the study was to determine whether recent disclosures of elemental transmutations occurring in biological entities have revealed new possible sources of energy. The works of Kervran, Komaki, and others were surveyed, and it was concluded

that, granted the existence of such transmutations (Na to Mg, K to Ca, and Mn to Fe), then a net surplus of energy was also produced. A proposed mechanism was described in which Mg adenosine triphosphate, located in the mitochondrion of the cell, played a double role as an energy producer. In addition to the widely accepted biochemical role of MgATP in which it produces energy as it disintegrates part by part, MgATP can also be considered to be a cyclotron on a molecular scale. The MgATP when placed in layers one atop the other has all the attributes of a cyclotron in accordance with the requirements set forth by E.O. Lawrence, inventor of the cyclotron."

"It was concluded that elemental transmutations were indeed occurring in life organisms and were probably accompanied by a net energy gain."

The researchers also concluded that elemental transmutations occurring in life organisms are accompanied by losses in mass representing conversion to thermal energy, and that such energy probably is a net gain when compared to the amount required to effect the transmutation.

All in all, they concluded that the little cell with its feeble energy does quite well! It's in control of cyclotrons, and cyclotron forces, and direct conversion of mass to energy. Pretty good for a little bitty beastie, wouldn't you say?

Actually, one should point out that, according to nuclear physics, an atom gets a little heavier when it absorbs (usually by means of an orbital electron) a normal "positive energy" photon. That is, the addition of positive energy results in the addition of a little bit of "positive mass."

Negative energy, of course, does a similar thing to the nucleus — except that it adds "negative mass." Thus the nucleus of the atom, when it absorbs negative energy, gets lighter. This is seen in the external world as "loss of mass."

With our present nuclear physics, only positive energy is assumed except in extremely rare cases.

Thus the Army study — which was conducted and controlled by some excellent scientists — worked out a "loss of mass" the way

they're trained to.

By adding some positive energy, the nucleus would gain some positive mass. By adding some negative energy, the nucleus would lose some corresponding positive mass. The conventional physics then would equate this "loss of mass" as the direct conversion of mass to energy. And so it is, only it's conversion to negative energy!

However, by pointing out the cyclotron mechanism in the cell MgATP, the Army researchers have made a most important contribution.

Note also that the whirling motion may be very much related to Viktor Schauberger's work and to Wilhelm Reich's work. Both of them worked with what they viewed as an unusual kind of living, spiraling energy.

All the orbital electrons of an atom also are whirling around in orbit, in the simplest model. Further, these orbits themselves move and rotate or precess.

Similar orbits and shells occur in the nucleus, at least in some models (several rather independent models are used there for specific things.)

It may be that a whirling, spiraling (cyclotron) energy motion is necessary to connect positive energy to orbital electron (negative charge) shells, and to connect negative energy to positive charge shells in the atomic nucleus. *

Alchemy and Unusual Critters

In ancient times, the old alchemists pursued the dream of making gold. Obviously, if one could do that economically, one could become quite wealthy.

Just as obviously, the kings and rulers of the world took rather a dim view of such proceedings. After all, much of their own power rested on their ability to get and control gold. And if some "loose cannon" could make all the gold anyone wanted, then the national **treasury** of the king wouldn't be worth a plugged nickel. And that would finish the king, for he would be powerless.

•The spinning/whirling motion may be viewed as integrating the unzipped vacuum flux virtual vectors into zipped observable force vectors —just as great grandma's spinning wheel integrated fibers into continuous threads.

There are some unorthodox researchers today who take the view that the alchemists were stamped out—*not because they failed, but because they succeeded.*

I subscribe to the same view.

T.H. Moray had a process to "recover finely divided gold from quartzite sands." My personal, strong belief is that he possessed a practical transmutation process. His knowledge and techniques, of course, are still possessed by his sons, and reside through them in Cosray Research Institute, Salt Lake City, Utah.

The possession of such a technical secret may be one of the major reasons why the Morays have met with such intrigue, harassment, and suppression over the years.

To speak further on "making gold," we first have to present some details on some special "critters" that live, but that can't be observed through a normal microscope — even an electron microscope.

In that vein, toward the end of this chapter, we will present some of Royal R. Rife's fundamental discoveries. Pay particular attention to his discovery of "finer" living forms — which today we could only refer to as "living energy, virtual-state forms."

Let's call them **critters** for short.

At one time, when the earth was young and the radiation from the sun was different, conditions on earth were much hotter. Great volcanic activity and fiery eruptions were commonplace and nearly continuous. Huge storms, of size and magnitude undreamed of today, swept the primitive atmosphere. The oceans were frenzied.

Under those conditions, many types of "critters" were highly active. Most of the critters, for example, lived in and worked on the atomic nuclei of matter.

After all, the critters are living, virtual-state organisms. There's a continual exchange between the virtual state (the vacuum, or spacetime) and mass (the observable state). An atomic nucleus is like an island in the "virtual state ocean", and the flux interchange is like waves breaking onto the island and then washing back to sea. The critters live in that ocean, and wash upon, so-to-speak, the mass-islands and interact with them.

In those primal days, many of the present great mineral deposits of the earth were created due to the transmutation activities of the

critters.

One kind, for example, lived in copper. In an "energetics" sense, this critter "ate" copper and "excreted" gold, so-to-speak. Much of the gold that occurs in great copper deposits today was formed this way in the old days under primal conditions.

When conditions on earth changed, these little "copper critters" ceased their incessant activity and became dormant, just as viruses can do. But the critters are still there in the copper ore, waiting to be activated.

And activate them you can! You can even get the critters into a solution, and then crystallize them out as crystals.

These crystals are what the alchemists of old called the **philosopher's stone**, with the power to transmute base elements into gold. There are several kinds of philosopher's stones; this kind is for copper.

At any rate, you can then place these special crystals on some copper (and add another thing or two), and restore them to a similar primal environment as of old. That is, heat them in an electric furnace. Blast them with terrible electrical bolts. Bathe them in intense ultraviolet light. That's just a nice, refreshing spring day for the critters!*

That stimulates them and revives them. They wake up after a long sleep — and they're immediately "hungry." So they go right to work on the copper. Boom! In a little bit there isn't any more copper, just mostly gold, with a little other miscellaneous residue thrown in, such as black ruby and silver (in the experiments of one of my close colleagues).

The gold is radioactive when first made. Fortunately, all isotopes of gold are very short-lived: just minutes suffice for the radioactivity to die away. So you wait half an hour and everything's okay.

That's all there is to it.

And if you do that and try to capitalize upon it, your life expectancy is about 24 hours.

I don't know whether or not biological systems, in their Kervran-

*Note the probable similar effects involved in the Miller-Fox-Urey experiments in biogenesis

transmutations at weak energy, deliberately manipulate similar "critters." I suspect, however, that they do, at least to some extent.

The Cell Also Lives and Functions in the Virtual State

Obviously, to transmute elements the living system has to be able to directly affect and influence the atomic nucleus.

It has been shown that this is a cellular capability, for single-celled organisms can do it.

As we shall see, Rife's work showed that the living cell is connected to at least 16 intemested deeper levels of reality than a relative "point" under an ordinary microscope. Further, all levels are structured and organized.

Think of it! Each one of those levels is to the preceding level as microscopy today is to the normal world. Sixteen levels!

I think it's reasonable to state that the life of the cell is patterned and dynamically structured and functioning all the way into the virtual state; indeed, to very deep intemested levels of the virtual state. That is, it also functions *hyperspatially*.

We shall also see that the mind and thought involve these more subtle physical (though virtual) levels.

Thus the living virtual-state levels are a reality, for Rife proved it.

The living organized structures at each level are a reality, for Rife proved it.

The living ordering and control of dynamic functions on all those levels is a reality, for Rife proved it.

Those living virtual-level parts of the living organism — plant or animal — thus affect, function in, and reside in the atomic nuclei of the material that composes its bodily structures.

Beasties like bacteria and viruses also have living, organized energy structures in multiple levels of virtual state. Apparently, for these more primitive life forms, the virtual-state "energy part" can be separated and pass through a filter, then re-engender the physical form and/or itself cause the disease in a host! At least that is what Rife and other scientists showed.

"Bigger fleas have smaller fleas to bite 'em, And so on, ad infinitum."

Of course the living system can "work on" the nucleus and

change it a little bit! If it couldn't do so, it couldn't stay alive and function in there in the first place!

The Kaznacheyev Experiments

Dr. Vlail Kaznacheyev is Director of the Institute for Clinical and Experimental Medicine in Novosibirsk.

For 20 years he has been directing highly unusual experiments with twin cell cultures. These experiments are vital to understanding disease and healing on a more fundamental basis than is presently utilized by orthodox medical science.

The Kaznacheyev experiments (several thousand) in the Soviet Union proved conclusively that any cellular disease or death pattern can be transmitted electromagnetically, and induced in target cells absorbing the radiation.

In the experiments, two sealed containers were placed side by side, with a thin optical window separating them. The two containers were completely environmentally shielded except for the optical coupling.

A tissue was separated into two identical samples, and one sample placed in each of the two halves of the apparatus.

The cells in one sample (on one side of the glass) were then subjected to a deleterious agent — a selected virus, bacterial infection, chemical poison, nuclear radiation, deadly ultraviolet radiation, etc. This led to disease and death of the exposed/infected cell culture sample.

If the thin optical window was made of ordinary window glass, the uninfected cells on the other side of the window were undamaged and remained healthy. This of course was as expected in the orthodox medical view.

However, if the thin optical window was made of quartz, a most unexpected thing happened. Some time (usually about 12 hours) after the disease appeared in the infected sample, the same features of disease appeared in the uninfected sample.

This startling "infection by optical coupling" occurred in a substantial percentage of the tests (70 to 80 percent). From an orthodox medical view, these results were unexpected and unheard of.

Further, if the originally uninfected cells were in optical contact

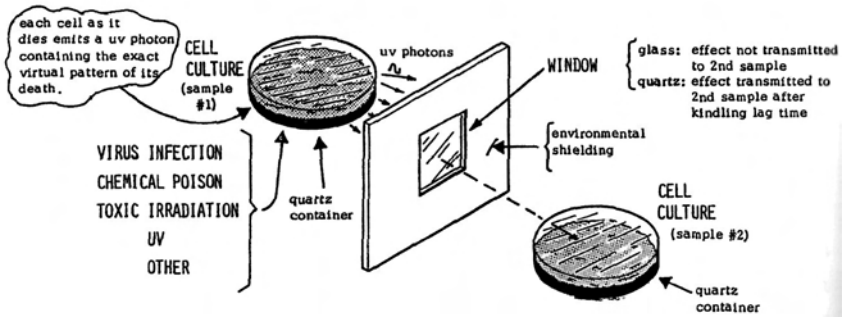


Figure 73. The Kaznacheyev effect. Thousands of experiments proved that (1) cellular disease is electromagnetic, and (2) it can be induced electromagnetically at a distance. Also called the cytopathogenic effect.

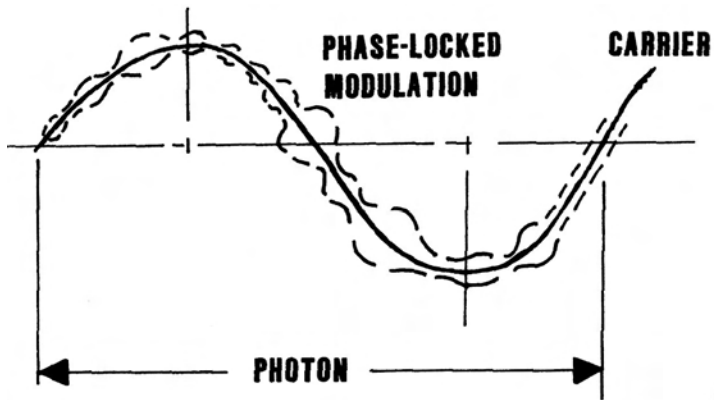


Figure 74. A photon is one oscillation of an electromagnetic carrier. It may have substructures that are modulations. Such a structure is called a "giant photon," or a "compound photon."

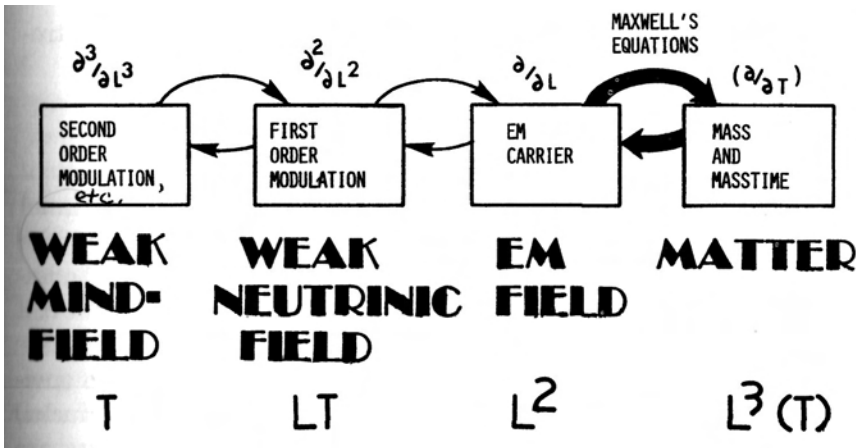


Figure 75. Nested modulations are the key to hyperspatial engineering.

with the infected cells for 18-20 hours or so, and then were correspondingly exposed (optically coupled) to another uninfected cell sample, symptoms of the infection appeared in this third sample an appreciable portion of the time (20 to 30 percent).

Guided by A.G. Gurvitsch's work that showed that cells give off mitogenetic radiation (photons) that can affect other cells, the Kaznacheyev team sought an answer by looking for photons given off by the infected culture sample as its cells died.

They found that the cells in the infected culture gave off photons in the near ultraviolet when they died. The normal window glass was opaque to these near-UV photons and absorbed them. In that case, the uninfected culture on the other side of the glass was not exposed to radiation by the UV "death" photons from the dying cells, and they remained serenely healthy.

However, the quartz window was transparent to the UV "death photons". When the quartz window was installed, the UV "death photons" passed through it and were absorbed in the uninfected culture on the other side of the window. Most of the time, the uninfected culture which absorbed "death photons" sickened and **died** with the same disease symptoms.

The Kaznacheyev experiments proved conclusively that cellular

death and disease patterns can be transmitted and induced electromagnetically.*

Structuring and Charging a Biopotential

Kaznachejev thus demonstrated that a photon information/regulatory system exists in biological systems due to a continual influx of EM energy from outside the system. That is, the cells of the biosystem are charged with an electromagnetic potential, and additions and changes to the potential are continually received. The cell is thus in minute disequilibrium.

Usually the myriad of continual inputs from the external environment into the cell's potential charge pattern (in its atomic nuclei) may be taken to be potential changes whose substructures are *disordered*. In that case, no specific environmental effect is observed except slight fluctuations without order — a miniscule form of "heating."

However, if a continual *ordered* substructure exists in the input from the external environment into the cell's potential, the cell's potential will gradually "charge up" with that pattern.

An analogy will prove helpful. Imagine an accumulator, a large pot, that holds a volume of water. Several pipes are connected to the pot, some are inputs for water coming in, and some are outputs for water flowing in.

Imagine the inputs all containing "blue" water, just in slightly varying shades. The water in the pot is blue, and may slightly rise and fall in level as the input flow rates vary. The water in the pot may also vary slightly in its blueness as the inputs vary. However, it will still be blue.

Now suppose that yellow water starts flowing through one of the input pipes, and at a goodly rate. Slowly the water in the pot will start to turn greenish as a greater percentage of yellow builds up. In other words, the pot slowly charges up with some of the "yellow" charge, in the process acquiring a "green" charge.

*We point out that this effect has been investigated in both the infrared and ultraviolet. IR to UV may be taken as a single harmonic interval — an **octave**, musically speaking. The same effect can be reproduced in any other "octave" (single harmonic interval) of the electromagnetic frequency spectrum. The **reversal** of the effect can also be achieved in any harmonic interval. The mechanism for these effects involves the cellular biopotential, Popp's master cellular control system, and the deterministically-tailored substructure of photons.

The biopotential in the cell experiments works the same way.

A cell has a biopotential built up, which represents the "nominal equilibrium" of the scalar charge on the cell. This biopotential, being mostly a "sum-zero" of virtual state vectors, is centered in and on the atomic nuclei of the cell, constituting charge patterns in these atomic nuclei. The biopotential extends out of the atomic nuclei, through the electron shells, into and through the molecules, through the internal cell structures and membrane, and outside the cell.

From the atomic nucleus on out through the cell, every layered structure or organization of the cell will layer, structure, and organize the biopotential accordingly.

This organized, structured cellular biopotential is continually receiving "charge patterns" contained in incoming photons absorbed by the cell. The biopotential is also continually exhausting some of its biopotential charge pattern in the photons (heat, light, etc.) that the cell emits.

The Cell's Electromagnetic Breathing

Via structured photon exchange, the biopotential of the living cell thus "breathes in" the virtual state charge structure of its environment, and "breathes out" its own internal virtual state charge structure.

So, in the experiment, the uninfected cells are continually absorbing photons from their surrounding environment, and emitting photons back to it as well. According to our scalar EM view, each photon it absorbs has a substructure that depends upon the part of the environment from whence it came.

These "substructures" are actually patterns of the sum-zeroed virtual vectors comprising the potential of the absorbed photon carriers.

Normally, since a large number of very different substructures are continually being "input" into the cell's potential from the absorbed photons, the substructure of the cell's potential receives an essentially disorganized continual input from the environment. This liquates to the fact that the environment does not normally specifically influence or change the cell's potential with ordered information (organization).*

When a cell dies, it ceases to maintain the bio-dynamics that sustained its artificial potential (that part due to bio-ordering by its organized life processes, above the background level of its "inert matter" potential). The dead cell's built-up artificial potential then "discharges" by emitting a structured photon.**

Since this photon (energy) comes from an organized potential drop, the virtual substructure of the emitted photon is organized. The photon, then — among other things — carries the exact organized virtual charge pattern of the dying cell's disease.

We strongly insist on the quantum mechanical view here: All physical changes — chemical, material, mechanical, whatever — at root level are constituted and caused by virtual state interactions, in direct patterns of virtual particle exchanges.

In the full QM view, what's really going on in primary physical reality is just a complex set of patterns and changes in potentials anyway.

***The Summed Virtual Structures of Kaznacheyev's
"Death Photons" Physically Kindle the Disease***

At any rate, the Kaznacheyev experiments showed that the dying cells from the infected culture emitted photons in the near UV that contained artificial (structured) potentials. The virtual-state, patterned-substructures in this photon flux directly represented the cellular disease pattern caused by the original cell's specific infection.

In other words, as the infected cells died, they emitted "death photons" which contained the **template** pattern of their death condition.

When these "death photons" are absorbed into uninfected cells, their deterministic substructures gradually diffuse into the cell's bio-potentials. Gradually the biopotentials of the new cells are

*There may be sufficient ordered input from the environment, however, to have something to do with territoriality in living things, salmon returning to a fixed place to spawn, turtles returning to the same beach to lay eggs, the migration of birds, etc.

Note that this photon is emitted from an atomic nucleus. Hence it is a phase conjugate (time-reversed) photon. It will interact with the biopotential of targeted cells, and thus reach their own atomic nuclei. This is the mechanism for Kaznacheyev's cytopathogenic effect. See particularly C.W. Rietdijk, **Found. Phy , 7(5-6), Jun 77, p. 351

Table 43. THE LIVING AURA: THE CELL'S ELECTROMAGNETIC BREATH.

- VIRTUAL EM FIELD
- STORES VIRTUAL PHOTONS
- ENVIRONMENTAL INPUTS
- OUTPUTS BIOPHOTONS
- COHERES ORGANISM
- TENDS TO STABILIZE
- EXPERIMENT ESTABLISHES

Popp, "Photon Storage in Biological Systems,"
Electromagnetic Bio-Information. 1979

"charged up" with the integrated pattern of the disease.

The master cellular control system of the biosystem is itself a dynamically changing, ordered pattern in the biopotential of the cells, which is centered in the atomic nuclei comprising the cell materials. As the bio-potentials of the cells gradually acquire the "death photon's" substructure pattern, this pattern is also diffused throughout (modulates) the master cellular control system. All the cells in the sample (or in a biosystem) are now slowly charging up with the "death photon" pattern.

As Popp discovered, photons continually "leak out" of the virtual photon master control system of the biosystem. Some of these *leakage photons* are observable photons, **but most are virtual photons.**

Further, they are *structured* photons.

In other words, as leakage photons spill out of the master control system, observable change is now being slowly initiated in the physical structures, biochemistry, etc. of the biosystem's cells — and those changes are in consonance with the integrated "cellular death pattern" of the originally infected cells.

Note particularly that it is already well-known in quantum mechanics/electrodynamics that, when a photon is emitted from the surface of a dielectric body, the entire dielectric body participates in that emission. If a photon is absorbed on the surface of the dielectric body, the entire

dielectric body participates in that absorption.

Thus as irradiation by the "death photons" continues, the "death structure" in the irradiated cells increases. It is spread throughout the cell culture by the master communication system, gradually charging the virtual state structure of that system with the death pattern.

Spillage photons from the cellular control system occur throughout the culture. These photons are structured with the death pattern, and gradually affect the cell and its biochemistry physically. The previously uninfected cells thus physically start to acquire and exhibit the symptoms and characteristics of the disease pattern that killed the infected cells.

Electromagnetic Infection Results in Physical Disease

The new cells are now electromagnetically infected and physically diseased.

After all, that is all a cellular disease is in the first place — physical, electrical, and biochemical changes in the normal functioning of the cell.

For a given pattern of changes in the cells, a specific "disease" exists in them.

It absolutely does not matter what causes this exact pattern. If the specific physical pattern is there, the specific disease is there.

Note that **any ghost pattern in the virtual state flux can charge up physical matter — that is, the atomic nuclei of a mass. All that is necessary is that a continual flux of thin virtual pattern continually bathe (irradiate) the mass's atomic nuclei.**

The eventual emergence of this "ghost template pattern" into observable physical reality is called **kindling**. Kindling is charging up one or more atomic nuclei with an integrated virtual charge pattern until the integrated pattern breaches the quantum threshold, resulting in emergence of that pattern into observable physical change.

A Possible Cure for AIDS

One of the things going for the "good guys" and EM defense

against AIDS is that cells are a lot tougher than viruses. Thus even non-structured EM signals can be used to effect cures in many disease cases.

In fact, ordinary ultraviolet (UV) irradiation of the blood has already been utilized to cure or control severe infections, including severe viral infections. I am indebted to Dr. William C. Douglass for pointing this out to me, and for permission to reproduce the following information from his important newsletter, **The Cutting Edge**, Nov. 1987, p. 3. The following material is quoted verbatim, with no editing.

"It's amazing what you can find by nosing around in the dusty archives of a good medical library. I came across another remarkable therapy that the AMA and drug industry (or whoever is in charge of suppressing non-toxic treatments that work) have shoved down the memory hole."

"Back in 1933, Doctors Hancock and Knott treated a patient dying of septicemia (blood poisoning) with ultraviolet irradiation of the blood.¹ The patient was moribund with a blood stream infection **and** obviously near death. (Remember that this was before antibiotics and there was nothing to lose.) The patient made a complete **and** uneventful recovery."

"Searching further, I found that in 1928 a similar terminal infection was treated by ultraviolet light to the blood. This patient also made a complete recovery.²"

"So in 1928, practically in the middle ages, an incurable disease, blood stream infection, was cured with ultraviolet light. With such **a** breakthrough why wasn't it tried again for *5 years*? According to **the** record, *another 6 years* passed before it was tried for a third time.³"

"Back in those days infection was the number one cause of death. You can't help but wonder how many lives could have been saved if doctors weren't so resistant to new ideas. Just imagine a cure for **AIDS** being set aside for 11 years. Yet bacterial infections of the blood were uniformly fatal in 1935, just like AIDS is today."

¹ Northwest Medicine, 33:200, 1934.

² Knott, AM. J. Surg., Aug. 1948, pp. 165-171.

³ Am. J. Med. Sci., 197:873, 1939.

"Finally, in 1940, 110 cases treated with ultraviolet spectral energy were reported. The results were uniformly good. Between 1940 and 1948 many other conditions were successfully treated, including vein inflammation (phlebitis), polio and asthma. Up to the late 40's *over 40 thousand* treatments were given with ultraviolet blood irradiation."

"And now for the most interesting part. In 1947, Dr. G.P. Miley reported on 79 cases of virus infection.⁴ Miley stated that ultraviolet blood irradiation therapy could be relied upon consistently to control an infection of a virus in a safe and efficient manner.⁵"

"AIDS is a virus. AIDS-II is a virus (the HTLV-IV leukemia and lymphoma now sweeping the world). Remember that these killer viruses are within the cell and any chemical agent that enters the cell to kill the virus will often kill the cell as well. But ultraviolet irradiation *kills the virus without harming the cell.*"

"A fine piece of crystal can be shattered by exposing it to just the right frequency. You can be standing in the room and the energy from that frequency won't harm you in the least. Viruses have the same characteristics, and so, in my opinion, frequency irradiation of the blood in the ultraviolet range is our greatest hope for curing AIDS."

"But the treatment is simple, safe, inexpensive and unpatentable. That doesn't bode well for its future, at least until a few *senators* get AIDS."

The Mirror Cytopathogenic Effect and Factors Influencing It

The cellular disease induction effect was called the **mirror cytopathogenic effect** (CPE for short) by the Kaznacheyev group. Mirror CPE appeared only when the quartz or mica window was no thicker than 0.8 mm. A. F. Kirkin also duplicated the experiments using a thin plexiglas window.

There are conditions which enhance the effect, and others which inhibit or degrade it. Irradiation of the detector-culture with a low dose of UV prior to its optical contact enhances the effect, increasing

⁴Rev. Gastroenterol. 15 271-277, 1948.

⁵Am. J. Surgery, Aug. 1948, pp. 170.

it to certainty (99-100%). Increasing the temperature to 38.5 degrees centigrade also enhances the effect (from 37% to 90% for example).*

A necessary condition for the success of the experiment is the rotation of the holder with its two optically-coupled samples at a rate of about 24-25 revolutions per hour. Optical contact between the inductor and detector cells for a minimum of 4-6 hours is necessary, after which the cell cultures can be separated. A longer contact time is necessary for complete development of the irreversible effect.

Both cultures must be maintained in complete darkness throughout the experiment. Use of the detector as a new inductor in a successive state reduces the effect by 20-30%. Three or four such stages is sufficient to eliminate the effect.

There is a seasonal variation in the results. In more than 15,000 experiments, monthly variations and daily variations were noted. (The present author's interpretation of this is that it is due to the monthly variations in the virtual photon substructure input from the moon to the substructure of the cell's bio-potential. The daily variation is due to the daily variations in the virtual photon substructure input from the sun to the substructure of the cell's bio-potential.)

Negative results appear more often in winter. (The present author's interpretation of this is that it is due to the fact that the scalar potentials of the earth and the biopotentials of each living cell on earth are lowered in winter by the weaker flux from the sun.)

Effects are correlated with the polarity of the interplanetary magnetic field. Negative polarity of the field usually precedes the appearance of mirror CPE. (This is because of the positive nuclei — which prefer one direction of the magnetic field over another). Disturbance of the geomagnetic field several days before a culture planting also results in enhancing the mirror CPE effect. (Disturbing the geomagnetic field provides a "dithering magnetic disturbance" in the atomic nuclei which "livens" them. Consequently their readiness to charge-up and emit structured virtual state charges is increased).

Kaznacheyev further discovered that the Sun's activity and the

*This is very important. Preconditioning the cells by "dithering" them in the frequency band of interest, or in a subharmonic band, "livens" the cells for developing the irradiated pattern. This is similar to a dither voltage placed on a missile fin, making it much easier and quicker for the fin to move when an actual order is placed on it.

Earth's magnetic field greatly affected the results of his experiments. Large flashes on the sun seem to inhibit the effect. (Such flashes cause substantially increased irradiation of the atomic nuclei by sun-emitted substructures, charging them mostly with this disordered substructure pattern and literally "burying" the disease structure several decibels below it.) In a season of active sunspots, the mirror CPE effect becomes highly unstable. (The sun emissions are sporadically jamming the effect.) Under active sun conditions, the effect varies from 90-100% on some days to complete absence on others.

Some Biological Warfare Implications

The Soviets reported detecting near-ultraviolet photons — bioluminescence — as carriers of the death/disease pattern.

However, scientists at the University of Marburg in West Germany also duplicated the effect in the infrared. This shows that bioluminescent photons in the near UV and in the IR can definitely carry "disease and death" information between cells. Further, integrating a continuing input of such photons coherently integrates the disease or death pattern from the virtual state into the observable state.

Note also that portions of the infrared spectrum are a subharmonic of the near ultraviolet. Harmonics are well-known in nonlinear oscillator theory, and biological systems are filled with nonlinear oscillators. It may be that harmonics and subharmonics are directly involved in the death pattern.

If so, the induction of such "death patterns" upon normal electromagnetic carriers is directly indicated. For example, modulations covering several octaves in the region of 10 gigahertz and above might be constructed that are the analogues of some particular cellular disease. This modulation pattern could then be added to a common microwave carrier — say in the communication band, from 3 to 30 megahertz. Say, that is, to something like the giant Soviet Woodpecker "over-the-horizon radar" signals as carriers.

In that case, a large population could be bombarded, even on the other side of the earth, with "death photons" whose virtual state substructures carry the particular disease pattern. With sufficient

time, many of the targeted persons would develop the disease.

Note that, even if the power and/or irradiation time is reduced so that the absorbed "death photons" are insufficient to actually kindle the disease in the targeted population, a heightened change in the substructure of the biopotentials of the cells of the targeted persons is still accomplished.

In that case, a precursor pattern — a predisposition for that disease — exists in the targeted persons.

If the actual disease agent is now loosed on that population, the agent will be far more infectious and lethal than it otherwise would.

In this way, even diseases which normally do not kill or seriously debilitate the infected person can suddenly become very lethal agents indeed.

Influenza, the common cold, etc. can become devastating killers if the exposed population has been electromagnetically "pre-conditioned" for enhanced susceptibility.

What Kaznacheyev Hid: The Role of Phase Conjugation

If cellular disease can be electromagnetically induced, can it not be electromagnetically corrected or healed?

If one could time-reverse the exact signal structure (the information) that kindled the effect, and bombard the diseased cells with that reversed pattern, would not the cell deviate back to "normal" and be healed?

The burning question as to whether cellular disease conditions can be corrected by time-reversed disease signals must certainly have occurred to the Soviet experimenters.

It is highly significant that they did not openly publish those results.*

As we have explained in the sections on phase conjugation and scalar electromagnetics, there are really two major kinds of photons:

*Recent information indicates the strong connection of Kaznacheyev with the Institute of Physiology and Biophysics and the Frank Institute in Pushkino, just outside Moscow. Since these institutes are deeply involved in microwave and coherent microwave "directed energy" weapons, it is highly probable that the Soviets are applying Kaznacheyev's "death photons" to microwave weapons — such as the Woodpecker transmitters. If so, obviously they would develop phase conjugate countermeasure signals as well.

(1) the "normal" photon carries positive energy and positive time. (2) the "time reversed" or phase conjugate photon carries negative energy and negative time.

Further, the Soviets certainly knew all about phase conjugate signals. After all, they discovered and developed the effect. We discovered it only from the open Soviet scientific literature!

Let us assume that the "death photons" in the mitogenetic radiation emitted by the dying cells are ordinary photons. Their virtual state structures (in positive observer time) are exact "templates" for the disease pattern.

Now suppose we detect the "death photons" with a phase conjugator, which by definition will produce a time-reversed counterpart to the input signal detected. In other words, the death photons are allowed to strike a phase conjugate mirror (PCM). Time-reversed counterpart photons — carrying the exact time-reversed template of the death pattern — will be created and emitted by the PCM.

These newly emitted photons now carry the exact "healing pattern" for that specific "death/disease pattern that was received and detected."

Further, if we "pump" the phase conjugate mirror, we can greatly amplify the output pattern, and hence greatly increase the healing pattern!

If one records the pattern of the "death photons" for a specific disease, one could of course modulate that pattern upon ordinary photons/signals — such as the Woodpecker signals — and accomplish disease induction or precursor conditioning.

By phase conjugating the pattern of the "death photons," one can produce an exact antidote. One can modulate this specific healing pattern upon ordinary photons/signals — such as the Woodpecker signals — and accomplish healing induction for that specific disease.

In other words, one can create the healing pattern — the antidote, if you will, for any biological warfare agent. Cancer, leukemia, AIDS, viral diseases, bacterial diseases, whatever. One can create the antidote within minutes after the first symptoms of the disease or death pattern appear.

One can then simply add the negating (healing) signal to power line signals, television and radio signals, special transmitters, etc. —

and immediately start to "administer the antidote" to the irradiated population one wishes to protect. *Now one can see why the Soviets are so ready to expose the entire world to something like AIDS. It doesn't represent a real problem to them, the instant they decide to negate it.*

So they can devastate the rest of the world, with the assurance that their population is safe.

They can allow some of their own people to develop AIDS — and even some to die of it — as a deception plan to delude the West while Western populations are succumbing en masse.

Then they can snatch their own population right back to health, from "the brink of the grave," so to speak.

Our government must immediately develop the same capability. It is straightforward. As weapons and counterweapons go, it is enormously cheap. It can be immediately and widely implemented. **And** it can protect our population against AIDS or any other biological warfare strike by the Soviet Union.

We can save our people from the AIDS knockout already unleashed upon us by the Soviet Union.

First let us do that. *Then* let us negotiate.

Remember this: **You can negotiate with the Russians only from a position of strength. If you are weak, they will bury you.**

If we do not immediately develop this biological warfare counter-measure, we are already as good as dead.

Popp's Master Cellular Communication System

Dr. Fritz Albert Popp has already discovered and pointed out the "virtual state" master communication system that controls all cells in the body, and all their functions.

Based on a thesis derived to best fit experimental results by Ruth and others, Popp postulates that biological systems generally have the capacity to store coherent photons that come from the external world.

In other words, the biosystem is open to environmental communication and exchange.

He has shown that the cell population is in a quasistationary state that is far away from thermodynamic equilibrium, as pointed out by Ilya Prigogine.

Popp also concludes from his analysis that ultraweak photon emission within biological systems can influence chemical reactivity. In fact, his analysis strongly implies that "ultraweak" photon intensity can regulate the whole cell metabolism and related phenomena.

The cell takes up photons from external radiation. This includes both "observable" photons and "virtual" photons. Since it stores virtual photons, it stores charge, or biopotential changes. Since its stored virtual photons may be coherent virtual photons, it effectively "polarizes" or structures its stored photon charge, hence its biopotential.

The cell emits "spillage" photons — both coherent and incoherent — from its stored potential.

Although Popp only uses conventional "unstructured" photons in his analysis, he shows that, at the molecular level, there is a stationary equilibrium, as far as photon storage and emission are concerned, between the molecular photon traps, the cell population, and the external world.

It follows that *coherent* photon/charge inception from the external world can directly and precisely influence the cell's biopotential, hence its functioning and control, by information input.

Incoherent photon inception, on the other hand, can only grossly affect the cell, such as by heating or sporadic effects.

In his "Photon Storage in Biological Systems," Popp points out the master cellular communication and control system as follows:

"The photons which we have measured can be seen as a sort of 'waste' from a virtual electromagnetic field with a high coherence. This field has a tendency to become stationary over the whole organism."

After additional analysis, he adds:

"...Consequently, biological systems must exhibit 'holographic' properties to an extremely high degree. The successful trials in

finding 'pictures' of various organs in each other organ, such as the ear, the hands, the eyes (acupuncture, iris diagnosis) support these conclusions. Our assumption that the entire genetic information of the DNA is stationarily delocalized over the body in form of genons may be seen as a further striking example."

"From this we can easily deduce that pattern recognition, as, for example, repair mechanisms and immunity, depends finally on the coherence of the photon field within the body."

Finally, Popp states a most important conclusion:

"...In medicine new aspects have developed, and not only for cancer problems. Diseases in general can possibly be understood in terms of electromagnetic interactions within the organism."

Scalar EM Comment on Popp's Communication System

Popp and his colleagues have produced most important work and results indeed. They only need to add the impact of the zero-summed/multiplied electromagnetics (electrogravitation).

As we cover in this book, the biopotential of the cell is rooted in the nuclei of the atoms of the cell's constituent materials. To be sure, every internal physical structure of the cell correspondingly "levels" and structures the biopotential. The overall cellular communication system is actually the exchange of "leakage" photons — both observable and virtual — throughout the overall biopotential of the organism.

Further, going beyond Popp's work, both the biopotential and the leakage photons have extensive, complex internal substructures. Leakage and intercommunication occurs laterally at all levels of the biopotential, and vertically among cells and substructures.

The master cellular control system's primary electrical conductivity path is not through the electron shells of the atoms, but is through the nuclei-to-nuclei scalar EM "biopotential levels" pathway.

With scalar EM methods, organized signals (signals with specific internal nonzero vector EM waves, but which externally sum to **zero** vector resultant E and H fields) can be constructed for essen-

tially any specific purpose. This includes "killing" a cancer or leukemia cell, destroying a virus, changing the DNA, etc.

This approach can directly reach and manipulate all immune and repair system functions.

The entire biochemistry and functioning of the cell — including its genetics — **is totally engineerable**. The Soviets have long known this, and have long since done it.

Further, a specific "charge pattern" of desired specific immunity (antibodies, etc.) can be designed and used to "charge up" the nuclei of the biosystem. This charge is then maintained by the system to provide permanent immunity. Thus one can develop, for example, an "electromagnetic inoculation" for AIDS, one for cancers and leukemias, etc.

Since the cellular control system is holographic, the "charge pattern" of immunity resides in every cell, including the blood cells.

Injecting a drop of blood from a scalarly immunized animal into another non-immune animal carries the scalar EM immunity pattern into the new animal. That charge diffuses throughout the overall biopotential of the organism, and the charge pattern activates the animal's immune system, including causing it to produce antibodies — according to the EM-transferred antibody template.

Antoine Priore demonstrated this effect numerous times. This was one of the great mysteries that confounded the orthodox members of the French Academy of Sciences.

The French Academy did not know of scalar electromagnetics, the cellular biopotential rooted in atomic nuclei of the cellular material, the cytopathogenic effect of mitogenetic radiation from diseased and dying cells, phase conjugation, and phase conjugated electromagnetic healing.

It is little wonder they did not comprehend the operational healing mechanism of the Bordeaux cancer-curing machine of Antoine Priore!

A New View of the Nature of Mind and Thought

The reason that Western science has not discovered what mind and thought are is simple: They have only built instruments and tools to look where the mind and thought *are not to be found*.

Let's look where they are to be found.

For example, consider the ionic discharges in and across the tremendous numbers of synapses of the human nervous system, and the slower discharge and migration of ions across cellular membranes, etc.

Considered as a single biological ensemble, these are much like a vast array of continual and continuing spark discharge vectors, slow charge current vectors, etc.

Overall, within the macroscopic space occupied by the body, these electromagnetic vectors sum almost entirely to a zero vector resultant. Only a tiny nonzero vector residue remains.

However, this vector zero summation has incredibly rich infolded signals, channels, and dynamic relationships (structure) within it.

Modern science/medicine measures the small nonzero electromagnetic residue (the remaining weak E and H fields) and tries to ascertain where and how mind and thought are accomplished, by studying that residue.

However, the residue E and H field remainders are simply the "garbage thrown out" of the glorious engines dynamically operating inside the vector zero summations (and multiplications).

The E and H field residues are the wastes or exhaust by-products. They are not the functions of the mind/thought process itself; instead, they are the spillage or leakage from those functions.

Take a "frozen time" snapshot of the components of the zero vector summation. Regard the highly complex, infolded structure or pattern these components form.

Now take a second "frozen time" snapshot of the components of the zero vector summation, a very, very short time later. Subtract **the** previous "frozen pattern" from this second "frozen pattern."*

The difference or "delta" between the two patterns represents a myriad of thoughts, hence it represents the contents of the "thinking mind," in the most general sense.

The "mind" is the overall functioning and changing of the entire pattern's substructure, and the ability of an organism to have such **and** do such. The "ability of the organism to do such" requires at least

*Similar to the magnificent "double **exposure holography**" work of Dr Robert Powell.

two more nested levels of virtual state—two more hyperdimensions.

In simplest Kaluza-Klein theory, all those electromagnetic component vectors are in the fifth dimension. Hence they are hyperdimensional.

The zero-vector system may well have further infolded, internested levels of zero-vector systems. Systems within systems. These are hyperspatial, going into the 6th, 7th, 8th, etc. dimensions. Rife's microscope, for example, could reveal some of these levels; using evanescent waves, it could resolve some 16 ever-deeper levels of dynamic energy structure.

Everything driving the component vectors themselves is higher dimensional.

"A thought" is the exact change of a localized pattern (localized

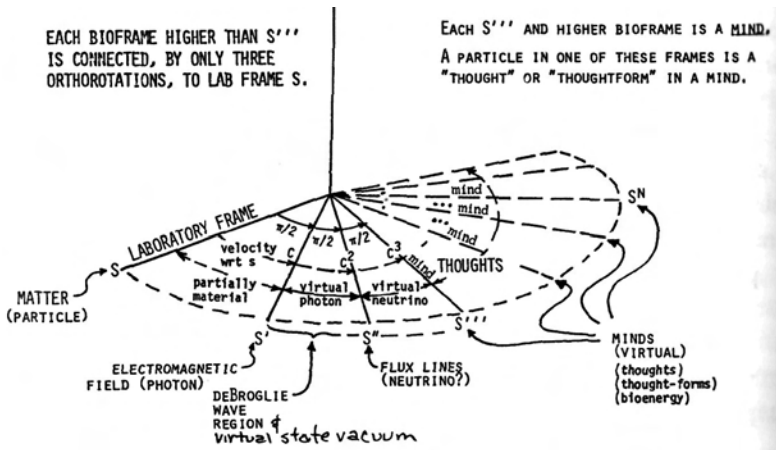


Figure 76. Hyperframes, vacuum, virtual state, minds and thoughts.

zero vector summation whose components are changing but remain in zero summed) from one moment to the next.

Thought is always a pattern change, of the components inside an EM vector zero summation.

Most thoughts are totally "unconscious" (multiple simultaneous

or "parallel" thoughts). A few are conscious (serially ordered, singularly considered and processed).

The unconscious mind is totally a parallel processor (many things/thoughts at once).

The conscious mind is totally a serial processor (only one thing/thought at a time).

Most persons never take the time and trouble to reflect and notice that, consciously, they only can perceive one single thing at a time. Of course, the conscious mind is so rapid that by habit they assume they can perceive many things at once.

Since the conscious mind cannot discriminate the "multiple images in the slide projector at once" of the unconscious mind, that's what makes it unable to "be conscious" of the contents of the "unconscious."

In fact, the unconscious mind is totally conscious — it's just **multiply conscious "simultaneously."** (Which sheds some interesting light on why one can develop multiple personalities, for instance).

When the conscious mind "regards" the unconscious contents, it sees "something" which has "multiple meanings at once."

That's what we call *symbolic*. A symbol is something which can have many meanings at once.

That's why the unconscious content always "symbolizes" something when it's trying to communicate to the conscious mind. It's necessary to interpret the symbols to understand what the message being communicated is.

That's why dreams, for instance, are symbolic. And why it usually takes a trained psychiatrist or psychologist to properly interpret the symbolic representations manifested in mental disorder, and get at the underlying cause being symbolized.

With deliberately constructed scalar EM, any or all of the conscious/unconscious portions of the mind can be available for engineering and control/change. Eventually you will be able to put contents of the mind and memory on a video screen if you wish to.

It will also be possible to interact with the mind's contents electromagnetically. Mental illness will be treated directly, on an engineering basis.

Of course this opens up the frightening possibility of hostile misuse to the detriment of an individual. It will even be possible to change or erase his or her very personality itself. We pray, of course, that such a powerful tool will not be utilized this way, but will be used to heal humans, not hurt or kill them.

Unfortunately, Lisitsyn's work reveals that the Soviet Union has long since applied energetics (scalar electromagnetics) to mind control and mind engineering, including deciphering the genetic code operation. Controlled induction of images and sensations inside the brain — where they are processed as if self-originated — has been reported by the Soviets. Indeed, they have reported being able to control whether or not the induced material should rise to conscious awareness, as well as when it should rise to consciousness.

For years, U.S. intelligence analysts and U.S. scientists simply did not believe that electromagnetic signals could directly influence consciousness.

However, they were forced to reevaluate that position when a Soviet medical machine — the LIDA device — was openly obtained and evaluated.

The LIDA machine — a small unit somewhat larger than a briefcase — has been used in Soviet medical facilities to treat humans for decades.

The device uses a 40 megahertz EM carrier and very complex waveforms (signal modulations with complex mixtures of frequencies, phases, etc.)

When exposed to it, a person is caused to gradually fall into a trance-like, catatonic-like state within a few minutes. That person becomes very still and very quiet.

It was reported that the machine was tested upon a cat and had the same effect upon it.

One American scientist stated that the device had actually been used in North Korean "brainwashing" of U.S. prisoners of war in the early 1950's during the Korean War!

If so, one can see just how long the Soviets have achieved success with electromagnetic biological warfare/medical treatment techniques.

Reportedly, prisoners exposed to the machine were rendered

unable to psychologically resist their harsh brainwashing interrogation.

But to return to the brain activity, with its innumerable, zero-summed minute EM vectors, and its extremely rich and complex deterministic substructure.

Note that the ensemble of sum-zeroed vectors forms potentials. These potentials — i.e., the scalar EM — penetrate to the atomic nuclei in the brain and body. Internal changes in the potentials' substructures (i.e., thoughts) also penetrate to the nuclei.

The nuclei continually "charge up" (the particles change their states) to these impressed potentials, including the "potential" or "charge" of each component of the impressed potential. That is, the nuclei charge up with both dynamic overall potential (mind) and thought (individual substructure changes).

Notice that **mind, thought, and memory reside in, and are recorded in, the atomic nuclei. At many virtual state levels. In many hyperdimensions.**

Thus the functioning mind and bio-control systems — including Popp's master cellular communication system, the immune control system, the acquisition control system, and the repair control system - all "reside" in the nuclei as dynamically interacting, patterned potentials or "patterned charge," complete with resonances and frequencies, etc.

We can regard the mind and its interactions as physical, in the extended sense we have briefly developed here.

Everything "mental" can be directly interfaced with and engineered.

One day, for example, "education" will be by direct loading of patterns into the brain/body/cellular biopotentials, much as we now place a diskette in a disk drive and load the computer memory. And then everyone can be educated, in the widest range of skills and to the highest degree ever dreamed of.

Kindling, Life, Mind, and Negentropy

The mass of the atomic nucleus can be charged up with a particular dynamically structured biopotential.

In scalar electromagnetics, I use the term **kindling** to refer to the effect of charging up mass by a specific structured charge pattern to form such a structured potential in the nuclei.

Note that we are actually and physically restructuring the nucleus itself. That is because, if the structure of the potential in the nucleus is changed, local spacetime of the nucleus is polarized in complex electromagnetic structures. The electromagnetic currents, actions, and charges of the affected nucleus adjust automatically to this structure or "grid." *

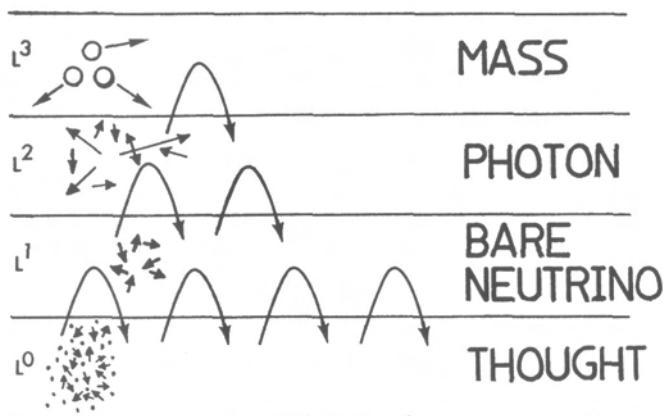


Figure 77. Interested levels of virtual state vacuum contain mind and thought. The vacuum also contains their interaction toward and upon mass.

*See Richard E. Prange and Peter Strance, "The semiconducting vacuum," *Am. J. Phys.* 52(1), Jan. 1984, p. 19-21. The vacuum may be regarded as a semiconductor. This semiconductor, particularly in the region close to the nucleus, may be manipulated by subjecting it to external fields, doping, etc. Extra energy density can even be extracted; see H. Paul and R. Fischer, "Comment on 'How can a particle absorb more than the light incident on it?'" *Am. J. Phys.* 51(4), Apr. 1983, p. 327. For the involvement of negative time/negative energy, see C.W. Rietdijk, "How do 'virtual' photons and mesons transmit forces between charged particles and nucleons?" *Found. Phys* 7(5-6), June 1977. p. 351-374.

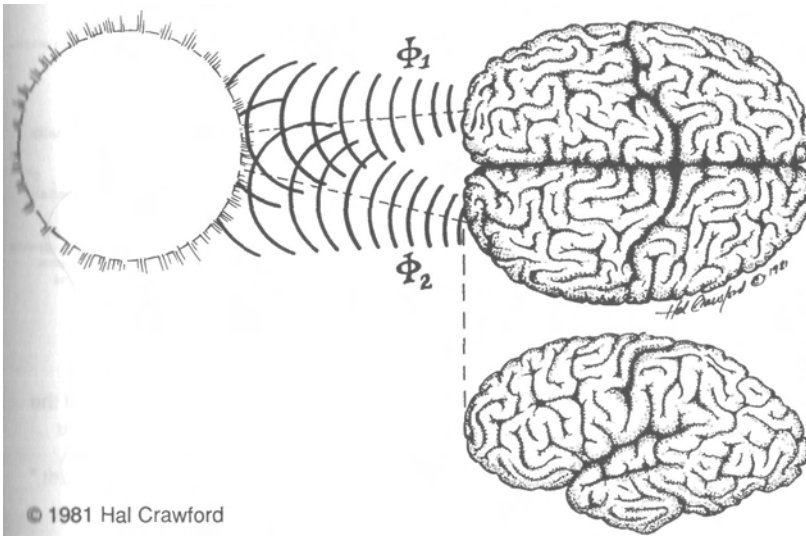


Figure 78. The human cerebral cortex is a natural scalar interferometer. It is a virtual state tuner, processor, and transmitter-receiver. It also can produce...and control to some extent...phase conjugate energy and phase conjugate waves.

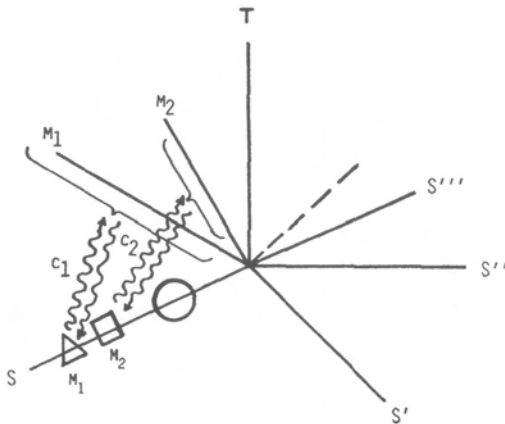


Figure 79. Consciousness and life. These phenomena refer to/constitute a deterministic hyperspatial (virtual state) coupling between mass and an ordered hyperworld.



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Figure 82. Scalar electromagnetics can directly interact with the various levels of human mind and personality.

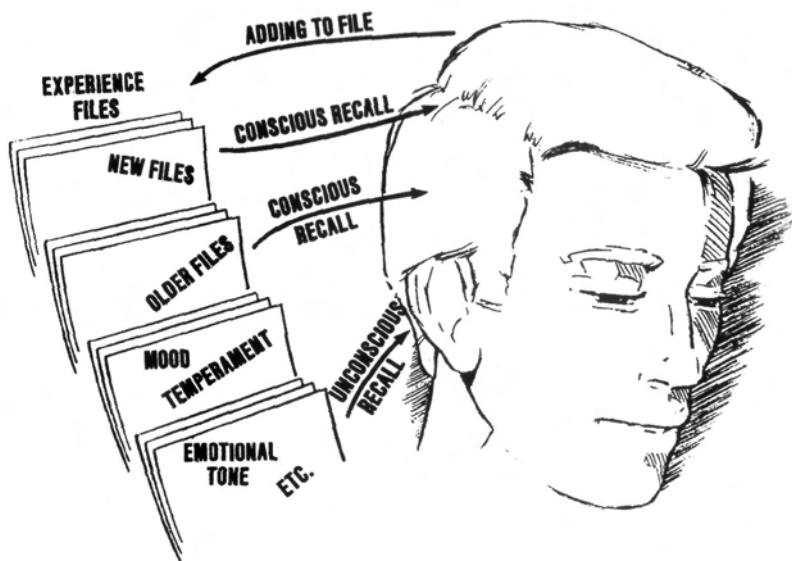


Figure 83. What personality is.

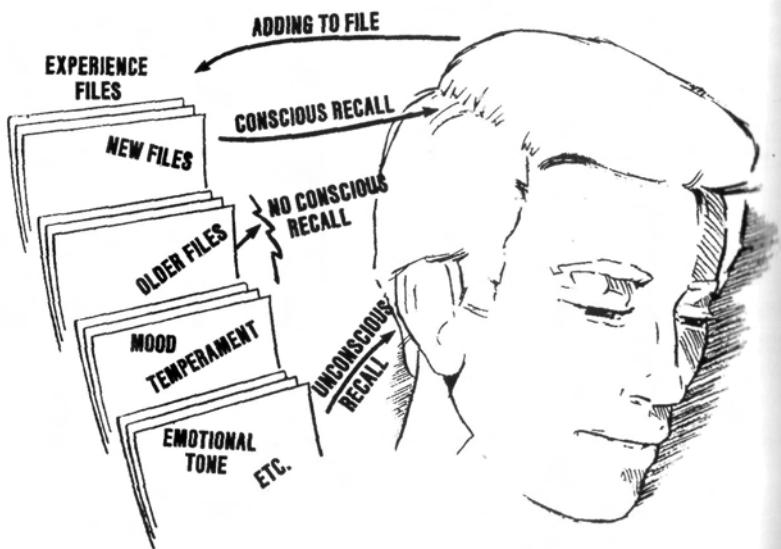


Figure 84. Jamming the "older files recall" process produces simple amnesia. If the recall process is then restored, the person regains his or her former memories.

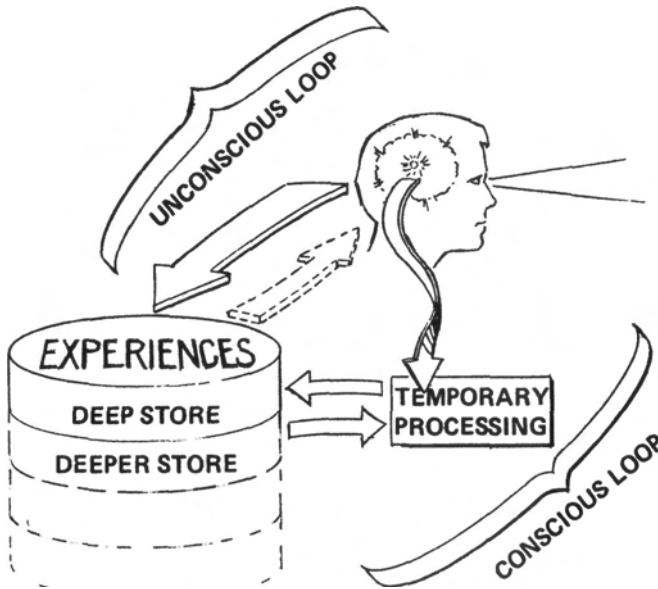


Figure 85. To sustain one's personality, continual functioning is required. All channels must be functioning.

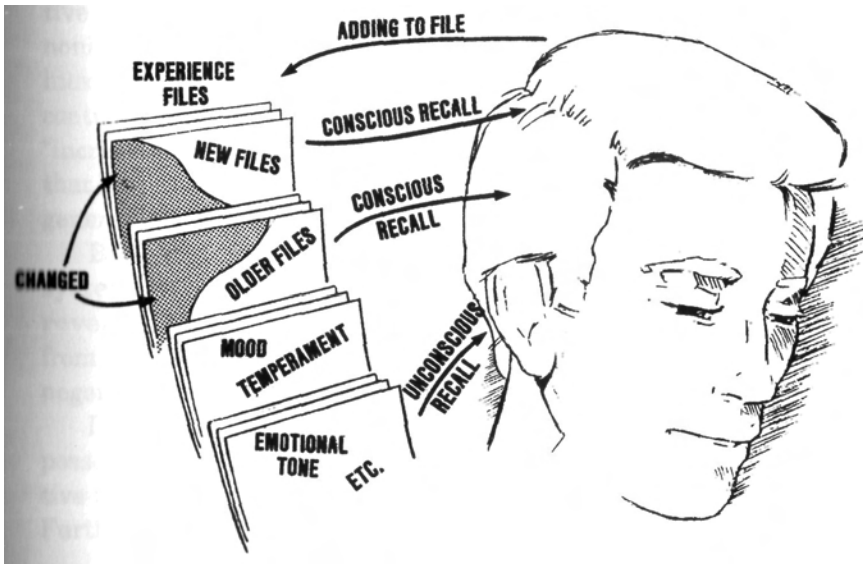


Figure 86. If the files themselves are changed, the personality itself is changed. It is possible to alter who or what a living person is.

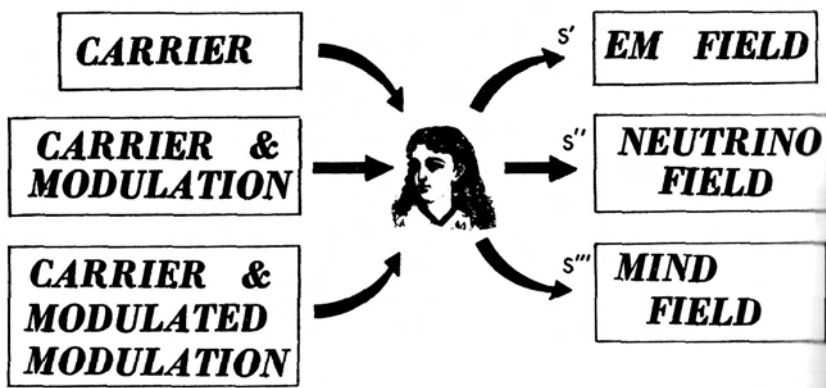


Figure 87. The mind and personality can be affected — and changed or controlled from a distance. The Soviets have developed at least a substantial part of this technology.

Table 44. LISITSYN'S REPORT

- THEORY DEVELOPED & FITTED
- HYSTERESIS MEMORY LOOP
- CONTROLLED INDUCTION
 - IMAGES
 - SENSATIONS
 - PREDETERMINED EMERGENCE
- 23 EEG BANDS
 - UPTO 8.1×10^{20} HZ
- 11 INDEPENDENT CHANNELS
- BRAIN CODE BROKEN
- 44 DIGITS OR LESS

Thus by tailoring the specific scalar waveform and wave sub-structure with which we irradiate a mass, and utilizing phase conjugate (time reversed) waves, we can directly engineer the nucleus itself when sufficient charge structure has been built up in it to form a structured potential that is powerful enough to alter/**shape** the nuclear processes.

We can, for example, transmute the nucleus into another form. Here an isomer form is the easiest. An isomer for an atomic nucleus (a specific isotope) has the same number of nucleons (protons and neutrons) overall as that isotope does, but a different number of protons. So it's a different element, but very specially related to its isomeric "brother."

All that it takes to change a neutron into a proton or vice versa, is to "flip" a single quark (subparticle of the nucleon).

Living systems can do that and transmute elements, to a small degree.

For example, living systems must use phase conjugation, negative time, and negative energy. To do so, they must function nonlinearly. That is the only way they can defeat the otherwise inexorable second law of thermodynamics: that all (linear) processes continue to more and more disorder as time passes. (That's called "increasing the entropy (disorder).") Unless a biosystem could defeat **that** law, its genetic pattern would inevitably be disordered in a few generations, and the species would disappear.

By using phase conjugation and time reversal, the **living system** is able to reverse the law of entropy in its time-reversed channel. That is, in that channel things go in reverse: **from** disorder back to order! That's called "negative entropy" or negentropy" for short.*

It follows a priori that, to do this, the living system of necessity possesses phase conjugate energy systems (negative energy, negative time systems) that are rooted in the atomic nuclei of its body. Further, it must deterministically manipulate these phase conju-

*To show how fully one can integrate physics and metaphysics, we point out that, since the vacuum imprints with every **change**, **nothing** is ever lost! Death, where is thy sting?

gate systems.

This allows the precise definition of a living or nonliving system. If the system deliberately utilizes and manipulates phase conjugate energy/time in its atomic nuclei, it is a living system. If it does not deliberately use this, it is an inert or nonliving system.

For example, this sheds a great deal of light on the nature of a virus.

A virus is a single molecule. Ordinarily it clouds the distinction between life and death. Viruses can be crystalized out of solution, formed into "rock-like" crystals, and placed on the shelf, so to speak. There they can remain for many years or centuries, seemingly an inert rock. Then when placed back into their "preferred medium," so to speak, the virus crystals dissolve, separate, and "come back to life" and resume their living function. Yet the virus can be killed, in which case it is just a "hunk of rock," sitting on the shelf. In that case, it won't come back to life when placed back into its preferred medium.

In one case its "deterministic phase conjugate energy system" — its mind, to put it simply — remained in the nuclei of the atoms of the crystalline form. In the other case its "mind" was destroyed or disconnected from the crystalline form.*

A somewhat similar effect can be demonstrated in bacteria.

You can "kill" bacteria, for example, with UV radiation, then hold them in the dark for 24 hours (say, for 12 generations, since a nominal bacterial generation is about 2 hours.) They will remain absolutely "lifeless" and static, with no movement or cell division.

Then if you place them in the sunlight, you will be astounded to see them revive by the hundreds of thousands. In the "special kill" case here, the virtual state substructure of the UV photons just totally "jammed" the biopotential substructure functioning of the

*In the living case, the atomic nuclei remained patterned by the structured biopotential. In the case of true death, the structured biopotential is lost and the nuclei revert to their "inert" form.

"minds" of the bacteria on one key channel. It didn't physically damage their bodies or "physical tuners." Then when placed in the sunlight, the broad frequency spectrum of the virtual substructure of the photons "dithered" and stimulated the bacteria's body-tuners, much like a "frequency massage" in all the bands. This set the physical tuners vibrating — and therefore responding once again to the biopotential substructure changes of the mind. Hence the bacteria "revived" and swam about — fat, dumb, and happy.

We have stated that **the mind is a physical thing, albeit a virtual or hyperspatial thing. In virtual/hyperspatial reality, it is a functioning, hyperspatial thing.** Interchanges be-



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Figure 88. The mind and personality are physical things, albeit hyperspatial and virtual.

tween it and an otherwise inert, functional, 4-dimensional ordinary physical system (a "body") comprise life functions, "thought," cellular control, etc. Those interchanges in a living system occur in the biopotentials residing in the atomic nuclei of the physical body, in the higher levels of biopotential in the body structures such as cells, membranes, and organs, and in the overall biopotential of the entire mass of the body.

We accent that this is not mysticism, but physics.

But now let us return to phase conjugation and the Priore machine.

The Priore Machine and Phase Conjugation

In the 1960's and 1970's, in France Antoine Priore built and tested electromagnetic healing machines of startling effectiveness.

In hundreds and hundreds of rigorous tests with laboratory animals, Priore's machine cured a wide variety of the most difficult kinds of terminal, fatal diseases known today.

Funded by the French government in the amount of several million dollars, **Priore's machines concretely demonstrated a nearly 100% cure of all kinds of terminal cancers and leukemias, in thousands of rigorous laboratory tests with animals. These results were shown to medical scientists as early as 1960.**

Many of the experiments and tests were done by prestigious members of the French Academy of Sciences. Robert Courrier, head of the Biology Section and Secrétaire Perpetuel, personally introduced Priore's astounding results to the French Academy.

The operation of the Priore machine was seemingly incomprehensible. Many orthodox French scientists — some of them world renowned — were outraged at the success of such a machine, shrilling that science had nothing to do with "black boxes."

They loudly called upon the inventor to explain the mechanism utilized by his machine, but the inventor either wouldn't or couldn't, explain the curative mechanism.

Priore certainly knew how to build the machine and make it

work. It is debatable to this day whether anyone — Priore included — actually understood its principle of operation.

Neither the French Academy nor Antoine Priore knew anything of phase conjugation at the time.

In fact, the entire Western World knew nothing of phase conjugation in the 1960's when Priore was getting his finest results. At that time, only the Soviets knew of time-reversed waves.

Certainly Priore's machine was impressive.

Into a tube containing a plasma of mercury and neon gas, a pulsed 9.4 gigahertz wave modulated upon a carrier frequency of 17 megahertz was introduced. These waves were produced by radio emitters and magnetrons in the presence of a 1,000 gauss magnetic field. Experimental animals were exposed to this magnetic field during irradiation, and the mixture of waves (some 17 or so) coming from the plasma tube and modulating and riding the magnetic field passed through the animals' bodies.

Amongst other things, a plasma can convert a transverse wave to a longitudinal wave. Also, phase conjugate (time-reversed) waves

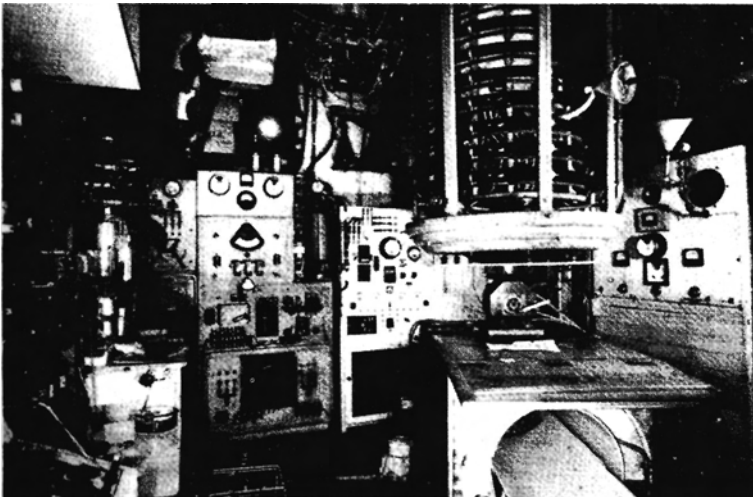


Figure 89. One of Priore's intermediate devices. This device cured terminal cancers and leukemias in thousands of laboratory animals. (Courtesy Bob Whitney)

can be produced by plasmas. Priore's apparatus produced a scalar EM wave/signal with deliberately constructed, infolded components including phase conjugate waves.

One may roughly view a cancer cell as a normal human cell gone "awry" and out of control of the body's master cellular control system. The cancerous cells, viewed as a sort of separate, parasitic group of cells, form a special kind of organism having its own master cellular control system "level," immersed in the host's biopotential.*

There is thus a specific, constant electromagnetic "delta" that differentiates the parasitic cancerous "organism" from the normal human cellular organism.

This "delta" can be considered a sort of constant, complex-structured charge existing in the body's atomic nuclei. It's exactly as if the body biopotential had been charged up by Kaznacheyev's "death photons" for that specific cancer condition.

If this cancerous "delta" (which may be rather like a complex intermodulation mix of waves) — or a frequency shifted "transform" of it to a different frequency band — is phase conjugated, a specific healing delta frequency pattern results.

If phase conjugate replicas of a cancer's cell's specific "delta" frequencies are fed into the body having that cancer, the deviation of the cancer cell's master cellular control system will be "time-reversed."

That will return the cancer cell to control of the animal's proper master cellular control system. The cancerous cell will be immediately destroyed, or reverted back to a normal cell of the animal.

A very similar process exists for just about every disease bacterium and infectious agent that attacks the body.

Phase Conjugates of "Death Photons" are "Healing Photons"

The Kaznacheyev experiments in the Soviet Union proved that, any cellular death and disease pattern can be induced by a specific electromagnetic pattern carried on an electromagnetic signal, if the

*One strongly points out the relevance of Dr. Robert Becker's epochal experiments proving that cells can be dedifferentiated and redifferentiated electrically. Those experiments are strong indicators that the cancer cell should be capable of being reverted to its more primitive state — that of the normal cell — by electromagnetic means.

target cells are bombarded with the pattern-carrying carrier signals for a length of time. What was not published of Kaznacheyev's work was the correspondent work showing electromagnetic reversal of cellular death and disease conditions by irradiating the diseased cell cultures by phase conjugate replicas of the pattern-carrying induction signal.

In simplified terms, if an action in forward time induces a condition, then the time-reversal of that action will reverse the condition.

The concept is almost laughably simple. **The time-reversal of an electromagnetic disease process is a specific healing process for that disease.**

In his device, Priore internally structured the carrier photons themselves — making them **vacuum engines**. He phase conjugated his vacuum engines, and then passed these time-reversed vacuum engines down and through a strong magnetic field which thoroughly penetrated all cells of the biological organism being treated.

The scalar components (structured photons) representing the time-reversal of the disease were absorbed and reradiated in all the cells, "charging up" the nuclei of the atoms in the organism to some potential level of the exact "healing and reversing pattern."

In the process, the cancer/leukemia pattern/charge also destroyed the cancer cells, or converted them back to normal cells as appropriate.

As a highly simplified analogy, the complex signal — viewed as a scalar Fourier expansion — represented a "stress" against any abnormal cellular control system encountered and returned it to the normal cell's master cellular control system of the body.

Encountering the normal control system in normal cells, it produced zero stress.

Encountering the abnormal control system in tumorous cells, it produced great stress on it, reverting it to the normal control system of the body's normal cells.

Thus to a normal cell the Priore signal pattern acted somewhat as a comb passing through one's hair.

No interference occurred with the normal cell (one whose scalar control pattern is phase-locked to the body's master cellular control system and in phase with it).

The Priore signal stimulated and "stroked" the normal cell, but did not hurt it at all.

On the other hand, the scalar control pattern in and of an abnormal (cancerous) cell is out of phase with the body's master cellular control system, and is not phase-locked to it.

Hence the Priore signal caused direct interference with the abnormal cell's independent scalar control system. The interference pattern constituted the reconstruction of normal energy directly in the cancerous cell, and also jammed its abnormal scalar life signal.

This destroyed the cancerous cell by two mechanisms: (1) physical energy was kindled directly in the abnormal cell, causing direct mechanical damage, and (2) the cancerous cell, being an "independent living critter," had its scalar life channel (connecting its primitive "mind" to its "body") jammed and stopped.

If the cancerous cell was reverted to a normal cell by the Priore stress before being destroyed, it became just a normal cell and the Priore stress had no further effect upon it.

The Effect is Universally Applicable
Any disease with cellular, biochemical, or genetic basis can be cured in like fashion.

Priore's method, for example, was clearly shown to be able to completely reverse clogging of the arteries with fatty deposits, and to be able to lower the cholesterol level to normal, even in the presence of an abnormally high cholesterol diet.

His method also showed complete mastery and cure of sleeping sickness and trypanosome-induced illnesses.

Often Priore found that every cell of the body — even the hair — must be irradiated and treated ("charged up") with the signal, for the disease pattern was in every cell. The master cellular control system is holographic — the pattern (substructured potential with its dynamic, oscillating components) is in each component (each atomic nucleus, hence in each cell.)

Every structural level of the body larger than the cell also has its

own correlated pattern, or modulation, on the overall.

A biological organism can regenerate lost limbs, for example, if it can utilize its natural recovery process in a Priore manner.

Even though Priore's work was presented to the French Academy of Sciences by Robert Courrier, the prestigious head of the Biology Section, the Academy could not understand the device and its functioning.

That was because the Academicians knew nothing of scalar electromagnetics, and phase conjugation, and the Priore machine was a scalar electromagnetic device using phase conjugation.

In the Mid-70's It Ended

In 1974, a change of local government lost Priore his government supporters. His support and funding were lost.

Ironically, Priore was just completing a 4-stories-tall apparatus capable of radiating and treating entire human bodies. It would have been capable of curing cancer and leukemia in humans rather than just in laboratory rats. (His previous machines were much

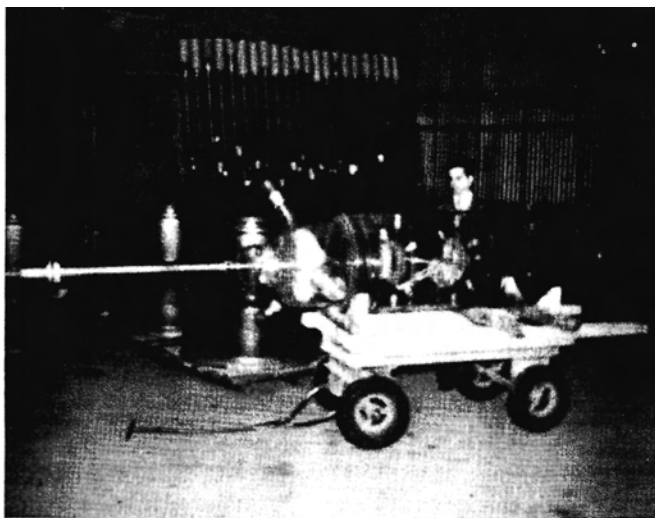
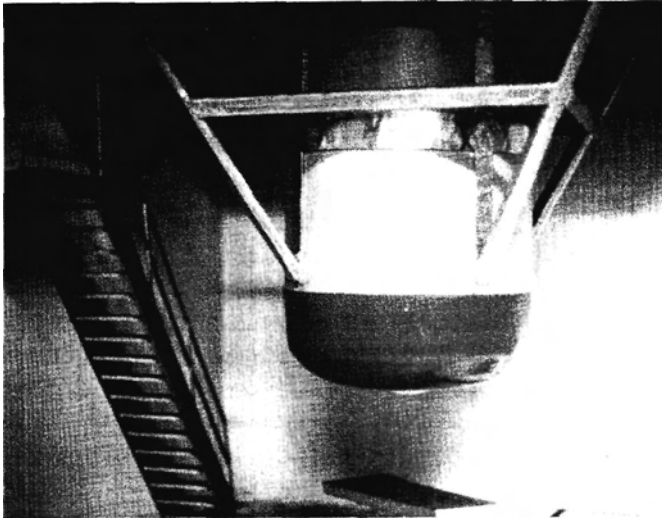


Figure 90. The large, special, phase conjugating plasma tube for Priore's giant device. The final machine would have treated humans "whole-body."
(Courtesy Bob Whitney)



Courtesy Bob Whitney

Figure 91. Capping assembly for the top of Priore's giant plasma tube device. The last device would have treated human patients "whole-body." The cap assembly was on the third floor of the device.

smaller, and only a small animal could be irradiated whole-body.)

In that machine Priore used a "lamp," a special section, in which 17 specific frequencies were mixed and modulated upon the 9.4 gigahertz carrier.

The machine was large enough to irradiate humans over their whole body. **It should have been capable of curing cancer and leukemia in two five-minute irradiations, one week apart.**

While Priore was still alive, with my associates I spent nearly two years of my life in an effort to bring the Priore device to market and into the mainstream of medical research and development.

Robert Whitney, Frank Golden, and Tony Gideon played the major role, going to France and negotiating directly with the Priore group and the French government.

Verbal agreements with both the Priore group and with the French government were obtained. The machines were to be built, assembled, and tested in Bordeaux. Then they were to be dismantled and shipped to the purchasers — large medical research and development laboratories where they would be reassembled on site.

A group of wealthy backers was going to provide the necessary millions to fund the effort. Final contracts were being drawn.

Mysteriously, all funding for the project was suddenly withdrawn. Our backers were "leaned on" very hard and strongly threatened. Nothing we could do could revive the project.

Priore never again recovered his funding, and later died. The machine fell into disarray and was disassembled.

However, the proof that the requisite time-reversed signal can be produced, and will ride down a magnetic field, to penetrate every cell and every atomic nucleus in the body, is already in the present hard-core physics literature, if one knows where to look and how to properly interpret the work.

The fact that such signals can reverse nearly every major cellular illness condition of the body also has been proven by Priore and the scientists who worked with him, and it is in the French scientific literature.

The Priore-type cure for AIDS and other diseases only requires the necessary funding and personnel to be redeveloped and re-established.

Work of Australians Reed and Barsamian, and the American G. Wilbanks

At the University of Sydney, Department of Obstetrics and Gynaecology, some magnificent work of great importance to our thesis has been accomplished. Indeed, this Australian research may well be some of the most important work going on in the Western world today.

Dr. B. L. Reid, Dr. S. Barsamian, and their colleagues have produced experimental studies that positively verify pattern and form transmission at a distance, even through Faraday shielding. They have directly shown the reaction to, and results of, an unexplored information field on both living cells and inert crystalline matter.

In addition, they have replicated — and extended — the published results of Kaznacheyev on the cytopathogenic effect. In fact, they have obtained the effect at over 100 meters.

This shows, of course, that the effect is not just mesoscopic, but also macroscopic. Whether we like it or not, structural patterns of cellular disease can positively be transmitted electromagnetically, and kindled in target cell structures at a distance.

Dr. Reid has been interested in the origins of cancer since at least 1958. After much work in the standard models, by the late 1970's he was convinced that the present approach of medical science is wrong. He reasoned that we should pay stricter attention to the nature of growth before examining new growth, i.e., cancer. Growth, of course, is creation — and so the problem became, what is creation?

As a metaphor for biological growth to work with, he and his colleagues chose the growth of crystals. With keen foresight and intuition, they directed their inquiry so as to expose the complicity of some force — if any — external to solute and solvent.

Their work began to show that such a force existed, and it was a type that was unaffected by interposition of a Faraday cage. In other words, *it was not a conventional electrical force*.*

Dr. Reid and his colleagues then included biological subjects in the form of living cells. They were familiar with Kaznacheyev's work in Alma Ata, Kazakstan on the subject of long range transmission of pathological (viral) effects on cells. In addition, they were familiar with the seminal studies of Gurwitsch on transmissions by onion roots cells, in the 1920's.

Most of their basic studies on the nature of the new force, however, were made with common salt, drying from aqueous solution. Some of their major results were as follows:

1. The familiar cubic symmetry is altered toward a higher energy form of dendrite crystals when biopolymers such as protein are included in the solvent.
2. A mass of lead 12-20 kg in the crystal space (up to 1 meter distant) causes an interference pattern in the salt crystal display.
3. A prospective dendrite pattern is not realized when a prospective cubic-pattern of the salt is dried in the local space (up to

*For one related possible scalar EM (electrogravitation) interaction, see Ya. B. Zel'dovich,

"Electromagnetic current and charge due to interaction between a gravitational and a free electromagnetic field," *J. Exper. and Elec. Phy.* (Soviet translation), 16(7), Oct. 5, 1972, p. 302-303,

1 meter). The latter by its presence in space is able to prevent the dendrite expression and enhance the cubic symmetry expression. **A photograph of crystals of cubic symmetry when moved by a vibrating holder (2 cps) has the same effect on the real crystals drying from the solvent.**

4. Dendrite forms of salt crystal result when certain chemical reactions involving proton or ion movement occur up to 30 meters away, separated by brick walls, glass, etc. These reactions were detailed by Dr. Reid and his colleagues. If the mother solution is examined by ac capacitance on a sensitive bridge, variations in capacitance of over 300% accompany the receipt of the signal.
5. If such a transmission from 30 meters distance is regarded as a carrier wave which is modulated by a foreign — and thus detectable — chemical, **the chemical can be detected in the distant atmosphere some 3 months later in the form of a discrete or adiabatic 'cloud' which contaminates sodium chloride drying at the same time.** In this way, copper sulfate dissolved at a site A in June 1985 could be repeatably detected at site B, 30 meters distant and separated by walls, screens etc., by a drying solution of sodium chloride solution in September 1985. Serial dryings of the sodium chloride solution on glass slides showed that each day, the cloud hovered over a space of 1-2 cm at the end of a venturi tube for several hours before 3 p.m., and then moved off at 1 meter per hour in a NW direction. The copper content of the cloud was discernible by crystal structure and chemical means from the adjacent sodium chloride.
6. All of the above crystal forms required ambient oxygen for their manifestation. Atmospheres of nitrogen and argon prevented their display. At the time, the researchers suspected that the effects may have been carried by orbital electrons of oxygen showing unpaired spin which had interchanged with electrons of the copper solution. They then

developed an information-carrying device which could 'infect' the electron cloud of a target molecule sufficient for the chemical display of properties of the infecting electron's parent atom. This concept seemed to explain the experiment of the following paragraph.

7. Two beakers of sodium chloride solution were connected in series with a small voltage source (say a 1.5V dry cell) to provide a transfer of electrons through each beaker. The second beaker in series was sampled for subsequent drying and display of the crystal form. A crystal form of cubic symmetry resulted. When the solvent of the first beaker was altered by the addition of a protein solution (such as albumen or globulin), the crystal pattern of the second beaker was altered from cubic to dendrite pattern as though protein were present in the second solution.
8. During attempts to stabilize salt crystals on glass by means of thin plastic films drying from appropriate solvents (in order to stain the salt with aqueous solutions of dyestuff), it was discovered by chance that the crystalizing process is accompanied by structural patterns on the plastic film so exposed. These patterns were of two major types: (a) vortices, or spirals in the film plane, of 0.1 to 1.0 mm diameter, and (b) smaller curled structures into which the spiral could be seen to merge or grade. From a concurrent mathematical study of vorticeal interaction as designed by Barsamian, the similarity of the curl structures in plastic films (the researchers usually used 0.25% polystyrene in benzol) to computer simulations of vorticeal vectors was shown to be remarkable.
9. The researchers then dispensed with the underlying crystals and exposed the drying polymer film to a variety of spaces where the field, thought to be responsible for many of these tele-effects, was operative. With this technical advance, the team has made rapid progress over the last year or so. They have come to have a more comprehensive grasp of the ether

field than was possible by less direct methods involving formation of crystals.

10. On the biological side, they repeated the Russian studies done at Alma Ata with transmission of the cytopathogenic effect of viruses on animal cells. They used the cytopathogenic effect of colchicine and its relative vinblastine on cells with the following differences from the published Russian work: (a) The effect can be transmitted at least 100 meters between campus buildings, (b) it is not necessary to use a magnetic field for the propagation, (c) it is not necessary to use quartz vessels; glass is quite effective. These experiments came to the attention of a colleague, Dr. G. Wilbanks, Head, Department of Obstetrics and Gynaecology, Medical School, University of Chicago in 1983. Dr. Wilbanks was able to repeat them with similar results. However, in a more faithful copy of the Russian experiments, he used quartz vessels with cells placed in a magnetic field, with the vessels separated by no more than 1 mm. Both the Australian researchers and Dr. Wilbanks shared another thing in common: their uniform inability to interest the editors of several scientific journals such as **Science**, **Nature**, **Naturewissenschaften**, and others in publishing papers describing these fundamental experiments and results.
11. Experience with interference of a lead mass in the crystal work prompted the use of several metals in the ambient field of growing cells. Only lead (and to a lesser extent tin) showed the following properties: (a) Cell growth with 0.5-5 Kg lead in the ambient field is depressed sometimes to one third normal, (b) The cells die (dye exclusion test) but then can be revived by placing a small bar magnet in the local space with its poles in an E-W orientation. At least in Sydney, a N-S orientation of the bar magnet does not revive the stricken cells.
12. The effects of energy flowing through living matter have been documented by Kirlian's method. It was therefore of interest

to the Australian researchers to expose living systems to drying films of polystyrene. They found that the staining properties of the ambient-derived image on plastic films parallel those of the real organism.

13. By appropriate use of an imposed potential on living cells, it proved possible to match the field strength and show the actual imposition of the ambient (scalar) field on the biopolymer content of the material during the permeation process. The traces obtained are not unlike noise and would be so regarded by the casual investigator. The design of this apparatus and associated experiments was the work of Dr. Barsamian.

Concepts of Dr. Reid and Associates

Dr. Reid has kindly shared with me some of the concepts he and his colleagues have formulated. These concepts, it is stressed, are consonant with direct physical results they have obtained in the laboratory.

Note that any errors in this explanation are strictly the fault of this author, and not of Dr. Reid and his colleagues.

1. Matter is bathed in an energy sea familiar to quantum theorists. The Australian team prefers to call this sea of energy **ether**, as a relatively bland term, perhaps in a way to rescue it from the oblivion where Einstein banished it. The key to the silence of this sea is its "fractional-charge" charged particle status and low energy values. The former conceals it from physics, while the latter conceals it from chemistry and thermodynamics.
2. The differing energy levels of this sea, combined with its enduring motion, are theoretically and practically best expressed as a **vortex**. Dr. Reid and associates have detailed this theory to explain the creativity of biology. The incipient creativity of the vortex is given material expression by its association (as part of the EM field) with an electron which it

now endows with equivalent novel properties. There is no intuitive reason why the energetic rearrangements of the electron cloud cannot proceed to the nucleus, there to set up a quark or proton rearrangement — or, as the quantum theorist would say, a virtual particle exchange — leading to transmutation. Kervran's work on biological transmutations is relevant; the literature of such effects goes back to 1798 at least! The team suspects that some such mechanism may underlie their experimental result of the transition of sodium to copper.

3. **A further prime property of vorticeal interaction is its proclivity for amplification**, wherein the atomic-size vortex can be built up to the meteorological hurricane by such adherence or affinity. The team has noted the affinity of ambient field vortices to those produced by an electric current in a metallic conductor, with particular reference to the ill-defined boundary between the two. This parasitism was the reason behind the team's use of "carrier waves" from chemical reactions as transporters of fields whose identity of origin were sufficiently specific to trace the field subsequently. It is at least conceivable that the whole process could be amplified and used to parasitize (modulate) a radar beam as carrier. The affinity property of fields may be exhibited by the experience of mariners with what they loosely term "magnetic phenomena" thought to be derived from luminescent plankton. In the South China and Arabian Gulf seas, giant "wheels" of light, 5-15 km in diameter and containing spiraling spokes, revolve about the ship at night, reversing their direction of rotation as they pass the midpoint of the vessel. The key observation in the context of the field affinity concept is that the luminescence is manifoldly enhanced when the ship's radar is switched on. There could thus exist a chain, scalar-EM/plankton-optical, the first leg (scalar EM) of which can be amplified by radar EM.
4. The property of affinity means that **a scalar field's transform or copy, of the energy disposition imposed on it by the experience of matter last permeated, may persist as**

a memory **in space**, as many of the Australian observations attest. The team found that recall was not all that difficult technically. **The energy transform for copper sulfate existing as a non-dissipated cloud with marked adiabatic properties could be recalled five months after its formation. There is no reason why informationally more elaborate spatial configurations of energy, including human thoughts, will not behave in precisely the same way.** The cell nucleus could conceivably be the candidate for the first site for storage of such energy. The nucleus has a highly ordered structure and an associated high permittivity, and this would make it a real target. In the human subject, there is experimental evidence that the mongoloid polymer constitution will have a higher activity for storage of the ambient field than will the Caucasian.

Other Important Ideas

Dr. Reid also shared other important insights:

Lavoisier in 1748 advanced the concept that matter itself (chemicals) is inert. The activity of all chemicals, according to Lavoisier, resided in their associated ether — and God sent the ether!

Taken to its limit, this suggests that the source of the energy which we call *thought* is a property of the scalar field. Matter (say, the nervous system) interacting with these fields, would be incapable of discerning the source of the field as presented, whether of self or external origin.

In his book **Hidden Variables in Quantum Theory**, Dr. David Bohm felt that in 'elevating' (his word) matter (as particles) from the sea, it might be possible to consider the idea as containing even more elaborate energy transforms such as biological shapes, these transforms themselves undergoing metamorphosis. [Comment by this author: Rife's microscope, using evanescent waves, actually allowed one to directly see and photograph such forms, proving the thesis.]

The ability of the Australian researchers to rescue these transforms on films together with evidence that they could be seeing the results of the exclusively space interaction of virtual forms (say

microbe and antibiotic), is also a direct technical step toward validating Bohm's important idea.

Wider Implications of Structured Field Information

As T.D. Lee points out in his important book, **Particle Physics and Introduction to Field Theory**, particle physicists have not attempted to use the structure of the vacuum nor the structure of potentials.

Dr. Barsamian has shared other wider implications of the structured ether.

Over the ages a phenomenon which, as discussed, can have no representation in real (that is, electromagnetic or thermodynamic) terms can hardly have been thought of as possessing specific structure or function. Instead, it signaled its undoubted presence to generations of philosophers and physicists before Einstein, solely through statistical effects.

The writings of Helmholtz, James Clerk Maxwell, and Neils Bohr are examples. The more recent Dirac and Fermi statistics are a continuation of the process.

If an alternative definition of science is the continuing refinement of that which we partially knew or took for granted, then the refinement of these statistical approaches ~ with their obligatory uncertainty as defined by Heisenberg — is a worthy goal.

In this sense, a more articulate description of the anatomy of the field is a logical progression from the beginnings of the ether concept in Classical Greece through to the statistics of the nineteenth to the early twentieth century.

A hundred years ago, this orderly progression even reached the concept of a vorticeal atom at the hands of J. J. Thompson. However, it was interrupted very effectively by Einstein's publication of the special theory of relativity.

Einstein was fortunate in that he had chosen for his mathematics a pivotal feature of the ether field, its elasticity. The mathematics of elasticity had been evolving — through the developments of Hooke, Young, invariance, and the calculus — to handle its historically increasing complexity (by tensors). This mathematics of elasticity was then available to Einstein. The wisdom of this choice

was vindicated by the remarkable special relativity predictions which were born out in subsequent observation and experiment.

There was seemingly no need to suspect, let alone probe, any special properties of the medium underlying the mathematics.*

The success of these predictions effectively blocked any chance of a return to the ether field concept. Indeed, it was seen as an arrogance to despoil the "elegance" of the mathematics. Nor was the success of quantum mechanics — the other leg of the Western World statistical approach to the nature of reality — able to get the physicists to heed Bohm's 1958 ideas on the hidden variables in its fabric or Dirac's 1952 ideas on a lesser uncertainty of the particle-field relationship than Heisenberg had formulated.

Recently Dr. Barsamian has originated the concept of an **alienation of the electron from its field**. The full expression of this could see the field so alienated that it is well-nigh autonomous, and some kind of fundamental entity in its own right.

In this sense, the freed autonomous field — at least conceptually — could proceed with its creativity by hybridization with other fields and so return the product of these asides to the particle. In atoms of the next fragment of matter with which the particle then associates, this product could create novel properties derived from the interchange.

The multiple properties of such a field allow it to be resolved in EM (electrostatics and electrodynamics), in atomic structure (electrons and nucleons), and in pressure (gravity) terms. This universality makes a new concept possible, long beloved of the GUT (Grand Unified Theory) theorists: that there is only one energy.

It is also quite possible that this ubiquity need not be confined to physics. It may penetrate the biological imponderables of growth, new growth and consciousness.

In view of the work of Dr. Reid and his associates, and other work — such as that of Hines and Chimonas showing atmospheric gravity waves launched by auroral currents — the prospect of amplification and transmission of transforms and patterns over long distances,

*As, for example, whether or not the concept of an abstract vector space in vector mathematics must be modified to correspond to what we know about the vacuum medium. If the vectors are to correspond to the movements of physical things in the *vacuum medium*, then the vector medium must correspond to the vacuum.

through affinity with long distance carriers, is indicated.

Dr. Reid stated that it would be surprising if other laboratories outside Russia had not progressed as far, if not further, than he and his associates had. Obviously the lack of similar publication indicates the nearly impenetrable editorial curtain confronting Western researchers in this and related areas.

Dr. Barsamian's Important Theoretical Insights

Dr. Barsamian has formulated a theory in relation to the development of cancer that is of great importance.

In his theory, he is developing the approach of classical mechanics to electromagnetic interactions between charged particles and between dipoles. The field associated with the primary moving particle is not neglected in his theory, and this part of it differs from Dirac's "new electromagnetic theory."

The field associated with the primary moving particle, in Dr. Barsamian's approach, is viewed as an important part of the particle's interactions. This field is stressed in the sense that diverse phenomena — from Maxwell's EM field radiating from the remotest regions of the universe to the controlled charge flow in the matter medium — are viewed as manifestations of EM forces.

This of course is unlike the traditional relativity view of EM force action on moving charges.

In Dr. Barsamian's view, the potential vectors (derived by a treatment from fluid mechanics theory) form an EM field and are positioned on a vortex curve. All parameters of such a field can be treated mathematically, and Dr. Barsamian has one or more papers presently in publication.

The duality of such potential vectors (gradients) is to conduct the motion of particles (which are always either charged or dipolar) appearing in nonmatter, which is taken as an incompressible continuum — the "void." Because the final results of these forces are always movement of matter, Dr. Barsamian prefers not to classify them by their origin.

Such a field may persist with great permanence. There are some limitations in summation (triplet conditions) and selectivity (periodicity) of the vortices themselves. Part of these limitations takes the

form of particle characteristics. Presently he is rather sure that the formation of patterns of organic, inorganic and liquid crystals (typical to living biomatter) are partially responsive to the effect of the described field.

Dr. Barsamian is attempting to synthesize his own experimental findings on the dielectric behavior of biosystems as they enter the cancer process with the data that Dr. Reid is producing with respect to action at a distance.

With respect to living systems, he has slowly been approaching the conclusion that existing physical laws are just not applicable concerning (1) entropy, or (2) energy breakdown, or (3) random collisions of particles in quantum terms, or (4) electron-ion exchanges in bioelectrochemistry terms.

Under such circumstances, it is difficult to find a referee who sincerely understands the related experiments and their underlying theory. This presents a nearly impenetrable barrier to publication in leading scientific journals.

This is tragic, because these considerations and experimental results at least provide an entry into more fundamental experiments with present lethal diseases such as cancer and AIDS which annually take large numbers of human lives.

The present state of the art is telling everyone loud and clear that something fundamental is wrong with present theory, and that we should come to terms with more novel views.

Comment by the present author: In his prophetic insights, Dr. Barsamian has placed his finger squarely on the fundamental struggle of living systems against the "positive energy/time" laws of present physics. In its struggle, the living system must use negative energy/time, to correct from disorder to order and provide the extra free energy to do so. Otherwise, the steady progress toward increasing disorder in all its actions, would very shortly reduce the living system to such a disordered state that it could no longer reproduce the clear genetic pattern of its own kind. We have already pointed out the hitherto unexpected role that phase conjugation plays in allowing the living system to violate and break the iron dictates of conservation, nontransmutation, entropy, and raw statistics.

To live and survive, a living system must have access to other functional levels and other mechanisms beyond those contained in

our present physics, electromagnetics, and biochemistry.

The incredibly productive and important work of Drs. Reid, Barsamian, and associates is of the utmost importance. Their work clearly moves everything in biochemistry and the knowledge of cellular functioning a major step forward.

It is a betrayal of the scientific method that such vital work goes so largely unreported in the leading journals. Indeed, the work of these Australian scientists should be galvanized and well-staffed and funded. They can literally usher in a new science, given the chance to further exploit and develop their results.

Royal Raymond Rife

In the 1930's and 1940's, Royal Raymond Rife revolutionized everything that has been done before or since in high resolution optical microscopy.

He also revolutionized everything before or since in cellular biology. He carried cellular structure far beyond anything ever dreamed of at the time or presently. He revealed the direct connection between organized living energy forms and organized biological systems. He revealed that life itself is organized and dynamic, to a far finer level than anything in the textbooks today. **He revealed that our present theory of disease is fundamentally very, very wrong.**

He produced direct, economical, electromagnetic cures of cancer, leukemia, and other such debilitating diseases. His work presages a future mankind could have had, where most debilitating diseases were quickly and economically corrected, and where no poisonous drugs, violent nuclear irradiation, and harsh chemotherapeutic "burning" of the patient would be necessary.

For such epochal work, he was ostracized, essentially imprisoned in a medical treatment facility, broken, condemned, and rejected by his peers. His findings, though printed in reputable publications and journals, were discredited and ridiculed.

He literally was reduced to a non-person by the power of the medical cartel.

Finally escaping from his enforced confinement, he lived out his remaining years and died quietly and unknown.

Rife's Universal Microscope

With his universal microscope, Rife achieved optical resolution of up to 31,000 diameters and magnification up to 60,000 diameters. His microscope could examine living viruses, living bacteria, and other as-yet-undiscovered living organisms and living energy forms that no other microscope before or since could see.

Even today, only the electron microscope furnishes such resolution, and it zaps-to-death the objects that are being examined. Further, it will not at all detect or see the "living energy forms" revealed by Rife's microscope.

To appreciate Rife's accomplishment, let's briefly summarize some of the performance factors of an optical microscope.*

Several factors are important in the functioning of a microscope: Resolution, magnification, and contrast lead the list.

By **resolution** we refer to the ability of the instrument to distinguish a small object. In other words, something like looking at a medical doctor's eye chart, and specifying the smallest print one can clearly see. Resolution is often referred to as resolving power.

By "magnification" or **magnifying power** we mean the ability of the instrument to "blow up" or enlarge the image produced. Roughly, it's the ratio of the apparent size of the object seen through the microscope to the apparent size of the same object seen without the instrument.

Magnifying power is exactly like enlarging a photograph. It won't improve the resolution or make the photograph any clearer, but may make whatever was captured (resolved) easier for the human operator to see. If you just keep enlarging the photograph, it will get more and more grainy, until no further details can be seen with higher magnification.

Contrast refers to the distinctness by which the various parts of the object can be distinguished from one another. To enhance contrast of objects under the microscope, staining of the objects is often used. Very often the act of staining will itself kill the living organisms — such as bacteria — that are being examined.

*The electron microscope reveals only the "dead carnage" of the battlefield after everything is destroyed. With it, one is observing physical residuals, not the living players. For some encouraging modern work, however, see Michael Hercher, "Virometer — an instrument for the measurement of the size of viruses using an optical microscope," **SPIE Seminar Proc.**, 1977, p. 17-22.



Figure 92. Royal Raymond Rife in his laboratory. Courtesy Christopher Bird

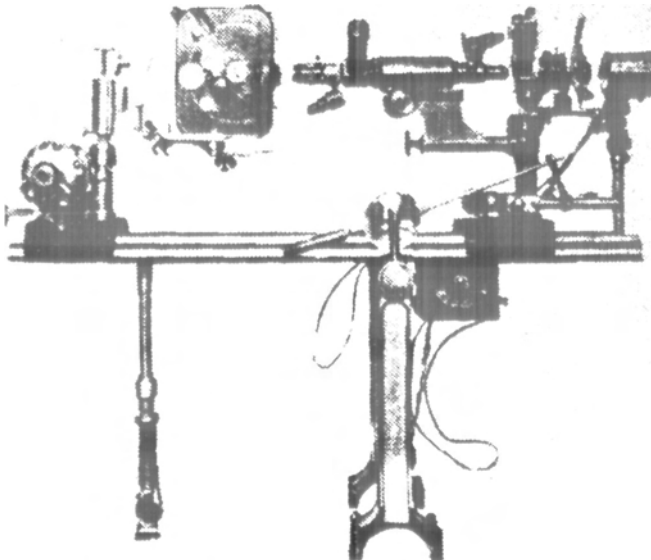


Figure 93. Rife's first virus **microscope**. Courtesy Christopher Bird

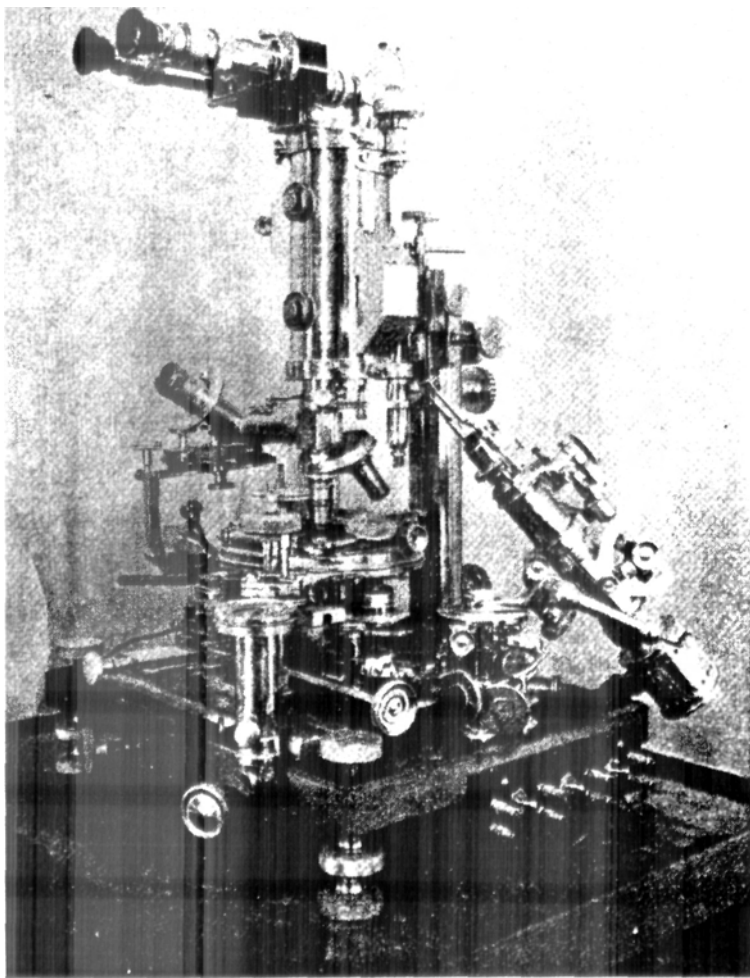


Figure 94. Side view of Royal R. Rife's prismatic universal microscope. Largest and most powerful of five Rife microscopes. With it, living filterable viruses could be observed. Courtesy Christopher Bird.

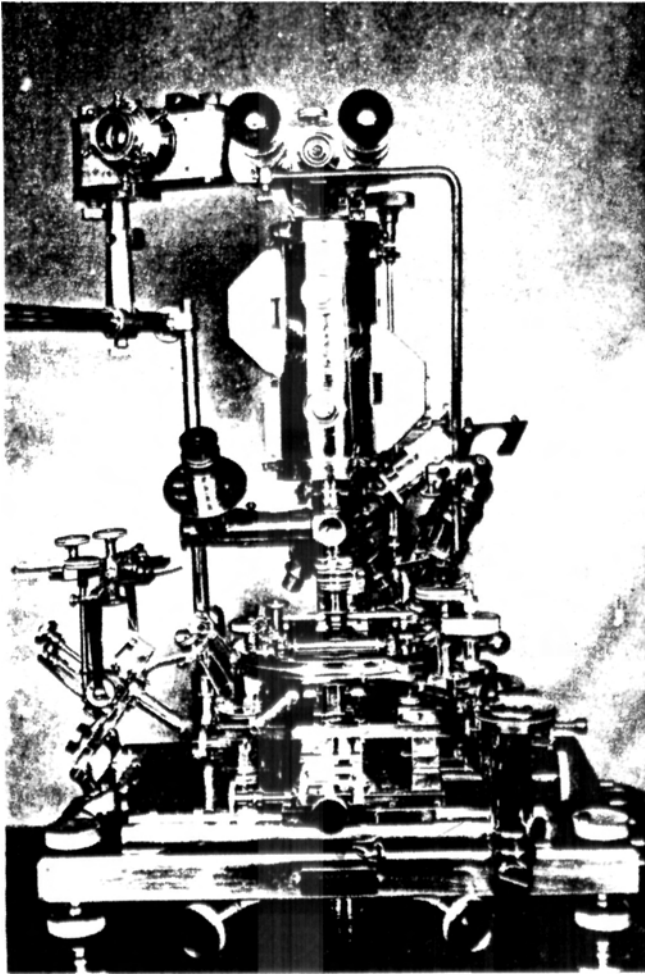


Figure 95. Front view of Royal R. Rife's prismatic universal microscope. Built in 1933 in Rife's San Diego, California laboratory. Courtesy Chris Bird.

We may state the resolution of an optical microscope in terms of the diameter of the smallest object resolved: for example, so many nanometers. Or we may just simply and loosely speak of so many thousands of diameters.

The resolution of an optical microscope depends upon the illumination conditions, its optical system, and the fact that the object viewed diffracts and spreads the light. A wide variety of mechanisms for illuminating, resolving, contrasting, etc. are used in optical microscopes.

According to standard Rayleigh theory, normal optical microscopes are limited in resolution to about half a wavelength. That corresponds to about 250 nanometers for visible light illumination. One can do a little better than that by using ultraviolet light and quartz optics. The UV has a higher frequency than visible light and hence a shorter wavelength. However, beyond 240 nanometers the resolution of an optical microscope quickly disappears.

A few researchers — notably in the 30's and 40's — remarked about other factors, such as "quality of the lenses," affecting resolution. Some of them reported results to about a tenth of a wavelength. Loosely, that translated to somewhere in the order of 5,000 to 6,000 diameters. The dependable upper limit seemed to be — and still is — about 3,000 diameters, however.

Normal optical microscopes simply are almost useless for trying to look at viruses. They will not resolve any but the very largest viruses, and will not resolve the internal features of even those few giants.

Much of today's knowledge of virus structures and shapes comes from the use of electron microscopes. They bombard the object viewed with a fierce rain of energetic electrons. These instruments see nothing of the *functioning* of the virus, for they kill it instantly in trying to view it.

With Rife's universal microscope, the dynamic living functions of the virus could be observed without killing it.

With Rife's microscope, a whole range of complex organisms and structures below the size of bacteria was revealed. Many of these organisms are still not known to present science, even though some of them were written about at the time. Filterable forms of bacteria

— forms which readily passed through filters supposed to easily block their passage — were discovered and reported by Rife and his medical colleagues.

In addition, Rife's microscope — which contained block-quartz prisms and lenses and interference stages — revealed halos around living organisms that other microscopes could not see, even though the object was within their resolving power. Further, it revealed the existence of entire organisms and forms which other microscopes could not see — even though, again, the size of the organisms was within their resolving power.

In other words, Rife's microscope not only revealed smaller physical forms than any other microscope could see, but it also revealed sizeable "living energy" forms which no other microscope could see.

Rife Proved That Everything Is Alive

The degree of smallness to which Rife's microscope would resolve, and the extraordinary energy forms it could detect, showed that direct detection of the virtual state organization of the living organism was accomplished by the instrument.

The science of the day was only just groping its way toward any sort of physics that could explain such an astounding instrumental result. Today, however, in the hard-core literature there is demonstrated proof that the optical limit of resolution can be drastically overcome, using evanescent waves.*

Shortly we will briefly give an "ad hoc" explanation of such evanescent waves.

Electromagnetism has been shown by Kaluza-Klein theory to actually exist in the fifth dimension. In other words, EM itself is hyperdimensional. It flows in the fifth dimension, which is "wrapped around" each point in our ordinary space. It is — to the first approximation — the external environment of every normal point in

*E.g., see T. Sato et al, "Application of evanescent waves to microscopic observation," **Bull. Tokyo Inst. Technol.** (Japan), No. 125, 1974. p. 35-41. See also G.A. Massey, "Microscopy and pattern generation with scanned evanescent waves," **Appl. Opt.** (Poland), 13(3), 1983, p. 247-255.

our 3-space.

Let's say that again.

The electromagnetics "medium" itself is totally external to each point in our space. Each of our points is surrounded in higher space by the electromagnetic medium.

We live inside a totally electromagnetic medium. It's not just an "electromagnetic environment" in our own space; instead, it's an electromagnetic environment in hyperspace.

Everything already is just the internal structure of the electromagnetic medium!

That's what the "vacuum" is.

That's what "spacetime" is.

That's what the "virtual state" is.

That's what physical matter is.

And it's all alive. Totally and completely alive. Everything is alive. There is nothing but life. The electromagnetic medium is alive.

Except within a locally-organized biopotential area, it's just "equally alive in all directions." So it appears inert, where by "inert" *we mean not singly preferential.*

Every biopotential change, at any level in a biopotential, extends "decaying-expotential-wise" to infinity, by standard theory. Part of that potential change exists at every point in the entire spatial universe. And there at that point, so do the biopotential changes for every other biosystem in the universe.

Everything's alive. There is nothing but life. Anywhere. Anytime.

An interchange between this "living, surrounding electromagnetic medium" and each particle of mass in our 3-space continually occurs. This exchange involves the so-called virtual particle flux.

If we model higher dimensions, such as are necessary to include the "particle zoo" discovered by modern particle physics, each of these "higher dimensions" corresponds to a "successively deeper-

interested level of virtual particle flux—of the vacuum, or of this electromagnetic medium that surrounds us.

The living system orders, structures, and dynamically functions and interchanges electromagnetically throughout many higher "dimensions" — throughout many such interested levels of virtual-state/vacuum/spacetime.

Except for the first layer of virtual state (the 5th dimension in Kaluza-Klein theory), gross (classical) electromagnetic theory totally ignores the infolded, ordered deeper structure of electromagnetism (of the EM medium).

Using such gross electromagnetics, orthodox science thus can only detect and grasp the gross results of the living organism's functioning. Further, it can only detect and grasp those gross results that actually move 3-space matter — observable particles.

So it only detects the grossest interchanges between "mind" or "life" and matter. Specifically, it only detects the final results of that interchange—the gross movement of material particles themselves.

The first hypernumber — "i," the square root of minus 1 — is used to model another dimension at right angles to our normal three. An electromagnetic wave thus is modeled to have two parts: the first is the part that affects or moves a material particle, and that's called the "real" part or "observable" part. The second part of the EM wave is the component that lies in this "imaginary" (unfortunate standard term!) dimension. That imaginary part does not of itself move charged particles, so it is considered to be "something other than real."

Note that what's really done in this sort of orthodox modeling is to define observation as the movement of observable charged particles.

The human "conscious mind" is a functioning part of the overall human mind that has been specifically fitted to function almost totally with our gross bodily detection of the photon interaction.

We thus consciously detect and "are aware of only the first level of reality: the interface between the first layer of virtual-state/vacuum/spacetime/ and the 3-space of observable particles of mass.

Since the physicist must be "conscious" of his observation or instrumental detection, the detection process ultimately has to have

a final stage that produces a photoelectric interaction with his body — for that is all the conscious mind detects and processes.

Everything chemical, electrical, etc. — according to quantum mechanics — will involve at its root level only the photoelectric effect.

Rife's Microscope Used Evanescent Waves

However, it is certainly possible to build an instrument which is multi-staged, and one in which higher stages interact primarily with deeper interested levels of vacuum virtual state. That is, an instrument that interacts with higher dimensional phenomena. That is, one that interacts with deeper interested levels of electromagnetics. If these stages interact causally in a vertical manner, then the final interaction with the human body and nervous system can still be "normal electromagnetics" and yet indicate a higher dimensional phenomenon, event, or function.

That is precisely what Rife did: His universal microscope penetrated to a much finer level of reality because its multiple stages used **evanescent waves**.

Here's what we mean by that.

An electromagnetic wave consists of a "real" part and an "imaginary" part, as we have discussed. It's possible, however, to have the real part become zero, and still have the "imaginary" part remain and dynamically vary.

This sort of wave — containing only the "imaginary" part — is said to be one type of **complex wave**, or an **evanescent wave**.

In advanced EM waveguide and optical theory, such evanescent waves can function to guide or determine the real parts of the EM waves. That "real part" is the part that is then going to interact with electrons and move them, and give us a "detection."

In other words, the "real" part of the EM wave will be moved and guided by the "higher dimensional" or evanescent part, or even by separated evanescent parts — pure evanescent waves.

So one can build a device or instrument that utilizes such an effect to reveal what's going on in a whole dimension beyond what we

normally see. Waveguides in certain RF radars already do that.

Such instruments are not limited to the resolution determined by the "real" part of the EM wave (such as the "real part" of light).

Such a microscope would not necessarily be limited in resolution by the wavelength of the light it used to illustrate the observed object.

Indeed, if one uses a higher dimensional Kaluza-Klein model (which particle physics of necessity has to consider), one could build a "repetitive stages" instrument which could view many more higher dimensions. That's exactly the same thing as viewing many more deeper interested levels of virtual state.

That is precisely what Royal R. Rife did: **He developed a microscope using multiple stages, special interferences, etc. He built a multistaged evanescent wave instrument that could see into higher dimensions and deeper levels of virtual state.**

Rife's microscopes were thus startlingly different from normal microscopes. That is why he could see phenomena and organisms, ostensibly within the size capability of normal microscopic resolution, which ordinary microscopes could not see.*

Evanescent waves penetrate the virtual state (hyperdimensions) and interact with what to us is "dimensionless" (what does not spatially intersect our 3-space). Interfering multiple evanescent waves reflected from/having interacted with these (to us) nonphysical forms can again reproduce ordinary electromagnetic "light." Thus the evanescent wave microscope, if properly built, allows one to directly "see" (and photograph) what is to us living forms of energy, nonphysical, and without 3-space matter bodies.**

The same scheme can be used to develop instruments capable of directly revealing the living nonphysical world around us — such as the human biopotentials, their internal structures (including

*However, Rife's microscope was extraordinarily difficult to focus. Rife often spent 24 hours straight at his universal microscope, just in focusing it.

**If one is going to accept the many-dimensional theories necessary to explain particle physics, one must accept the possibility of higher dimensional living things, which we would see as living energy forms or as thought forms. These would appear nonphysical to us - as is time itself — but would be real and interactive nonetheless.

"thought forms"), etc. What the Soviets call **bioplasma** can be directly observed and photographed in this fashion. We have only to develop the necessary instruments; the science required is difficult, but it is already in the literature.

That is what Rife's microscope did. It was a forerunner of the instruments we need to develop in electromagnetic healing, and Rife was a truly great and unappreciated pioneer.

In one swoop medical science could have jumped a century ahead. The ruthless suppression of Rife and his fantastic scientific breakthrough was one of the most dastardly deeds ever perpetuated by the orthodox scientific establishment.

Rife Revealed a Far More Fundamental, Living Biology

With Rife's powerful universal microscope, it was also possible to view the interiors of the so-called "pinpoint" cells situated between normal tissue cells and just barely visible to ordinary microscopes.

Here is the astonishing living world inside those "pinpoint" cells, as revealed under Rife's powerful instrument: When one of the "pinpoint" cells was magnified, still smaller cells were revealed within its structure. When one of these still-smaller cells, in turn, was magnified, it too was seen to be composed of even smaller cells.

With Rife's microscope, this process could be repeated 16 times. An astonishing intersted series of organized levels of a living cell was revealed, far more fundamental than anything that exists in present biological theory.

The present author points out most strongly that these levels correspond electrically to, and are in virtual particle flux pattern exchange with, the electromagnetic potentials of their environment. This includes their own biopotentials that are centered in the atomic nuclei of the atoms comprising the physical material of the cells, and that charge up with specific internal patterns.

The biopotential itself is organized into a corresponding virtual-state series of intersted levels and functions. **The structured biopotential of the cell is a living, organized, functioning thing, and its internal functioning literally constitutes the "spirit" or "true nonmaterial deep mind" of the organism.**

All the interested levels are in constant electromagnetic exchange "up and down" with each other, particularly with respect to organized virtual particle flux patterns.

In addition, all the cells are in constant electromagnetic exchange "across" with each other, at all levels. This provides a dynamic, structured, living biopotential for the entire bio-organism (the entire body). Within this potential, dynamic interchange on all levels is continually occurring. This is the basis for the master cellular communication system that Dr. Fritz Albert Popp discovered.

Rife's powerful microscope had revealed nonmaterial functioning life forms (structured, dynamic, living biopotentials) connected to material bodies.

He could follow "filterable" forms of bacteria — actual living biopotential forms of the organisms that could not be separated out by filters, but which would easily pass through any filter.* He could observe interactions of these forms, changes of forms, translations and transmissions of forms, etc. — none of which is detectable by present biological theory or medical science.

Rife had advanced biology and biophysics a century in one jump. As always, orthodox scientists — most of whom in their scientific paradigm are self-admitted materialists — were quite unready to tolerate such heresy.

Obviously the materialistic dogma of the science of his day — and of the science of today — reacted most hostilely to such hogwash. Contrary to the prevailing mystique, most scientists are dogmatically attached to materialism and to the dogma of their present paradigm. Faced with a conflict provided by experiment, most will uphold the dogma and reject the experiment — the exact opposite of the scientific method they espouse.

Rife's revolutionary work was no exception. He incurred the unending, total opposition of powerful individuals controlling the direction of biology and medical science for their own personal gains.

Rife was hounded into court on trumped up charges. Though he was acquitted, he emerged a shaken, broken man and an alcoholic.

*More precisely, they would easily flow *around* the 3-dimensional filter, since they were hyperdimensional.

His work was suppressed. His equipment was left to gather dust. He was also forcibly committed to a medical treatment facility.

Finally escaping from his "prison," Rife lived out his remaining years quietly. He died without ever being vindicated for his marvelous, world-shaking discoveries.

But at least he left us a legacy. Persons are still alive who knew Rife and his work, to one degree or another. Some of his microscopes are still in existence, though non-operable due to missing or stolen parts. With proper funding, an enlightened team of scientists and researchers can be assembled to quickly repair Rife's remaining instruments and duplicate his incredible work.

With concentrated effort, Rife's work will yet play a primary role in the development of a direct electromagnetic cure for AIDS. As a byproduct, it will play a role in rapid development of cures for cancer and other debilitating diseases.

Royal R. Rife's contributions may yet help save half of humanity, and prevent a Soviet takeover of the world.

CHAPTER 6

DEVELOPING THE ELECTROMAGNETIC CURE FOR AIDS

By now, how one goes about developing a electromagnetic cure for AIDS — and for cancer and other killer diseases — should be apparent.

One must set up a modern research laboratory and assemble as many of the "dirty dozen" together as is possible. One then tackles the problem head-on, adding the necessary support staff and special consultants.

First the Kaznacheyev effect for AIDS must be isolated and determined. Then it must be reversed, to yield the precise "curative" signal.

Transforms for these Kaznacheyev IR/UV "death photons" and their phase conjugated "healing photons" must be obtained for a lower electromagnetic frequency band — such as, say, 10 to 20 gigahertz.

Away must be found to irradiate the whole human body with the curative signal. The ideal way is to utilize a scalar EM curative transform so that the atomic nuclei of the body — and hence its entire master cellular control system and immune control system—will be "charged up" with the correctly structured "AIDS cancellation message."

The entire procedure and apparatus must be as simple and small as possible. My colleagues have already achieved very promising — even remarkable — progress in this respect.

Reversing the Kaznacheyev Effect

The "Kaznacheyev effect" for AIDS virus condition must be stimulated between cell cultures, so that the disease condition is electromagnetically transferred from one to another. The actual electromagnetic "delta" constituting the contribution of the AIDS infection must then be isolated electronically. The best way to do this

is probably to subtract the normal cell radiation pattern from the "cell plus AIDS" radiation pattern.*

With the "AIDS delta" determined, the delta is then fed into the appropriate phase conjugating mirror system, so that its time reversed replica is produced.

The new phase conjugated signal is then the required *AIDS reversal signal* to reverse the effects of the AIDS virus itself, inside the cell where it resides dormant. This "time-reversed" signal will reverse the genetic change in the cell, not just kill the HIV virus.

In a crude way, one is making an **electromagnetic anti-virus**.

For ease of development and treatment, microwave technology is most attractive. Obtaining transforms of the signals in the radar band is ideal, since a wide variety of techniques, instruments, and electronic parts are available for that region. Millimeter waves would be most attractive, for the equipment could then be highly miniaturized.

One can regard it another way also: energy forms (critters) are involved. The action of the AIDS virus in its host cell, upon the DNA of the host, is underlaid by manipulation of energy critters. If one makes the electromagnetic anti-virus form, one is also manipulating the energy critters in their virtual state substrata.

The net result is that essentially the virus pattern — even the virus itself — can be phase conjugated by the energy critters. The result can be to turn the actual virus in the cell into a negative virus, accomplishing recombinant DNA procedures in reverse.

Remember that the signal we seek to use involves negative energy and negative time. We are also engineering the virtual state directly. The ordinary positive energy/positive time/observable state rules and limitations do not necessarily apply. And the "fixed form" first order physical reality as we normally conceive it need not

*Procedures along the lines of the extraordinary double-exposure holographic work of Dr. Robert Powell will probably be necessary. His work on biologically significant spatial frequency spectroscopy has blazed the trail as to how to obtain the specific delta patterns desired. It is hoped that Powell will shortly publish the remarkable results of his 15 years' work.

be so fixed at all.

Physical reality itself can be directly engineered.

The engineering we seek to accomplish is directly upon the probability states propagated by the Schroedinger equation, before observation and collapse of the wave function occurs. **We seek to engineer physical reality before it is born, while it is yet forming.**

Only at such a level can the previous action of the AIDS virus — that in which it combined its genetic material with the genetic material of the host cell — be reversed and undone.

Only at such a level can we convert the infected human body from an "AIDS virus factory" back to an uninfected normal human body without AIDS.

The Proof: Priore's Work

Antoine Priore's pioneering work largely proves that it can be done. Cancers, leukemias, and many other virulent diseases yielded to his phase conjugated signals passed down through a powerful magnetic field to totally penetrate every cell in the treated patient's body.

And Royal R. Rife's work proved that a virus and a bacterium are not at all the "rigidly fixed" physical forms that our normal science has led us to believe they are. Instead, both the organisms and their biochemical and genetic actions can be addressed — and changed — on a much finer level of reality.

Of course, it would be enormously helpful if one had a working Rife microscope.

My colleagues are attempting to rebuild one of the original Rife microscopes, which has parts that were missing from it. They have every hope of having the microscope in action in the future.

Another angle of attack is also possible.

One of my colleagues has discovered a very peculiar, weak electromagnetic signal that will kill viruses, harmful bacteria, toxic protozoa, etc. but not harm living human cells. Only a few volts and

a few milliamps are used.

However, there exists a major problem in getting any such very weak signal into every cell in the body — which is required if one is to heal blood diseases such as AIDS and leukemia. After all, that was the reason that Priore utilized a powerful magnetic field of thousands of gauss. The magnetic field penetrated every cell in the body — even those in the bone marrow where all the blood cells are manufactured. By using the all-penetrating field as the carrier, the phase conjugated healing signal pattern could thus be introduced into every cell in the body, bathing it completely, inside and out, with the restorative signal.

Remember, one must not just get the signal into the cells themselves — instead, one must get the restorative signals directly into, and absorbed in, the atomic nuclei.

Again, that is why Antoine Priore found it necessary to employ a "rippling" magnetic field. The "ripple" was actually a magnetic wave, and nuclear resonance then provided the magic mechanism to penetrate all the atomic nuclei.

So the initial problem is, how does one provide a mechanism to carry the desired signals into and through each and every cell of the body and into each and every atomic nucleus of the matter of the body?

Obviously one can utilize nuclear magnetic resonance, after the fashion of Priore. If so, the resulting apparatus is going to be extremely large and expensive. It would be highly desirable to do it a different, simpler, much cheaper way.

After many hundreds of back-breaking experiments, one of my colleagues appears to have discovered a completely unique and direct way of introducing the desired EM restorative signals into and completely through every cell of the body, and into every atomic nucleus. Though much additional work to confirm this still remains, the initial results are marvelously encouraging.

Another colleague has succeeded in developing a peculiar sort of detector that should prove adaptable to detecting the actual "biopotential structural patterns" themselves, directly in and out of the atomic nuclei. Though obviously much more work is necessary before the final instrumentation is ready, the preliminary results

are again most encouraging.

As I write these words on paper, this work is proceeding, but very, very slowly due to lack of the necessary funds to attack the research problems in force.

What is Needed

Time is running out —most conventional science appears to be driven by special interest groups/Drug Manufacturers who are unable and/or unwilling to counter the AIDS epidemic with anything other than extensive "Addict Style" symptom-reducing drugs that generate dollars, not cures. Though this is not universal, it is the conventional norm.

Unconventional disorders or diseases require *unconventional* science for *unconventional* cures.

Immediate funding is required if this awesome threat to humanity is to be stopped. An American public alerted in time to this desperate situation can demand that the government and/or private business immediately address and act on this life-threatening issue in a different, unconventional manner.

Encouraging Preliminary Work

One of my associates, already familiar with scalar EM devices, has exerted every effort to try to reduce the scope of the problem. In literally hundreds of experiments, he has been able to narrow down the search, and obtain at least some very promising results.

He has obtained an initial candidate phase conjugated signal for further test and trial.

He may well have succeeded in discovering a new and unique method to communicate signals directly into the atomic nuclei inside the matter in the human body. This signal presently appears to directly interact with the cellular biopotential and with the body's master cellular communication system.

Remember, however, these are preliminary results. They still must be fully substantiated in a great many more tests. Undoubtedly a great deal more research, analysis, and adaptation is necessary. We certainly cannot presently say we have any sort of "cure"

for the AIDS virus or anything else — or that these results are to be considered as proven in any **fashion.**

But what we can say is that my colleague has been able to derive a very complicated phase-conjugated signal, which produces negative energy and negative time of the general sort required. And he may just have made a most marvelous discovery that will point the way to eventual equipment much, much smaller than the 4-stories high machine with which Priore intended to treat terminal human cancer patients.

The initial signal discovered by my colleague, when applied to the body at miniscule voltage, seems to zap all sorts of "bad things" — viruses, harmful bacteria, dangerous protozoa, microworms, you name it — without harming the blood cells, the normal body cells, or the hosted friendly bacteria.

The signal does this at miniscule voltage and amperage.

It can be applied directly to the body through special electrodes. Through a special feature, my colleague has been able to get the signal to reverberate the entire body, all cells, all parts, and even penetrate the atomic nuclei and establish scalar resonance therein.

There turned out to be some extremely strange things that have to be done to the phase conjugated signal before it will accomplish what is being sought. At least some of these "strange things" have been uncovered by my colleague.

One of the peculiarities is that the entire electrical apparatus is part of the input "form" (that conditions the potential wave structure) being phase conjugated and sent to the organism. If a lead-acid battery is included in the apparatus to power it, one will inject the electromagnetic form for the battery acid directly into the organism,* destroying it. This includes destroying the host's cells. In this case the signal is lethal, not curative. Substitution of a dry cell battery with no liquid electrolyte eliminates the problem. Exactly why a liquid electrolyte has a toxic effect and a "sludge" or solid electrolyte does not, is not understood at this time.

Other such anomalies in the tentative process have been discovered and compensated for.

However, the way ahead is exciting. It suggests that the body

*Via a mechanism similar to that found by Reid and Barsamian

(atomic nuclei) can literally be "charged up" (i.e., the living biopotentials can be "charged up" with the signal structure) so that the "disease-proofing" is very lasting, possibly for many years or even for a lifetime.

At least my colleague has pressed this to the point of demonstrating a long-lasting charge being acquired by the body.

For example, at one time his body became so "charged" from his lengthy experiments that a one-inch blue spark often leaped from his fingers when he reached out for something metallic. The discharge was cool, negative energy — living energy, if you will. It should be negentropic, not entropic. It was definitely not the type of energy the orthodox scientific community is accustomed to. And normal electricity will definitely not charge up the body in such a continuing fashion, so far as is known.

Let me clearly state again that we have not yet produced the specific anti-pattern *per se*. What my colleagues have discovered appears to be a broad-band signal that appears to act hyperspatially, analogous to the manner in which a broad-band drug such as penicillin acts biochemically. Even this much remains to be clearly established.

However, it is a most encouraging and promising first step.

Much more work, and a great deal of experiments to substantiate or adapt these tentative results, still need to be done. Now there is no substitute for rigor and thoroughness — and there is no substitute for clearly and scientifically demonstrating the proof of the concept in the laboratory.

It is not just good intentions that we seek, but solid, concrete, proven results substantiated by proper scientific procedures. Much work remains to be done.

But the preliminary results are very encouraging indeed.

Let me briefly share with you some of the things we foresee, if this present line of successful development continues.

We foresee being able to eventually develop and set up — legally and under proper medical auspices, of course — tested and proven

devices that can easily treat up to two or three hundred persons at once. A treatment of about 45 minutes to one hour is all that would be required. Several repetitive treatments a week or so apart, might prove advisory.

In addition, once the entire gamut of the treatment process is validated and proven, and shown to be completely harmless and safe in accordance with legal medical requirements, if need arises we foresee simply adding the signal to ordinary radio and television transmitters — perhaps as simply as modulating the electrical ground. If so, a "maintenance" signal could be established to negate the AIDS virus (or other disease such as cancer and leukemia) in an entire area, and keep out other diseases such as malaria, sleeping sickness, etc.

Another advantage of such machines would be their portability in time of conflict. Also, they would be most useful indeed as defensive measures against biological warfare. For example, the inhalation of only a relative minor amount of anthrax agent is sufficient for 100 percent certain death unless treatment begins promptly. With the portable machines, however, this would be easily negated in any troops exposed to the agent, even before the lethal disease is evidenced. For a totally new agent, a "phase-conjugate delta signal" could be rather quickly ascertained and developed, and the proper settings made on the machines for immediate treatment and immunizing.

And even later, when we proceed to the direct engineering of the living energy form strata themselves, we shall see remarkable cures and remissions of diseases for which medical science offers little hope today. Arthritis, multiple sclerosis, lupus, and other such debilitating diseases come readily to mind. **Even reversal of the aging process should be possible.***

*Two other promising approaches have recently been discovered. First, an electrolyte compound has recently been approved by the FDA for clinical testing. This compound has the remarkable property of raising the cellular electrical potential back to that of a strong, healthy cell. In several years of lab animal testing, this alone was indicated to be over 80% effective against cancer. It may also prove effective against diseases such as arthritis, where the body's immune system attacks body tissue with lowered cellular potentials, since it fails to recognize the weakened cells as those of the body. Second, Baylor University researchers have found that treating blood with certain laser EM radiation kills the AIDS virus, but does not harm the blood cells. This means that it will be possible to assure that blood used in transfusions will be AIDS - free, eliminating one source of AIDS transmission.

Conclusion

We have now come to the end of our road, literally and figuratively.

All of us have been struck a mortal blow by the Soviet AIDS first strike.

Make no mistake, this is **real**. We and our children are already as good as dead unless we move as we have never moved before.

We have a chance. A slim chance.

Americans have always come through when the chips are down. We can conquer this thing. We can overcome this mighty death blow that has been launched against us. We can defeat the others yet to come.

But we've got to move. *Now*.

Remember, Pandora's box has already been spilled. Even without the Soviet biological warfare strike, hosts of new viruses and different strains of old ones are going to be, and are now being, dumped into the biosphere by our own culture. It is also only a matter of time before terrorists and meglomaniacs turn to the use of this potent weapon against a wide-open society such as ours.

Both our Armed Forces and our civilian populace are totally defenseless against electromagnetic biological warfare. Now. At this moment.

Even without the Soviet BW strike implication, it is only a matter of time until we perish, unless we develop electromagnetic healing and electromagnetic biological warfare countermeasures.

We've come to one of those profound momentary pauses in history that determine the fate of the entire world henceforth.

It's like the parable of the lady or the tiger.

We're facing, so to speak, two doors.

Behind one is the most fearsome and hungry tiger of all time. If we delay, that door will open and we'll get the tiger full upon us. We shall be utterly destroyed. That mighty tiger will consume half the world in his roaring frenzy. Our children, and our children's children — what few of them will be left — will wear the hammer and sickle yoke for eons.

Those few future survivors will be taught strange things. How you and I were the real enemy. How we were absolutely destroyed for the good of all mankind. How glorious and necessary it was to unleash the great plagues upon us. And how heroic were those who performed the "noble deed."

Our own distant children will curse us and revile us, and they will be taught to worship at the throne of a false prophet.

The world will descend into a new "Dark Ages" far more frightful than George Orwell ever envisioned.

On the other hand, behind the second door is the most beautiful lady of all history. Literally all of humanity's dreams of health, beauty, and vitality lie behind that door.

If we open it, we achieve a freedom from disease and a measure of bountiful health for all mankind that has heretofore only been dreamed of. *Even reversal of the aging process itself lies beyond the second door. Health and youth — the dream of the ages—can be ours.*

But we have only a moment to open the second door. It is firmly shut, and we must exert ourselves to the fullest if we are to open it at all.

On the human stage, the first door is already slowly opening, inexorably. In only a few moments it will be open and the tiger will be upon us.

We must move quickly.

Which will it be for mankind, the lady or the tiger?

The next few moments in the human play will most assuredly tell.

SELECTED BIBLIOGRAPHY

Note: An extended bibliography for this book would consist of literally thousands of references. Since there has not been time for that, a few key references on most substantive matters are listed. Where possible, one or more of the listed references will direct the interested reader to the pertinent literature on that subject.

References Related to Chapters 1 and 2

1. Pearce Wright, Science Editor: "Smallpox vaccine 'triggered Aids virus'," **The Times** of London, Mon. May 11, 1987, p. 1, 18.
2. Jon Rappoport, "News blackout on pox vaccine link to AIDS protecting WHO?", **Easy Reader**, June 4, 1987, p. 12.
3. Jonathan Tennenbaum, "Parameters for a research mobilization against AIDS," **Executive Intelligence Review (EIR)**, Science & Technology, Mar. 6, 1987. p. 38-45.
4. Steve Connor, "AIDS: mystery of the missing data," **New Scientist**, Feb. 12, 1987, p. 19.
5. Steve Connor, "AIDS: Science stands on trial," **New Scientist**, Feb. 1987, p. 49-54.
6. "The virus reveals the naked truth," **New Scientist**, Feb. 12, 1987, p. 55-58.
7. Michael Gold, "Cancer Cover-up: How honest scientists evaded the issue of renegade cells that contaminated research labs worldwide," **Science Digest**, May 1986, p. 64-67, 80-81.
8. Michael Gold, **A conspiracy of Cells**, State University of New York Press, Albany, New York, 1985.
9. Kenneth J. McLeod, Raphael C. Lee, and H. Paul Ehrlich, "Frequency Dependence on Electric Field Modulation of Fibroblast Protein Synthesis," **Science**, Vol. 236, Jun. 12, 1987, p. 1465-1468.
10. "Leukemia Virus Linked to Nerve Disease," **Science**, Vol. 236, May 29, 1987, p. 1059-1061.

11. R.C. Desrosiers, "Origin of the human AIDS virus," **Nature**, vol. 319, 1986, p. 728.
12. R.B. Strecker, "AIDS virus infection," **J.R. Soc. Med.**, Vol 79, 1986, p.559-560.
13. S.A. Aaronson, "Common Genetic Alterations of RNA Tumor Viruses grown in Human Cells," **Nature**, Vol. 230, 1971, p. 445-447.
14. A. Chandra et al, "Serological relationship between reverse transcriptase from human T-cell lymphotropic viruses defined by monoclonal antibodies," **FEBS Lett.**, Vol. 200, 1986, 327-332.
15. E. Dermott, J.K. Clarke and J. Samuels, "The Morphogenesis and Classification of Bovine Syncytial Virus," **J. Gen. Virol.** 1971; 12:105-119.
16. G. Corneo and L.C. Nelli, "Could Bovine Leukemia Virus be a possible Agent of Some Human Lymphatic Leukemias?", **Acta Haemat.** 72; 1984:65-66.
17. C.A. Mims, "Vertical Transmission of Viruses," **Microbiol. Rev.** 45; 1981:267-286.
18. C.W. Molander et al, "Isolation and Characterization of Viruses from Fetal Calf Serum," **In Vitro** 1972; 7:168-173.
19. P. Legrain, B. Goud and B. Buttin, "Increase of Retroviral Infection in Vitro by the Binding of Antiretroviral Antibodies," **J.Virol.** 1986; 60:1141-1144.
20. S. Kennedy -Stoskopf and O. Narayan, "Neutralizing Antibodies to Visna Lentivirus: Mechanism of Action and Possible Role in Virus Persistence," **J. Virol.** 1986; 59:37-44.
21. E.K. Knott, "Development of Ultraviolet Blood Irradiation," **Am. J. Surg.** 1948; 76:165-171.
22. Dr. John Seale, "The Origins of AIDS," Mar. 15, 1987.
23. R.B. Strecker and T.A. Strecker, "The Bioattack Alert (on AIDS)," Los Angeles, California, 1986.

24. R.B. Strecker, "Aids Virus Infection," **J.R. Soc. Med.**, vol. 79, Summer 1986, p. 559-560.
25. T.E. Bearden, "AIDS: Urgent Comments on Mankind's Greatest Threat," June 1987. Privately printed and circulated. "Aids: Urgent Comments on Mankind's Greatest Threat; and the Secrets of Electromagnetic Healing," presented in absentia at the U.S.P.A. Annual Symposium, July 30-Aug. 2, 1987, Golden, Colorado.
26. **Executive Intelligence Review (EIR)** Special Report, "Global Showdown: The Russian Imperial War Plan for 1988," July 24, 1985.
27. **Executive Intelligence Review (EIR)** Special Report, "The Soviet role in covering up the deadly threat of AIDS," 12(42), Oct. 25, 1985. Charges that Soviet infectious-disease experts control the Communicable Diseases Division of the World Health Organization. Nearly hysterical responses were stimulated by this report: for example, less than a week later, **Literaturnaya Gazeta**, Oct. 30, 1985 published a counter, and claimed the AIDS virus may have been produced in U.S. laboratories by the CIA and the Pentagon.
28. Jeanne Toal, "Supervaccines," **Omni**, July 1987, p. 20, 122.
29. The Kaznacheyev work. See appropriate section for references.
30. The Priore work. See appropriate section for references.
31. William Kucewicz, "The gates slam shut on a microbiologist," "Beyond Yellow Rain: The Threat of Soviet Genetic Engineering," Sixth of a Series, **Wall Street Journal**, May 8, 1984. p. 34.
32. Department of Defense, **Soviet Military Power**, 1987.
33. William Kucewicz, "A non-stop Russian response to WWI," "Beyond Yellow Rain: The Threat of Soviet Genetic Engineering," Seventh of a Series, **Wall Street Journal**, May 10, 1984. p. 34.
34. Lewin, Leonard C, **Report from Iron Mountain on the**

Possibility and Desirability of Peace. The Dial Press, New York, 1967. If you want to read something that will curdle your blood, take a look at this book. There exists a surprising body of material where intelligentsia and "think tank" mentalities have grappled with the idea of non-warfare types of "control mechanisms" for humanity — including induction of biological disease on a mass scale, subtle forms of slavery, etc.

35. Bennett, William and Joel, Gurin, "Science that Frightens Scientists," **Atlantic Monthly**, Feb. 1977. Millions of persons in this country were inadvertently injected with a widely-used substance called simian virus 40, or SV40. Tests proved that SV40 caused cancerous cell growth when injected into animals. SV40 was an unrecognized contamination of polio vaccines given before 1962 and of some cold shots given about the same time. The authors conclude by stating: "The ultimate question is not whether bacteria can be contained in special laboratories, but whether scientists can be contained in an ordinary society."

36. Letter, Lynn M. Draft, White House Policy Staff, to Dick Gregory, April 11, 1977. Quoting: "It is true that the SV40 virus was discovered in the early 1960's. It is also true that the virus was found in certain viral vaccines prepared from virus pools grown in monkey kidney cell cultures. However, the virus had not been recognized as a contaminant prior to that time, although millions of people have received the vaccine during the 1950's."
"... contamination of the vaccine was unintentional due to lack of knowledge."

37. Snead, Dr. Eva Lee, M.D. "AIDS - Immunization related syndrome," **Health Freedom News**, July 1987, p. 14-17, 22, 44-45. Strongly and rigorously points out just now little we actually know, even today, about the cause of AIDS and some of the anomalies connected with it. Specifically, SV40 does not appear to have been searched for in AIDS victims. Lack of detection has little meaning, since SV-40 may disappear and not reappear until triggered or promoted by another virus or chemical. Yet SV-40 has been shown to be one of the activators of the HIV or AIDS virus, as reported by Howard E. Gendelman et.al, in an article published in the **Proceedings of the National Academy of the United States of America**, vol. 83, p. 9759-9763, Dec. 1986. Also, SV-40 carries other viruses

"piggyback" and may have that type of role in AIDS disease. SV-40 may predispose one to a secondary infection by nullifying the immune system. SV40 is ideally suited for genetic manipulation, splicing, and the creation of hybrids or mutants.' Dr. Snead rigorously points out that no one has proved as yet that any virus positively causes AIDS. What has been proven is that HTLV-III is present in large percentages of the AIDS victims. Dr. Snead raises many excellent issues which cry out for answers.

38. Pearl Ma and Donald Armstrong, **The Acquired Immune Deficiency Syndrome and Infections of Homosexual Men**, Yorke Medical Books, 1984.
39. Ostrow, David G; Terri A. Sandholzer and Yehudi M. Felman, Eds., **Sexually Transmitted Diseases in Homosexual Men**, Plenum books, 1984.
40. Snead, Dr. Eva Lee, M.D., **aids-update**, Jun. 15, 1987. In this incisive summary, Dr. Snead "tells it like it is" about Salk vaccine, how vaccines are made, the lack of sufficient scientific accuracy and safety in making vaccines, the nearly general contamination of vaccines by at least some viruses, some macabre details of the constitution of the vaccine 'soups.' etc.
41. Gallo, Robert C, "The AIDS Virus," **Scientific American**, 256 (1), Jan. 1987, p. 46-56.
42. **Institut Pasteur v. United States of America**, United States Court of Claims, Civ. A. No. 730-85. See also Steve Connor, "AIDS: Science Stands On Trial," **New Scientist**, Feb. 12, 1987, p. 49-58. Reveals some direct monetary interests involved in discovery of the AIDS virus, and in royalties for the blood test which detects the antibody to the virus. Extended litigation occurred between French scientists at the Pasteur Institute and Robert Gallo regarding who should receive credit for discovery of the virus causing AIDS. The two sides eventually agreed to share the credit for the discovery, and donate royalties to an AIDS research foundation. Note that Dr. Gallo is head of the Laboratory of Tumor Cell Biology at the National Cancer Institute.
43. Curran, James W. et al, "The Epidemiology of AIDS: Current Status and Future Prospects," **Science**, vol. 229, Sep. 27,

1985, p. 1352-57. Among other things, this report downplays the role of non-viral agents in causing AIDS.

44. Duesberg, Peter H., "Retroviruses as Carcinogens and Pathogens: Expectations and Reality," **Cancer Research**, vol. 47, Mar. 1, 1987, p. 1199-1220. Cites 278 references. Duesberg is a pioneer in the study of retroviruses and a professor in the Department of Molecular Biology and Virus Laboratory, University of California at Berkeley. To show some of the scientific disagreement as to the cause of AIDS, we quote from Dr. Duesberg's article: "AIDS virus is not sufficient to cause AIDS and ... there is no evidence, besides its presence in a latent form, that it is necessary for AIDS." Dr. Duesberg presents an impressive set of technical objections to the present theory that the accepted AIDS virus actually causes AIDS.
45. **Steadman's Medical Dictionary**, Williams and Wilkins, Baltimore, 1966. p. 874. A German bacteriologist named Robert Koch established three "laws" to determine whether a certain micro-organism is the cause of a specific disease. These laws provide a basis for scientifically investigating infection and its causes. Koch's laws are: (1) Whether it be a bacterium, protozoan, or virus, the micro-organism must be present in all cases of the disease. (2) Inoculating animals with pure cultures of the micro-organism must produce the same disease in them. (3) It must be possible to obtain the micro-organism from these animals and further propagate the micro-organism in pure cultures. (Note that this leaves a real problem with any disease caused by complexes of different organisms, rather than just one.)
46. Altaian, Lawrence K., "Aids Development in Infection; Data Suggest AIDS Rises Yearly After Infection," **New York Times**, Mar. 3, 1987, p. C1. Among other things, points out that the AIDS seropositivity rate rose from 4 percent in 1978 to 68 percent in 1984 among 6,875 members of a San Francisco hepatitis B study group.
47. Moyo, "Fighting AIDS in Africa," **AfricAsia**, May 1987, p. 55
48. Altaian, Lawrence K., "AIDS in Africa," **New York Times**. Nov. 1, 1986, p. A1, A8.
49. Krieger, Nancy, "The Epidemiology of AIDS Riddle," **Science for the People**, Jan./Feb. 1987, p. 18.

50. Nordheimer, Jan, "Florida Pig Farm Poses AIDS Riddle," **New York Times**, May. 2, 1986, p. A7.
51. Saul, Stephanie, "A Focus for the AIDS Mystery," **Newsday**, Jan. 26, 1986, p. 7.
52. Segal, Jakob and Lilli, **AIDS: USA Home-Made Evil: Not Imported from Africa**, date unknown (believed 1986). Pamphlet widely circulated in Africa. The two scientists are a biologist and a biophysicist, affiliated with the Humbolt University of Berlin. In the pamphlet the authors charge that the AIDS virus was manmade, and suggest that it may have been created at Fort Detrick, Maryland. This and other such literature, plus deliberate Soviet propaganda releases charging that "U.S. biological warfare" is responsible for the AIDS pandemic, have significantly influenced widespread belief in Africa that the U.S. government is responsible. Our own thesis is that this merely shows how clever and coordinated the Soviet BW strike really is: the deception plan was complete and ready made. The viruses were made elsewhere (in cancer research labs), someone else unwittingly injected the contaminated vaccines (World Health Organization), and a good cover story was immediately at hand (simply blame the U.S.).
53. Pearce Wright and Thompson Prentice, "WHO seeks evidence over vaccine link to Aids virus," **The Times** of London, May 12, 1987.
54. "Near disaster with the Salk vaccine," **Science Digest**, Dec. 1963.
55. Bernard Fields, Malcolm A. Martin, and Daphne Kamely, Eds., "Genetically Altered Viruses and the Environment," **Banbury Report**, Cold Spring Harbor Laboratory, 1985.
56. The following summary articles are in *Science*, 239 (4948), Feb. 5, 1988: (1) Peter Piot et al, "AIDS: An International Perspective," p. 573-579; (2) Anthony S. Fauci, "The Human Immunodeficiency Virus: Infectivity and Mechanisms of Pathogenesis," p. 617-622; (3) James W. Curran et al, "Epidemiology of HIV Infection and AIDS in the United States," p. 610-616; and (4) Richard W. Price et al, "The Brain in AIDS: Central Nervous System HIV-1 Infection and ATDS Dementia Complex," p. 586-592.

References Related to Chapter 3**1. Publications by T.E. Bearden:**

- a. **Fer-de-Lance: A Briefing on Soviet Scalar Electromagnetic Weapons.** Tesla Book Co., POB 1649, Greenville, Texas 75401, 1986. Extensive coverage of Soviet scalar EM weapons and their testing. Heavily documented and illustrated. See a review of **Fer-de-Lance in Defense Science & Electronics**, June 1987, p. 80.
- b. **Excalibur Briefing.** Foreword by John White. Strawberry Hill Press, San Francisco, California 1980. An updated second edition, jointly published by Strawberry Hill Press and Tesla Book Co., 1988.
- c. **Tesla's Secret and The Soviet Tesla Weapons.** 1 hr. 40 min. videotape. 1981. Available from Tesla Book Co. Generally poor quality; lots of information.
- d. "Soviet Psychotronic Weapons: A Condensed Background." **Specula**, Journal of the AAMS, POB 1182, Huntsville Alabama 35807. 1(2), Mar.-June 1978. pp. 18-32. (Journal is now defunct).
- e. **Star Wars Now! The Bohm-Aharonov Effect, Scalar Interferometry, and Soviet Weaponization.** Tesla Book Co., 1984.
- f. **Soviet Weather Engineering Over North America.** 1-hr, videotape, 1985. Available from Tesla Book Co. Excellent quality; a great deal of information.
- g. **Solutions to Tesla's Secrets and the Soviet Tesla Weapons.** John T. Ratzlaff, ed. **Part II: Reference Articles for Solutions to Tesla's Secrets.** Tesla Book Co., 1981.
- h. "Tesla's Electromagnetics and Its Soviet Weaponization," **Proceedings of the 1984 Tesla Centennial Symposium**, International Tesla Society, Colorado Springs, Colorado 1984.
- i. **USSR: New Beam Energy Possible?," Defense & For-**

- oreign Affairs Daily**, 13 (111), June 12, 1984, p. 1-2.
- j. T.E. Bearden and Andrew Michrowski, eds., **The Emerging Energy Science**, Planetary Association for Clean Energy, Ottawa, Canada, 1985.
 - k. "AIDS: Urgent Comments on Man's Greatest Threat; and the Secrets of Electromagnetic Healing," presented in absentia at the U.S.P.A. Annual Symposium, July 30-Aug. 2, 1987, Golden, Colorado.
 - l. "Soviet Phase Conjugate Weapons: Weapons that use Time-Reversed Electromagnetic Waves," **Bulletin**, Committee to Restore the Constitution, POB 986, Ft. Collins, Colorado 80522, Jan. 1988.
 - m. "Tesla Electromagnetics: Weapons or Healing?" Presented at the Whole Life Expo, Los Angeles Airport Hilton Hotel, Los Angeles, California, Oct. 3, 1987.
- 2. William C. Douglass, **The Cutting Edge**, Nov. 1987, p. 3.
 - 3. Stefan T. Possony, "Psy-War: Soviet Device Experiment," **Defense & Foreign Affairs Daily**, 12(104), June 7, 1983, p. 1-2. Reports on Dr. Ross Adey's investigation of the Soviet LIDA device which is used to bombard human brains with radio waves of complex waveform in the 40 MHz region. Also reports on work by A.S. Davydov of the Ukranian Academy of Sciences, who discovered how the blood-brain barrier can be penetrated by low-frequency radio waves so that brain cells are affected.
 - 4. Stefan T. Possony, "The Tesla Connection," **Defense & Foreign Affairs**, Aug. 1984, p. 12-14, 27. Highly recommended.
 - 5. David Jones, "Israel's Secret Weapon," **Weekend Magazine**, Dec. 17, 1977.
 - 6. Daniel A. Walker, Charles S. McCreery, and Fermin J. Oliveira, "Kaitoky Seamount and the Mystery Cloud of 9 April, 1984," **Science**, 227(4584), Feb. 8, 1985, p. 607-611. See also Daniel L. McKenna and Daniel A. Walker, "Mystery Cloud: Additional Observations," **Science**, 234(4775), Oct. 24, 1986, p. 412-413 for update to the information in the first article.
 - 7. Robert J. Durant, "An Underwater Explosion — or What?",

- Pursuit**, 5(2), April 1972, p. 30-31.
8. Gwynne Roberts, "Witness to a Superweapon?", **The Sunday Times**, London, England, Aug. 17, 1980.
 9. Central Intelligence Agency (CIA) Information Report No. CO-B-321/15354-66, "Sighting of Unusual Phenomenon on Horizon Near Iranian/USSR Border," Sep. 8, 1966, released on 15 Dec. 1978 under the Freedom of Information Act (FOIA).
 10. CIA Foreign Intelligence Information Report CO B-324/33601-76, "Aerial Observation of intense Source of Light," Nov. 18, 1976, released on 15 Dec. 1978 under the FOIA.
 11. Max Frankel, "Khrushchev Says Soviet Will Cut Forces a Third; Sees 'Fantastic Weapon'", **New York Times**, Jan. 15, 1960, p. 1.
 12. Christopher S. Wren, "Brezhnev Calls for Accord against 'Terrifying Arms,'" **New York Times**, June 14, 1975, p. 1, 11.
 13. Malcolm W. Browne, "Senatorial Group Received by Brezhnev," **New York Times**, July 3, 1975, p. 2.
 14. Christopher S. Wren, "Moscow Now Pressing Disarmament," **New York Times**, Aug. 12, 1975, p. 6.
 15. Draft agreement introduced by Andrei A. Gromyko to the United Nations' thirtieth session of the General Assembly on Sept. 23, 1975: "Prohibition of the Development and Manufacture of New Types of Weapons of Mass Annihilation and of New Systems of Such Weapons." The first article provided that the types of these new weapons would be "specified through negotiations on the subject."
 16. "Secret Speech: Did Brezhnev Come Clean?", **National Review**, 29(8), Mar. 4, 1977, p. 248, 250.
 17. William Beecher, "Brezhnev termed detente a ruse. 1973 report said," **Boston Globe**, Feb. 11, 1975, p. 1, 12.
 18. See a series of articles by C.B. Baker in **Youth Action NEWS**,

POB 312, Alexandria, Virginia 22313: "Soviet Weather Mayhem." Nov., 1983; "Diabolic Soviet Warfare," Nov. 1984; "The Soviet Zapping of America," Dec. 1986; "Fifth Column Treachery," May 1987; and others.

19. "Jetliner drops 32,000 feet; 400 aboard; 50 are injured," Associated Press (AP) Release, **Huntsville (Alabama) Times**, Feb. 20, 1985, p. 1. Also "China Airlines Pilot Denies Cockpit Error," AP Release, **Huntsville (Alabama) Times**, Feb. 21, 1985, p. A-9.
20. Paul Brodeur, **The Zapping of America**, W.W. Norton & Co., New York, 1977.
21. "Navy sabotages traffic lights, TV sets," United Press International (UPI), PM cycle, Jan. 11, 1985; "Power blackout blamed on anti-radar particles," UPI, AM cycle, Jan 11, 1985; "Power Disrupted Briefly After Navy Plane Drops Metallic Strands," AP, AM cycle, Jan. 16 1985.
22. Bradley Wells, "The Russian woodpecker: a continuing nuisance," **CQ Magazine**, Nov. 1984.
23. "Explosive Events Seen on Soviet Island," **Aviation Week & Space Technology**, Sept. 26, 1983, p. 31. Also Letter John M. Miller, Geophysical Institute, University of Alaska, Jan. 4 1985 with attachment, "Bennett Island plume cases recently found." Incredibly, the U.S. State Department is now attempting to **give away**, to the Soviet Union, the five-island chain of Wrangel, Herald, Bennett, Henrietta and Jeannette Islands and an outer continental shelf portion of Alaska twice the size of California! If this happens, the Bering Sea will become a Soviet pond.
24. Sam Bishop, "UA photos show Soviets break ice for missiles," **Fairbanks Daily News-Miner**, Dec. 15 1984, p. 1,3. See also Craig Covault, "Soviet ability to fire through ice creates new SLBM basing mode," **Aviation Week & Space Technology**, Dec. 10, 1984. See also "Wrangel over Wrangel and the Weather War," Don Bell Reports, 32(9), Mar. 8, 1985. See also, "Wrangel Giveaway Imminent," **The Spotlight**, Jan. 18, 1988, p. 1,3.

25. Philip J. Klass, "Anti-Satellite Laser Use Suspected," **Avia-**

- tion Week & Space Technology**, Dec. 8, 1975, p. 12-13.
26. Joe Schwartz, **Nature**, 280, July 12, 1979, p. 95.
 27. V.D. Sokolovskiy, **Soviet Military Strategy**, third edition 1968, p. 298.
 28. T.T. Wu, "Electromagnetic Missiles," **J. Appl. Phys.** 57, 1985, p. 2370-2373. See also "Filter Center," article on SDI, **Aviation Week & Space Technology**, Feb. 29, 1988, p. 55.
 29. Michael McClelland, "State officials bend an ear to boom talk in Panhandle," **News Tribune**, Fort Pierce, Florida, Apr. 22, 1984.
 30. Susan Burgess, "NASA officials stumped by strange light, boom," **News Tribune**, Fort Pierce, Florida, Nov. 28, 1985.
 31. Bernie Woodall, "Residents are baffled by boom," **News Tribune**, Fort Pierce, Florida, Nov. 27, 1985.
 32. Julie Enders, "Star of wonder: booming, bright," **News Tribune**, Fort Pierce, Florida, Dec. 6, 1985.
 33. April 8, 1986 Canadian Broadcast Network television news interview of three eyewitnesses to the crash of the Arrow Air DC-8 jet liner at Gander Air Force Base, Newfoundland on Dec. 8, 1985. A yellow light was seen on the aircraft.
 34. "Arrow Air was absolutely safe, FAA official says," UPI release, **Birmingham (Alabama) Post-Herald**, Apr. 17, 1986.
 35. "Titan Explosion Cripples U.S. Launch, Surveillance Capability," **Aviation Week & Space Technology**, 124(17), Apr. 28, 1986, p. 16-19.
 36. Zhores A. Medvedev, **Nuclear Disaster in the Urals**, Translated by George Saunders, W.W. Norton & Co., 1979, p. 150
 37. Gary North, "Electronic Aids (Parts 1 & 2)," **Remnant Review**, 12 (20), Nov. 1, 1985, p. 1-8; 12 (21), Nov. 15, 1985, p. 1-8. POB 8204, Fort Worth, Texas 76124.
 38. Captain John D. LaMothe, **Controlled Offensive Behavior**

- **USSR**, Defense Intelligence Agency (DIA) Report ST-CS-01-169-72, 1972 (Released under FOIA).
39. Captain John D. LaMothe and Mr. Louis Maire, **Soviet and Czechoslovakian Parapsychology Research**, DIA Report DST-1810S-387-75, 1975. (Released under FOIA).
 40. John Bentley, **The Thresher Disaster: The Most Tragic Dive in Submarine History**, Doubleday & Co., Garden City, New York, 1975.
 41. Canadian Aviation Safety Board (CASB), **Public Inquiry Into the Aircraft Accident Which Occurred Near Gander Airport, Gander NFLD. December 12, 1985**, Vol. 1, Apr. 8, 1986. Hull, Quebec, Canada.
 42. Department of Defense, **Soviet Military Power**, 1987.
 43. "America's Space Program Sabotaged?" Robert Herzberg, **International Combat Arms**, Mar. 1987. p. 12.
 44. Pearce Wright, Science Editor: "Smallpox vaccine 'triggered Aids virus'," **The Times** of London, Mon. May 11, 1987. p. 2.
 45. Jon Rappoport, "News blackout on pox vaccine link to AIDS protecting WHO?", **Easy Reader**, June 4, 1987, p. 12.
 46. R.B. Strecker and T.A. Strecker, "The Bioattack Alert (on AIDS)," Los Angeles, California, 1986.
 47. EIR Special Report, "The Soviet role in covering up the deadly threat of AIDS," 12(42), Oct. 25, 1986.
 48. Dr. John Seale, "The Origins of AIDS," Mar. 15, 1987.
 49. Martin Ebon, **Psychic Warfare: Threat or Illusion**, McGraw Hill Book Co., New York, 1983.
 50. For details of mysterious, instant deaths in Afghanistan, see Yossef Bodansky, "Soviets testing chemical agents in Afghanistan," **Jane's Defense Weekly**, 1(13), Apr. 7, 1984, p. 508.
 51. " 'Observers' at the August Minuteman Shot?", **The INFO**

Journal, 2(1), Fall 1968, p. 35.

52. Dietrick E. Thomsen, "The Mystery of the Cosmic Gamma-Ray Zaps," **Science News**, 105 (22), June 1, 1974, p. 357-358.

References Related to Phase Conjugation (Time Reversal)

1. Amnon Yariv, **Optical Electronics**. Third Edition. Holt, Rinehart and Winston: New York, 1985. See particularly Chapter 16: "Phase Conjugate Optics — Theory and Applications."
2. Robert A. Fisher, Ed., **Optical Phase Conjugation**. Academic Press, New York, 1983. Collection of papers. An extensive bibliography is given at the end of the book. Note that Fisher's introduction to the phase conjugation effect was as a result of two Russian visitors who briefed scientists at Lawrence Livermore Laboratory on optical phase conjugation. Also note (p.xv, p. 20) that almost any nonlinear optical effect can phase conjugate an incoming beam.
3. B. Ya Zel'dovich and V.V. Shkunov, "Spatial-Polarization Wavefront Reversal in Four-Photon Interaction," **Soviet Journal of Quantum Electronics**, Vol. 9, 1979. p. 379.
4. B. Ya Zel'dovich et al, "Connection between the wave fronts of the reflected and exciting light in stimulated Mandel'shtam-Brillouin scattering," English translation, **Sov. Phys. JETP** 15,109(1972).
5. B. Ya Zel'dovich, N.F. Pilipetsky, and V.V. Shkunov, **Principles of Phase Conjugation**, Vol. 42, Springer Series in Optical Sciences, Theodor Tamir, Ed., Springer-Verlag, New York, 1985.
6. J.P. Woerdman, "Formation of a transient free carrier hologram in Si," **Opt. Commun.**, vol. 2, 1971. p. 212.
7. B.I. Stepanov, E.B. Ivakin, and A.S. Rubanov, "Recording two dimensional and three-dimensional dynamic holograms in bleachable substances," Translation: **Soviet Physics-Doklady-Technical Physics**, vol. 16, 1971. p. 46.
8. A. Yariv, "Three-dimensional pictorial transmission in optical

- fibers," **Appl. Phys. Lett.**, vol. 28, 1976. p. 88.
9. A. Yariv, "On Transmission and recovery of three-dimensional image information in optical waveguides," **J. Opt. Soc. Amer.**, vol. 66, 1976. p. 301.
10. R.W. Hellwarth, "Generation of time-reversed wave fronts by nonlinear refraction," **J. Opt. Soc. Amer.**, vol. 67, 1977. p. 1.
11. A. Yariv and D.M. Pepper, "Amplified reflection, phase conjugation, and oscillation in degenerate four-wave mixing," **Opt. Lett.**, vol. 1, 1977. p. 16.
12. R.L. Abrams and R.C. Lind, "Degenerate four-wave mixing in absorbing media," **Opt. Lett.**, vol 2, 1978, p. 94. Erratum is contained in **Opt. Lett.**, vol 3, 1978, p. 205.
13. P.F. Liao, D.M. Bloom, and N.P. Economou, "CW optical wave-front conjugation by saturated absorption in atomic sodium vapor," **Appl. Phys. Lett.**, vol. 32, 1978, p. 813.
14. A. Yariv, "Compensation for atmospheric degradation of optical beam transmission," **Opt. Commun.**, vol. 21, 1977. p. 49.
15. R.W. Hellwarth, "Third order susceptibilities of liquids and gases," **Progress in Quantum Electronics**, vol. 5, 1977. p. 1.
16. J. Auyeung et al, "A theoretical and experimental investigation of the modes of optical resonators with phase-conjugate mirrors," **IEEE J. Quant. Electr.**, vol. 9, 1979. p. 1198.
17. I.M. Beldyugin and E.M. Zemskov, "Theory of resonators with wave-front reversing mirrors," **Sov. J. Quant. Electr.**, vol. 9, 1979. p. 1198.
18. A. Yariv and T.L. Koch, "One way coherent imaging through a distorting medium using four-wave mixing," **Opt. Lett.**, vol. 7, 1982. p. 113.
19. J.O. White and A. Yariv, "Real time image processing via four-wave-mixing in a photorefractive medium," **Appl. Phys. Lett.**, vol. 37, 1980. p. 5.

20. N.V. Kukhtarev et al, "Holographic storage in electrooptic crystals," **Ferroelectrics**, vol. 22, 1979. p. 949.
21. M. Cronin-Golomb et al, "Theory and applications of four-wave mixing in photorefractive media," **IEEE J. Quant. Elec**, vol. 20, 1984. p. 12.
22. J.P. Huignard, J.P. Herriot and G. Rivet, "Phase conjugation and spatial frequency dependence of wavefront reflectivity in $\text{Bi}_{12}\text{SiO}_{20}$ (BSO) crystals," **Opt. Lett.**, vol. 5, 1980. p. 102.
23. J.O. White et al, "Coherent oscillation by self-induced gratings in the photorefractive crystal BaTiO_3 ," **Appl. Phys. Lett.**, vol. 40, No. 6, 1982. p. 450-452.
24. J.W. Haus, CM. Bowden, and C.C. Sung, "Optical phase conjugation with smooth pump profiles," **Phys. Rev. A, General Physics**, vol. 35, No. 8, Third Series, Apr. 15, 1987. p. 3398-3405.
25. Mary J. Miller et al, "Time response of a cerium-doped $\text{Sr}_{0.75}\text{Ba}_{0.25}\text{Nb}_2\text{O}_6$ self-pumped phase-conjugate mirror," **Opt Lett.**, vol. 12, No. 5, May 1987. p. 340-342.
26. Mark Cronin-Golomb et al, "Passive (self-pumped) phase conjugate mirror: Theoretical and experimental investigation," **Appl. Phys. Lett.**, vol. 41, No. 8, Oct. 15, 1982. p. 689-691.
27. Philip S. Brody and Richard P. Leavitt, "Dynamic holographic method of imaging phase objects," **Applied Optics**, vol. 26, No. 5, Mar. 1, 1987. p. 913-916.
28. J. Feinberg, "Self-pumped, continuous-wave phase conjugator using internal reflection," **Opt. Lett.**, vol. 7, 1982. p. 486.
29. T.Y. Chang and R.W. Hellwarth, "Optical phase conjugation by backscattering in barium titanate," **Opt. Lett.**, vol. 10, 1985. p. 408.
30. J.P. Huignard et al, "Phase-conjugate wavefront generation via real-time holography in $\text{Bi}_{12}\text{SiO}_{20}$ Crystals," **Opt. Lett.**, vol. 4, 1979. p. 21.

31. David M. Pepper, "Nonlinear optical phase conjugation," guest editorial, **Optical Engineering**, vol. 21, no. 2, Mar./Apr. 1982. p. 155. One of the leaders of the field of nonlinear optical phase conjugation (NOPC) tells one in clear English what all the excitement is about. He also points out that the conceptual extension of these techniques to other portions of the electromagnetic spectrum should follow.
32. David M. Pepper, "Nonlinear optical phase conjugation," **Optical Engineering**, vol. 21, no. 2, Mar./Apr. 1982. p. 156-183. This paper is the best introduction to, and summary of, nonlinear optical phase conjugation (NOPC) in the English language. Also, on p. 156 the author specifically notes that "...these processing techniques can, in principle, be extended to other portions of the EM spectrum (e.g., rt, radio, microwave, radars, UV, etc.); and can also involve other fields (e.g., acoustic waves), given the proper nonlinear medium." In other words, phase conjugation is a universal nonlinear phenomenon, unknown until recently. An extensive bibliography of over 200 references is included.
33. Jeffrey O. White and Amnon Yariv, "Spatial information processing and distortion correction via four-wave mixing," **Optical Engineering**, vol. 21, no. 2, Mar./Apr. 1982. p. 224-230.
34. R.W. Hellwarth, "Optical beam phase conjugation by four-wave mixing in a waveguide," **Optical Engineering**, vol. 21, no. 2, Mar./Apr. 1982. p. 263-265.
35. I.M. Bel'dyugin, V.N. Seminogov, and E.M. Zemskov, "Possible wavefront reversal of fields using nonlinear-optics methods," **Sov. J. Quantum Electron.**, vol 9, no. 3, Mar. 1979. p. 385-387.
36. I.M. Bel'dyugin, M.G. Galushkin, and E.M. Zemskov, "Properties of resonators with wavefront-reversing mirrors," **Sov. J. Quantum Electron.**, vol 9, no. 1, Jan. 1979. p. 20-23.
37. G.S. Agarwal, Ari T. Friberg, and E. Wolf, "Elimination of distortions by phase conjugation without losses or gains," **Opt. Commun.** 43 (6), Nov. 15, 1982. p. 446-450. Using scalar wave theory, the authors show the conditions for complete cancellation of distortion by phase conjugation: (1) scatterer is non-absorbing, (2) infinite phase conjugate mirror, (3) conjugate

Selected Bibliography

wave generated without losses, (4) effects of evanescent waves are negligible outside the scatterer. Comment: By reflecting upon this paper, one can grasp that essentially the same approach can be used to show that phase conjugation generates Newton's third law of motion.

38. G.S. Agarwal and Emil Wolf, "Theory of phase conjugation with weak scatterers," **J. Opt. Soc. Am.**, 72(3), Mar. 1982. p. 321-326. The effect of a distorting medium on an incident wave is eliminated by phase conjugation if certain conditions are satisfied: (1) the incident wave contains no evanescent components, (2) the transmitting medium is a weak, nonabsorbing scatterer, (3) backscattering of incident waves and of conjugate waves is negligible, (4) effects of scattered evanescent waves are negligible. Comment: A similar approach can be used to show that phase conjugation generates Newton's third law of motion.
39. T. Sato et al, "Application of evanescent waves to microscopic observation," **Bull. Tokyo Inst. Technol. (Japan)**, No. 125, 1974. p. 35-41. Evanescent wave illumination for microscopy can be used for recognizing higher frequency components impossible to recognize by conventional illumination.
40. S. Twareque Ali. "Evanescent waves in quantum electrodynamics with unquantized sources," **Phys. Rev. D**, 7(6), Mar. 15, 1973. p. 1668-1675. An identity between evanescent waves and virtual photons is established.
41. J.D. Lawson, "Some attributes of real and virtual photons," **Contemp. Phys. (Great Britain)**, 11(6), Nov. 1970. p. 575-580.
42. J.L. Agudin et al, "The behaviour of evanescent waves under Lorentz transformation," **Lett. Nuovo Cimento (Italy)**, vol. 23, ser. 2, no. 15, Dec. 9, 1978. p. 547-551. Two linear combinations of transverse magnetic and electrical evanescent waves (the left- and right-handed circularly polarized modes) remain the same in all systems under Lorentz transformation.
43. M. Hercher, "virometer—an instrument for the measurement of the size of viruses using an optical microscope." **Proc. Soc. Photo-Opt. Instrumentation Engineers**, vol. 126, 1978. p. 17-22.

44. G.A. Massey, "Microscopy and pattern generation with scanned evanescent waves," **Appl. Opt. (Poland)**, 13 (3), 1983. p. 247-255. This article shows how to materially violate the usual "wavelength limitation" of optical systems. Much better resolution can be obtained, and very sharp images can be performed. Comment: This mechanism may be the secret of the Rife microscope, which could see viruses and other small organisms otherwise quite beyond normal optical microscopy's wavelength resolution.
45. H.J. Gerritsen, "Nonlinear effects in image formation," **Appl. Phys. Lett.**, vol. 10, 1967. p. 237.
46. D. Gabor, U.S. patent No. 2,770,166.
47. H.W. Kogelnik, "Controlled transmission of waves through inhomogeneous media," U.S. Patent 3,449, 577.
48. V.I. Bespalov. Ed., **Optical Phase Conjugation in Nonlinear Media**, IPF AN SSR, Gorky, USSR, 1979 (in Russian).
49. B. Ya. Zel'dovich et al, "Phase conjugation by a surface," **Dok. Akad.Nauk SSSR** **252**,1980, p. 92. English translation: **Sov. Phys. Dokl.** 25, 1980, p. 377.
50. F.V. Bunkin, D.V. Vlasov and Yu. A. Kravtsov, "On sound phase conjugation with amplification of phase-conjugated wave," **Kvantovaya Elektron.** 8, 1981, p. 1144. English translation: **Sov. J. Quant. Electron.** 11, 1980, p. 687.
51. A.G. Gyulamiryan et al, "Tunable nonlinear four-wave filter," **Opt. Spektrosk.** 52, 1982, p. 387. (In Russian).
52. R.Y. Chiao et al, "Stimulated Brillouin scattering and coherent generation of intense hypersonic waves," **Phys. Rev. Lett.** 12, 1964, p. 592.
53. S.A. Akhmanov et al, **Problems in Nonlinear Optics (Electromagnetic Waves in Nonlinear Dispersive Media)**, INI AN SSSR, Moscow, 1964. (In Russian).
54. N.B. Baranova and B.Ya. Zel'dovich, "Wavefront dislocations and zeros of the amplitude," **Zh. Eksp. Teor. Fiz.** 80, 1981, p. 1789. English translation: **Sov. Phys. - JETP** 54, 1981, p. 925. Might one infer from this paper a cautious hint (and

probe) at "do you Westerners know of scalar EM?"

55. V.I. Bespalov, Ed., **Phase Conjugation in Nonlinear Media**, IPF AN SSSR, Gorky, USSR, 1982. (In Russian).
56. D. Gabor, "A new microscopic principle," **Nature** 161, 1958, p. 777.
57. Yu F. Kir'yanov et al, "Four-wave mixing in resonantly amplifying media under inversion saturation," **Kvantovaya Elektron.** 8, 1981, p. 1734. English translation: **Sov. J. Quant. Electron.** 11, 1981, p. 1047.
58. V.L. Vinetsky et al, "Amplification of coherent beams by dynamic holograms in ferroelectric crystals," **Izv. Akad. Nauk. SSSR** 41, 1977. p. 811.
59. V.P. Kondilenko, G.G. Odulov and M.S. Soskin, "Amplified reflection of phase-conjugate waves in crystals with the linear electrooptical effect in an external electrical field," **Izv. Akad. Nauk. SSSR, Ser. Fiz.** 45, 1981, p. 958.
60. Yu. I. Kuchеров et al, "Copropagating four-beam interaction in slowly-responding media," in **Phase Conjugation in Nonlinear Media**, ed. by V.I. Bespalov, IPF AN SSSR, Gorky, USSR, 1982, p. 111.
61. A.P. Brysev et al, "Model realization of a NbLi parametric phase-conjugating sound amplifier," **Pis'ma Zh. Tokhn. Fiz.** 1, 1982, p. 546.

References Related to William J. Hooper's Work

1. William J. Hooper, "Apparatus for generating motional electric field." U.S. patent #3,656,013, Apr. 11, 1972.
2. William J. Hooper, "New horizons in electric, magnetic and gravitational field theory," presented at a meeting of the Particles and Fields Division of American Physical Societies, University of Colorado, Boulder, Colorado, Aug. 21, 1969.
3. William J. Hooper. "New horizons for the BxV theory of gravity," undated, unpublished.
4. William J. Hooper, "Equivalence of the gravitational field and

a motional electric field," Session S6, American Physical Society Meeting, Chicago, Illinois Nov. 28-29, 1958.

5. William J. Hooper, "Equivalence of the gravitational field and a motional electric field," **Proceedings of the Boulder Conference on High Energy Physics**, Colo. Assoc. Univ. Press, 1970. p. 483.
6. William J. Hooper, "The motional electric field generator," **Bull. of the Am. Phys. Soc**, Series II, 15(2), Feb. 1970. p. 209.
7. J.H. Jeans, **The mathematical theory of electricity and magnetism**, 4th edn., Cambridge University Press, 1923. p. 125, 606.
8. Henry W. Kendall and Wolfgang Panofsky, "The structure of the proton and the neutron," **Scientific American**, June 1971.
9. William J. Hooper, "All-electric motional electric field generator." U.S. Patent #3,610,971, Oct. 5, 1971.
10. William J. Hooper, "Similarities of the motional electric and gravitational fields," undated, unpublished.
11. P. Moon and D.E. Spencer, "Some electromagnetic paradoxes," **Journal of the Franklin Institute**, vol. 260, 2955. p. 373.
12. Leigh Page and Norman I. Adams, **Electrodynamics**, D. Van Nostrand Co., 1940.
13. William J. Hooper, **New horizons in field theory**, revised 1965, unpublished. Chapter 1, "Fundamental Fields," is particularly important.
14. G.I. Cohn, **Electrical Engineering** 68, 1969. p.441. Pointed out difference between flux linking law and flux cutting law of induction. Comment: Recently the Lorentz force law has been proven false. A modified version of Ampere's law results and saves the day.
15. G.I. Cohn, **Paradoxes of Electromagnetic Induction**, thesis, Illinois Institute of Technology library.
16. Pharis E. Williams, "The Possible unifying effect of the dy-

- dynamic theory," Los Alamos National Laboratory report LA-9623-MS, Los Alamos, New Mexico, May 1983 .
17. Pharis E. Williams, **On a possible formulation of particle dynamics in terms of thermodynamic conceptualizations and the role of entropy in it**, thesis, U.S. Naval Postgraduate School, 1976.
 18. Pharis E. Williams "The Principles of the dynamic theory," Research Report EW-77-4, U.S. Naval Academy, 1977.
 19. Pharis E. Williams, "The Dynamic theory: A new view of space, time, and matter," Los Alamos Scientific Laboratory report LA-8370-MS, Dec. 1980.
 20. Pharis E. Williams, "The Arrow of time in the dynamic theory," Los Alamos Scientific Laboratory report LA-8690-MS, Feb. 1981.
 21. Pharis E. Williams, "The Dynamic theory: Some shockwave and energy implications," Los Alamos Scientific Laboratory report LA-8402-MS, Feb. 1981.
 22. Dan C. Ross, "Plane electromagnetic waves in the dynamic theory," Los Alamos National Laboratory report, date unk.
 23. Dan C. Ross, "Speed of light in the dynamic theory," Los Alamos National Laboratory, date unk.
 24. G. Gilbert and B. McClain, "Fermions and stability in quantum Kaluza-Klein theories," **Nuc. Phys. B, Part. Phys. (Netherlands)**, B244(1), Sept. 24, 1984. p. 173-185. Oscillations of the internal space produce conformal gravity waves in the four-dimensional space.
 25. M. J. Perry, "Magnetic monopoles and the Kaluza-Klein theory," **Am. Inst. Phys. Conf. Proc.** No. 116, 1984. p. 121-125. Kaluza-Klein theory admits soliton solutions which constitute magnetic monopoles. These monopoles have inertial mass, but no gravitational mass.
 26. M.W. Kalinowski, "The nonsymmetric Kaluza-Klein theory." **J. Math. Phys.** 24(7), July 1983. p. 1835-1845.
 27. D.J. Toms, "Induced Einstein-Maxwell action in Kaluza-Klein

theory," **Phys. Lett. B (Netherlands)**, 129B(1-2), Sept. 15., 1983. p. 31-35.

References Related to Ehrenhaft's Work

1. Alden P. Armagnac, "Magic with magnetism," **Popular Science Magazine**, June 1944. p. 130-133, 222, 226.
2. "Ehrenhaft discovery confirmed by new experiments," **Popular Science Magazine**, date unk., p. 208. [Comment: Later than June 1944, and still during WWII.]
3. "Magnetic current — discovery of the age?," **Radio-Craft Magazine**, Mar., 1944. p. 332.
4. "Discovery of the age?" **Radio-Electronics Magazine**, date unknown, p. 58.
6. Felix Ehrenhaft and Emanuel Wasser, "New evidence of the existence of charges smaller than the electron," **Philosophical Magazine and Journal of Science**, Seventh Series, 5(28), Feb. 1928. p. 225-241.
8. Felix Ehrenhaft, "The microcoulomb experiment. Charges smaller than the electronic charge." **Philosophy of Science**, 8(3), July 1941. p. 403-457.
7. Felix Ehrenhaft and Leo Banet, "Is there 'true magnetism' or not?," **Philosophy of Science**, 8(3), July 1941. p. 458-462.
8. Felix Ehrenhaft and Leo Banet, "Magnetization of matter by light," *Nature*, Mar. 8, 1941. p. 297.
9. Felix Ehrenhaft, *J. Franklin Inst.*, vol. 230, 1940. p. 381.
10. Felix Ehrenhaft, **Nature**, vol. 146, 1941. p. 25.
11. D. Morichini, **Gilberts Ann. Phys.**, vol. 43, 1813. p. 212.
12. D. Morichini, **Gilberts Ann. Phys.**, vol. 46, 1814. p. 367.
13. M. Sommerville, **Gilberts Ann. Phys.**, vol 52, 1826. p. 493.
14. F. Zantejeschi, **Gilberts Ann. Phys.**, vol. unk. 1829, p. 187.

15. V. Baumgartner, **Gilberts Ann. Phys.**, vol. unk., 1827. p. 508.
16. Felix Ehrenhaft, "Rotating action on matter in a beam of light," **Science**, 101(2635), June 29, 1945. p. 676-677.
17. Gordon Ferrie Hull, "The torque or rotating action in a beam of light," **Science**, vol. 101, 1945. p. 220.
18. F. Ehrenhaft, **Wiener Akad. Anz.**, vol. VII, Mar. 4, 1909.
19. F. Ehrenhaft, **Wiener Akad. Anz.**, vol. X, Apr. 21, 1910.
20. F. Ehrenhaft, **Wiener Berichte**, vol. 119, 1910. p. 815.
21. F. Ehrenhaft, **Physik. Ztschr.**, vol. 11, 1910. p. 619.
22. F. Ehrenhaft, **Physik. Ztschr.**, vol. 39, 1938. p. 673.
23. F. Ehrenhaft, **Ann. der Physik.**, vol. 56, 1918. p. 81.
24. F. Ehrenhaft, **Comp. Rend.**, vol. 190, 1930. p. 263.
25. F. Ehrenhaft, **Ann. der Physik.**, vol. 13, 1940. p. 151.
26. F. Ehrenhaft, **Jour. Frank. Inst.**, vol. 233, 1942. p. 235.
27. F. Ehrenhaft, **Nature**, vol. 154, 1944. p. 426.
28. F. Ehrenhaft, **Phys. Rev.**, vol. 65, 1944. p. 287.
29. F. Ehrenhaft, **Bull. Am. Phys. Soc.** (New York Meeting), vol. 6, 1945.
30. H.S. Renue, **Radio Electronic Engineering (Radio News)**, vol. 4, 1945. p. 22.
31. Woldemar Voigt, **Festschrift fuer Heinrich Weber**, 1912.
32. P.A.M. Dirac, "Development of the physicist's conception of nature," **Symposium on the Development of the Physicist's Conception of Nature**, ed. Jagdish Merha, D. Reidel Pub. Co., Boston, 1973. p. 12-14.
33. Olof Alexandersson, **Living Water: Viktor Schauberger**

and the Secrets of Natural Energy, translated by Kit and Charles Zweigbergk, Turnstone Press Limited, Willingborough, Northamptonshire, England, 1982. An excellent bibliography is included in the book.

34. O. Alexandersson, "Implosion contra explosion," **Seklet**, vol. 4, 1965.

References Related to Louis Kervran's Work

1. Publications by Louis Kervran:

- a. **Biological Transmutations.** Crosby Lockwood, London, 1972.
- b. **A la Decouverte des Transmutations Biologiques, une Explication des Phenomenes Biologiques Aberrants.** Le Courier du Livre, Paris, 1966.
- c. **Preuves Relatives a L'existence de Transmutations Biologiques, Echechs en Biologie a la loi de Lavoisier d'invariance de la Matiere,** Maloine, Paris, 1968.
- d. **Transmutations Biologiques; Metabolismes Aberrants de L'azote, le Potassium et el Magnesium,** Librairie Maloine, Paris, 1962.
- e. "Les Transmutations Biologiques en Agronomie," Maloine, Paris, 1970.
- f. **Biological Transmutations,** Swan House Publishing Co., Binghamton, New York, 1972.
- g. "Alchimie d'hier et d'aujourd'hui," **L'Alchimie, Reve ou Realite**, Revue des Ingenieurs do L'Institut National Superieur de Rouen, 1972-73.
- h. **Transmutations biologiques et physique moderne.** Paris: Maloine S.A., 1982.
- i. **Transmutations a faible energie (naturelles et biologiques).** Paris: Librairie Maloine, 1972.

- j. **Transmutations biologiques.** Rue de l'Ecole-de-Medecine, Paris: Librairie Maloine S.A., 1963.
- k. **Transmutations naturelles.** Librairie Maloine S.A., Rue de l'Ecole-de-Medecine, Paris Vie, 1963.
2. Rudolf Hauschka, **The Nature of Substance**, Vincent Stuart Ltd., London, 1966.
3. V.B. Neiman. ed., **Problems of Transmutations in Nature: Concentration and Dissipation.** (Collection of papers in Russian), Aiastan Pub. House, Erevan, Armenia, USSR, 1971.
4. Peter Tompkins and Christopher Bird, **The Secret Life of Plants**, Harper & Row, New York, 1973.
5. The Kaznacheyev work and references. See appropriate sections.
6. Dr. Fritz Albert Popp's work and references. See appropriate sections.
7. The Australian work of Reid and Barsamian. See appropriate sections.
8. Fritz Albert Popp et al, eds. **Electromagnetic Bio-Information.** Proceedings of the Symposium, Marburg, September 5, 1977. Urban & Schwarzenberg, Baltimore, 1979.
9. Thomas E. Bearden, **The Excalibur Briefing**, Second edition, Strawberry Hill Press, San Francisco, 1988.
10. N.A. Kozyrev, "Possibility of the Experimental Study of the Properties of Time," Sep. 1967. English translation JPRS 45328, May 1968, p. 1-49.
11. Captain John D. LaMothe and Mr. Louis Maire, **Soviet and Czechoslovakian Parapsychology Research**, DST-1810S-387-75, Defense Intelligence Agency, Washington, D.C., 1975. Released under the Freedom of Information Act.
12. Jeff Hecht, "IBM Reports on Dark-Pulse Solitons," **Lasers & Optronics**, 7(3), Mar. 1988, p. 42 -44.

References Related to Popp's Master Cellular Communication System

1. Fritz Albert Popp, Gunther Becker, Herbert L. Konig, and Walter Peschka, Eds., **Electromagnetic Bio-Information: Proceedings of the Symposium**, Marburg, September 5, 1977, Urban & Schwarzenberg, Baltimore, 1979.
2. V.P. Kaznacheyev et al, "On distant intercellular interactions in a system of two tissue cultures connected by optical contact," **Transactions of the Moscow Society of Naturalists**, Vol. XXXIX, 1972. p. 224-227.
3. F.A. Popp, **Biophotonen. Ein neuer Weg zur Losung des Krebsproblems**. Verlag fur Medizin, Heidelberg, 1976.
4. F.A. Popp et al, "Biosignale zur Steuerung des Zellstoffwechsels. Eine Resonanzhypothese der Karzinogenese (vorl. Mitt.)," **Munch, med. Wschr**, vol. 116, 1974. p. 381-384.
5. F.A. Popp, "Molecular aspects of carcinogenesis, in Deutsch et al, eds.: **Molecular Base of Malignancy**, Stuttgart, 1976.
6. A. Gurwitsch, "Die mitogenetische Strahlung der Optischen Bahn bei adäquater Erregung." **Pfluger Arch. ges. Physiol.**, vol. 231, 1932. p. 254-264.
7. A. Gurwitsch, "Die mitogenetische Strahlung des markhaltigen Nerven," **Pflugers Arch. ges. Physiol.**, vol. 231, 1932. p. 234-237.
8. A.A. Gurwitsch, "The problem of mitogenetic radiation as an aspect of molecular biology." (in Russian), Leningrad, 1968.
9. A.A. Gurwitsch, V.F. Ereimeiev, and Yu. A. Karabchievsky, "Energy bases of the mitogenetic radiation and its registration on photoelectron multipliers," **Medicina**, Moskva, 1974.
10. J.W. Hastings, "Bioluminescence," **Ann. Rev. Biochem.**, vol. 37, 1968. p. 597-630.
11. L.W. Latmanisowa, "Die mitogenetische Sekundärstrahlung des Nerven," **Pflugers Arch. ges. physiol.**, vol. 231, 1932. p. 265-279.

12. H. Ninnemann et al, "Inhibition of respiration in yeast by light," **Biochim. Biophys. Acta**, vol. 205, 1970. p. 499-506.
13. T.I. Quickenden and S.S. Que Hee, "Weak luminescence from the yeast *saccharomyces cerevisiae* and the existence of mitogenetic radiation," **Biochem. Biophys. Res. Comm.**, vol. 60, 1974. p. 764-770.
14. A. Babloyantz, "Self-organization phenomena resulting from cell-cell contact," **J. Theor. Biol.**, vol. 68, 1977. p. 551-561.
15. R.M. Benolken, "Reversal of photoreceptor polarity recorded during the graded receptor potential response to light in the eye of limulus," **Biophys. J.**, vol. 1961. p. 551-564.
16. H. Breithaupt, "Biological rhythms and communication," in Fritz Albert Popp, Gunther Becker, Herbert L. Konig, and Walter Peschka, Eds., **Electromagnetic Bio-Information: Proceedings of the Symposium**, Marburg, September 5, 1977, Urban & Schwarzenberg, Baltimore 1979. p. 1-23.
17. Herbert L. Konig, "Bioinformation - Electrophysical Aspects," in Fritz Albert Popp, Gunther Becker, Herbert L. Konig, and Walter Peschka, Eds., **Electromagnetic Bio-Information: Proceedings of the Symposium**, Marburg, September 5, 1977, Urban & Schwarzenberg, Baltimore, 1979. p. 25-55.
18. Ulrich Warnke, "Information transmission by means of electrical biofields," in Fritz Albert Popp, Gunther Becker, Herbert L. Konig, and Walter Peschka, Eds., **Electromagnetic Bio-Information: Proceedings of the Symposium**, Marburg, September 5, 1977, Urban & Schwarzenberg, Baltimore, 1979. p. 55-79.
19. Walter Peschka, "On kinetobaric effects and bioinformational transfer by electromagnetic fields," in Fritz Albert Popp, Gunther Becker, Herbert L. Konig, and Walter Peschka, Eds., **Electromagnetic Bio-Information: Proceedings of the Symposium**, Marburg, September 5, 1977, Urban & Schwarzenberg, Baltimore, 1979. p. 81-94.
20. Gunther Becker, "Communication between termites by means of biofields and the influence of magnetic and electric fields on termites," in Fritz Albert Popp, Gunther Becker, Herbert L. Konig, and Walter Peschka, Eds., **Electromagnetic Bio-In-**

formation: Proceedings of the Symposium, Marburg, September 5, 1977, Urban & Schwarzenberg, Baltimore, 1979. p. 95-106.

21. Bernhard Ruth, "Experimental investigations on ultraweak photon emission," in Fritz Albert Popp, Gunther Becker, Herbert L. Konig, and Walter Peschka, Eds., **Electromagnetic Bio-Information: Proceedings of the Symposium**, Marburg, September 5, 1977, Urban & Schwarzenberg, Baltimore, 1979. p. 107-122.
22. Fritz Albert Popp, "Photon storage in biological systems," in Fritz Albert Popp, Gunther Becker, Herbert L. Konig, and Walter Peschka, Eds., **Electromagnetic Bio-Information: Proceedings of the Symposium**, Marburg September 5, 1977, Urban & Schwarzenberg, Baltimore, 1979. p. 123-149. A most important paper, presenting what I have been calling the master cellular communication system. Ruth has confirmed the existence of the "degradation radiation," ("death photons"). Experimental results of Ruth and others have led Popp to postulate that biological systems generally have the capacity to store coherent photons which come from the external world, and that ultraweak photon emission from biological systems is governed by photon storage ("charge up") within the cell population.
23. S.S. Sung, "A possible biophotochemical mechanism for cell communication," in Fritz Albert Popp, Gunther Becker, Herbert L. Konig, and Walter Peschka, Eds., **Electromagnetic Bio-Information: Proceedings of the Symposium**, Marburg, September 5, 1977, Urban & Schwarzenberg, Baltimore, 1979. p. 151-174.
24. Helmut A. Fischer, "Photons as transmitter for intra- and inter-cellular biological and biochemical communication — the construction of a hypothesis," in Fritz Albert Popp, Gunther Becker, Herbert L. Konig, and Walter Peschka, Eds., **Electromagnetic Bio-Information: Proceedings of the Symposium**, Marburg, September 5, 1977, Urban & Schwarzenberg, Baltimore, 1979. p. 174-180.
25. Walter Kroy, "The use of optical radiation for stimulation therapy," in Fritz Albert Popp, Gunther Becker, Herbert L. Konig, and Walter Peschka, Eds., **Electromagnetic Bio-In-**

formation: Proceedings of the Symposium, Marburg, September 5, 1977, Urban & Schwarzenberg, Baltimore, 1979. p. 181-193.

26. Ulrich Warnke and Fritz Albert Popp, "Some aspects of magnetic influences on biological systems," in Fritz Albert Popp, Gunther Becker, Herbert L. König, and Walter Peschka, Eds., **Electromagnetic Bio-Information: Proceedings of the Symposium**, Marburg, September 5, 1977, Urban & Schwarzenberg, Baltimore, 1979. p. 195-199.
27. A.S. Presman, **Electromagnetic Fields and Life**, Plenum Press, New York, 1964.
28. F.A. Popp and B. Ruth, "Untersuchungen zur ultraschwachen Lumineszenz aus biologischen Systemen unter Berücksichtigung der Bedeutung für die Arzneimittelforschung," **Arzneimittel-Forsch**, vol. 27 (I), 1977. p. 933.
29. B. Ruth and F.A. Popp, "Experimentelle Untersuchungen zur ultraschwachen Photonenemission biologischer Systeme," **Z. Naturforsch**, vol. 31c, 1976. p. 741.

References Related to Kaznacheyev's Experiments

1. V.P. Kaznacheyev et al, "Apparent information transfer between two groups of cells," **Psychoenergetic Systems**, 1(1), Dec. 1974.
2. V.P. Kazacheyev et al, "Distant intercellular interactions in a system of two tissue cultures," **Psychoenergetic Systems**, 1(3), Mar. 1976.
3. Captain John D. LaMothe, **Controlled offensive behavior — USSR**, Report ST-CS-01-169-72, Defense Intelligence Agency, Washington, D.C. (Released under FOIA).
4. Captain John D. LaMothe and Mr. Louis Maire, **Soviet and Czechoslovakian Parapsychology Research**, Report. DST-1810S-387-75, Defense Intelligence Agency, Washington, D.C. (Released under FOIA).
5. Trevor James Constable, **The Cosmic Pulse of Life**, Merlin

- Press, Santa Ana, California, 1976.
6. John White and Stanley Krippner, eds., **Future Science**, Anchor, 1977.
 7. B. Ruth, "Experimental Investigations on Ultraweak Photon Emission," in **Electromagnetic Bioinformation, Proceedings of the Symposium**, Marburg, September 5, 1977 (Munich-Wien-Baltimore, 1979). p. 107-122
 8. H. Fischer, "Photons as Transmitters for Intra- and Intercellular Biological and Biochemical Communication — the Construction of a Hypothesis," in **Electromagnetic Bioinformation, Proceedings of the Symposium**, Marburg, September 5, 1977 (Munich-Wien-Baltimore, 1979). p. 175-180.
 9. F.A. Popp, "Photon Storage in biological systems," in **Electromagnetic Bioinformation, Proceedings of the Symposium**, Marburg, September 5, 1977 (Munich-Wien-Baltimore, 1979). p. 123-149.
 10. A.G. Gurvitsch, **Theory of Biological Field**, Moscow, 1944 (in Russian).
 11. A.G. Gurvitsch, "A Concept of 'the Whole' in the Frame of Biological Field Theory," in **Works on Mitogenesis and Theory of Biological Field**, Moscow, 1974, p. 141-147 (in Russian).
 12. E.S. Bauer, "General Theory of Living Substance. The Problem of Living Protein'," **Archives Biol. Sci.**, Vol. 35, Ser. A, Issue 1, 1934, p. 1-36 (in Russian).
 13. E.S. Bauer, "Contradictions between the Inner and Outer Work of Living Systems," **Archives Biol. Sci.**, Vol. 35, Ser. A, Issue 1, 1934, p. 37-52 (in Russian).
 14. E.S. Bauer, **Theoretical Biology**, Moscow, 1935 (in Russian).
 15. S.V. Konev, "On the Question of Nature and Biological Significance of Ultraweak Luminescence of Cells," in **Bioluminescence**, Moscow, 1965, p. 181-183 (in Russian).

16. B.N. Tarusov, A.I. Pllivoda, and A.I. Zhuravlev, "Study of Ultraweak Spontaneous Luminescence of Animal Cells," **Bi-
ofzika**, Vol. 6, No. 4, 1961. p. 490-492 (in Russian).
17. M. Rottemeyer, "Modelle zur Interpretation der Ultrasch-
wachen Photone-emission aus Biologischen Systemen," **Dip-
lomarbeit** (Marburg, 1978), (in German).
18. Yu. A. Vladimirov, "Ultraweak Luminescence of Subcellular
Structures," **Ultraweak Luminescence in Biology, Pro-
ceedings of the Symposium**, Moscow, 1969 (in Russian).
19. I.S. Marchenko, **Biofield of Forest Ecological Systems**,
Bryansk, 1973 (in Russian).
20. S.S. Sung, "A Possible Biophotochemical Mechanism for Cell
Communication," in **Electromagnetic Bioinformation,
Proceedings of the Symposium**, Marburg, September 5,
1977 (Munchen-Wien-Baltimore, 1971). p. 151-174.
21. P.A.Popp and B. Ruth, "Untersuchungen zur Ultraschwachen
Luminiszenz aus Biologischen Systemen unter Berücksichtig-
ung der Bedeutung für die Arznei-mittelforschung,"
Arzneimit. Forsch. (Drug Research), Vol. 27, No. 5, 1977 (in
German).
22. V.P. Kaznacheyev, "Informational Function of Ultraweak
Flows of Light in Biological Systems," in **Materials of Scien-
tific Conference: Physical and Mathematical Methods
of Research in Biology and Medicine**, Novosibirsk, 1965,
pp. 38-41 (in Russian).
23. V.P. Kaznacheyev, N.V. Ignatovich, and S.P. Shurin, "Inter-
cellular Distant Interactions in a System of Two Tissue Cul-
tures Connected by Optical Contact," in **Ultraweak Lumi-
nescence in Biology**, Moscow, 1969 (in Russian).
24. V.P. Kaznacheyev, L.P. Mikhailova, and S.B. Stephanov,
"Studies on Cellular Monolayer and Cellular Distant Interac-
tion in High Latitude Conditions," in **Technical-Scientific
Progress and Circumpolar Medicine**, Novosibirsk, 1978,
p. 133-134 (in Russian).
25. V.P. Kaznacheyev, L.P. Mikhailova, V.N. Sudarev, and S.P.

- Shurin, "Studies on the Biological Role of Electromagnetic Emission as a Factor of Adaptive Behavior of Cells under Conditions of Latitude Changes," in **Abstracts of the Second Ail-Union Conference Devoted to the Problem of Human Adaptation to Different Geographical, Climatic, and Labor conditions**, Novosibirsk, 1977, p. 101-104 (in Russian).
26. V.P. Kaznacheyev, L.P. Mikhailova, V.N. Sudarev, and S.P. Shurin, "Distant Intercellular Interactions Caused by UV-radiation," in **Photobiology of a Living Cell**, Leningrad, 1979, p. 221-223 (in Russian).
27. V.P. Kaznacheyev, L.P. Mikhailova, D.G. Kadayeva, and M.P. Dranova, "Conditions Necessary for Appearance of distant Intercellular Interactions after UV-radiation," **Bulleten Experimentalnoy Biologii i Meditsiny.**, No. 5. 1979, p. 468-471 (in Russian).
28. V.P. Kaznacheyev, L.P. Mikhailova, and S.P. Shurin, "Distant Intercellular Interactions in a System of Two Tissue Cultures Connected by Optical Contact," in **Regulation of Biosynthesis and Biophysics of Populations**, Krasnoyarsk, 1969, p. 372-374 (in Russian).
29. V.P. Kaznacheyev, S.P. Shurin, and L.P. Mikhailova, Discovery No. 122, "Distant Intercellular Interactions in a System of Two Tissue Cultures," **Official Bulletin of the Committee on Inventions and Discoveries Affiliated to the Council of Ministers of the USSR**, No. 19, 1973, p. 3.
30. V.P. Kaznacheyev, S.P. Shurin, L.P. Mikhailova, and N.V. Ignatovich, "Distant Intercellular Interactions in a System of Two Tissue Cultures Connected by Optical Contact," in **Ultraweak Luminescence in Biology**, Moscow, 1972, p. 224-227 (in Russian).
31. V.M. Inyushin, "The Concept of Biological Plasma and Some Questions of Photoenergetics," in **Questions of Bioenergetics**, Alma-Ata, 1968 (in Russian).
32. E. Makovsky, **Nature and Structure of Living Matter**, Bucharest, 1976 (in Russian).

33. A.L. Chizhevsky and Yu. Shishina, **In the Rhythm of the Sun**, Moscow, 1969.
34. Stefan T. Passony, "Psy-War: Soviet device experiment," **Defense and Foreign Affairs Daily**, 12 (104), June 7, 1983, p. 1-2.
35. V.I. Vernadsky, **Collected Works**, Moscow, 1960, (in Russian).
36. A.L. Chizhevsky, **The Earth's Echo of the Sun Storms**, Moscow, 1973.
37. A.S. Pressman, **Electromagnetic Fields and Living Nature**, Moscow, 1968, English translation: **Electromagnetic Fields and Life**, Plenum, New York, 1970.
38. H.Z. Konig, "Bioinformation. Electrophysical Aspects," in **Electromagnetic Bioinformation, Proceedings of the Symposium**, Marburg, September 5, 1977 (Munich-Wien-Baltimore, 1979). p. 25-54.
39. V.P. Kaznacheyev, "Information Function of Ultraweak Light Flows in Biological Systems," in **Problems in Biophysics**, Novosibirsk, 1967, p. 7-18 (in Russian).
40. V.P. Kaznacheyev and L.P. Mikhailova, "Ultraweak Radiations in Intercellular Interactions," Novosibirsk, 1981 (in Russian); English Translation: San Francisco: Washington Research Center, 1982.
41. John F. Gilbey, "The delayed death touch," **Secret Fighting Arts of the World**, Charles E. Tuttle Co., Rutland, Vermont, 1963. p. 13-22.
42. Edward W. Russell, **Report on Radionics: Science of the Future**, Neville Spearman, London, 1973.
43. Paul Brodeur, **The Zapping of America**, W.W. Norton & Co., New York, 1977.
44. Waldemar Kaempffert, "Dead' organisms revived," Science in the News: **Science Digest**, May 1950, p. 77-78.

- 45 "Rejuvenating light," **Scientific American**, May 1949.
46. Death-rays and life-rays discovered," **Science Digest**, Feb. 1950, p. 56. A "death" frequency seems to be at 2,537 angstroms, while a "life" frequency seems to be at 3,659 angstroms.
47. Lewis R. Roller, **Ultraviolet Radiation**, 2nd edn., John Wiley & Sons, New York, 1965. p. 236-237.
48. T.E. Bearden, Appendix: "Theory of Pulsor(R) operation," and "A partial glossary for scalar electromagnetics and subtle phenomena," in George T.F. Yao, **Pulsor(r): Miracle of Microcrystals**, Gyro Industries, Newport Beach, California, 1986.
49. The Antoine Priore material.
50. The Louis Kervran material.
51. Thomas E. Bearden, **The Excalibur Briefing**, Strawberry Hill Press, San Francisco, 2nd Edition, 1988.
52. Martin Ebon, "Moscow, June 11, 1977," in his **Psychic Warfare: Threat or Illusion**, McGraw-Hill Book Co., New York, 1983, p. 1-11.

References Related to the New View of the Nature of Mind and Thought

Author's Note: So far as I can find, there are no available references other than my own that deal precisely with my particular approach to the nature of mind and thought. There is, however, a serious debate over whether (a) the mind is simply the physical brain, similar to a computer (the prevailing materialist view of orthodox science), or (b) the mind is something else altogether, and metaphysical — at least with respect to the level of scientific knowledge today. My own approach utilizes a non-Aristotlean fourth law of logic (included in an appendix to this book) by means of which the dichotomy between mind and matter is removed. In that fashion, one can model the mind as material, or model matter as mind.

Some references that have influenced my thinking are given below.

Selected Bibliography

1. Publications by Thomas E. Bearden:

- a. "A Conditional Criterion for Identity, Leading to a Fourth Law of Logic," **Pursuit**, 13(1), Winter 1980. p. 6-10. (Appendix III to this present book.).
- b. "A mind/brain/matter model consistent with quantum physics and UFO phenomena," **Mutual UFO Network Annual UFO Symposium Proceedings**, 1979. Also available through the National Technical Information System, Port Royal Road, Springfield, Virginia 22161. Report AD-A068988.
- c. "An approach to understanding psychotronics." Paper delivered to 1977 Annual Symposium of the U.S. Psychotronics Association. Oglethorpe University, Atlanta, Georgia. 1977. Available through the National Technical Information System (NTIS), Port Royal Road, Springfield, Virginia 22161. Report AD-A027866. (This report is mostly rough notes).
- d. **Excalibur Briefing: Understanding Paranormal Phenomena**. Second edition. Foreword by John White. Strawberry Hill Press, San Francisco, 1988.
- e. "Hyperspace (virtual state) engineering." presented at the 11th MUFON UFO Symposium, Clear Lake City, Texas, June 6-8. 1980. Published in **UFO technology: a detailed examination: 1980 MUFON UFO Symposium Proceedings**. Edited by Walter H. Andrus, Jr. and Dennis W. Stacy. Mutual UFO Network, Seguin, Texas, 1980.
- f. "Photon quenching of the paranormal (time) channel: a brief note." Paper presented in absentia at the Third International Psychotronics Congress, Tokyo, 1977. Available through the NTIS, Port Royal Road, Springfield, Virginia 22161. Report AD-A038588.
- g. **Quiton/Perceptron Physics: A Theory of Existence, Perception, and Physical Phenomena.** NTIS, 1973. Report AD-763210.

- h. "The Boundary Identity of Exact Opposites: A simple Solution to the Age-old Philosophical Problem of Change." NTIS, Oct. 1975. Report AD-020798.
 - i. "The fourth law of logic." NTIS, 1979. Report AD-A068987.
 - j. **Field, Formon, Superspace, and Inceptive Cyborg: A Paraphysical Theory of Noncausal Phenomena.** U.S. Army Medical Intelligence and Information Agency, Report MIIA-1-74, Dec. 1974. Available from the Defense Documentation Center (DDC), Report AD A-005579/8GI.
 - k. "The One Human Problem, Its Solution, and Its relation to UFO Phenomena." **Pursuit**, January 1976. Available from NTIS, Report AD-A034236.
 - l. "Writing the Observer Back Into the Equation," Address given to the Princeton Center for Alternative Futures, Princeton, New Jersey, Mar. 5, 1976, published in June, 1976. Available from NTIS, Report AD-A027867.
 - m. "Species Metapsychology, UFO Waves, and Cattle Mutilations, May 23, 1977. Privately published.
 - n. "The Holography of Being," 1975. Unpublished,
 - o. **Yoseikan Aikido**, 1973. Privately published.
 - p. "AIDS: Urgent comments on mankind's greatest threat; and the secrets of electromagnetic healing," presented in absentia at the annual USPA Symposium in Golden, Colorado 30 July-2 Aug. 1987.
2. Mike Costello, "Without a Brain," letter, *Fortean Times*, 96 Mansfield Road, London NW 8 2HX, England, Spring 1987, p. 78. Information on hydrancephaly, persons with normal intelligence but with large cavities in the area normally occupied by cortical tissue. Most of the data on these anomalous cases is buried in obscure medical journals. (Hydrocephaly — an excess of fluid in the cerebral/spinal system — is much more widely known.). See also Anthony Smith, **The Mind**, Hodder & Stoughton, 1984 for additional information on hydrancephaly.

Quoting from Costello: "Actually cases of this kind have been turning up at autopsies for years, and reported in the appropriate medical journals, but have been disregarded, perhaps because they are so destructive of established beliefs about the relationship between consciousness and the human brain."

Costello goes on to point out that a group at Sheffield University has collected a great deal of data on this subject, from case studies of 253 hydrocephalics and hydrancephalics. There seems to be no correlation between the IQ of these individuals and the amount of residual brain tissue.

One living subject, Roger, has an IQ of 126 and a First Class degree in Mathematics, yet has no more than 5% of the normal amount of brain tissue.

A Swedish documentary on the subject was shown on ITV in 1982.

Fortean Times 38, p. 30 also contains an item on surviving adults with no detectable brains.

3. Hugh Everett, III, **The Many-Worlds Interpretation of Quantum Mechanics: A Fundamental Exposition**, with papers by J.A. Wheeler, B.S. DeWitt and Neill Graham, Princeton Series in Physics, Princeton University Press, 1973.
4. Louise and Galen Hieronymus, **Tracking the Astronauts in Apollo 11, With Data From Apollo 8 Included**, Advanced Sciences Research and Development Corporation, Fort Lauderdale, Florida, 1969.
5. Vlail Kaznacheyev's work and publications related to it (see Kaznacheyev references).
6. Antoine Priore's work and publications related to it (see Priore references).
7. Charles Muses and Arthur M. Young, eds, **Consciousness and Reality**. Outerbridge & Lazard, 1972.
8. George Meek, **Healers and the Healing Process**, Theosophical Publishing House, 1977.

9. Harold Puthoff and Russell Targ, **Mindreach**, Delacorte, 1977.
 10. Harold Puthoff and Russell Targ, "A Perceptual Channel for Information Transfer Over Kilometer Distances: Historical Perspective and Recent Research," **Proceedings of the IEEE**, 64(3), March 1976.
 11. Edward W. Russell, **Report on Radionics**, Neville Spearman, London, 1973.
 12. John White and Stanley Krippner, eds., **Future Science**, Anchor, 1977.
 13. C. Louis Wiedemann, "Results of the N.J. 'Spook Light' Study," **Vestigia Newsletter**, Stanhope, New Jersey, May 1977.
 14. David Bohm, **Wholeness and the Implicate Order**, Routledge, Kegan Paul, 1980.
 15. Renee Weber, "Reflections on David Bohm's Holomovement: A Physicist's Model of Cosmos and Consciousness," in Valle and von Eckartsberg, editors, **The Metaphors of Consciousness**, Plenum Press, 1981.
 16. "The Physicist and the Mystic: Is a Dialogue Between Them Possible?" A Conversation with David Bohm, conducted by Renee Weber, edited by Emily Sellon, **ReVision**, 4(1), Spring 1981, p. 22-35.
 17. "The Tao of Physics Revisited," A Conversation with Fritjof Capra, conducted by Renee Weber, **ReVision**, 4(1), Spring 1981, p. 36-52.
 18. "Reflections on the New Age Paradigm," an Interview with Ken Wilber, **ReVision**, 4(1), Spring 1981, p. 36-52.
 19. Fritjof Capra, **The Tao of Physics**, Shambhala, Boulder, Colorado, 1975.
 20. Fritjof Capra, **The Turning Point**, Simon & Schuster, New York, 1982.
- Ken Wilbur, **Up From Eden**, Doubleday, 1981.

22. G. Spencer, **Laws of Form**, Julian Press, New York, 1972.
23. Bernard D'Espagnat, **Conceptual Foundations of Quantum Mechanics**, W.A. Benjamin, Menlo Park, California, 1971.
24. Robert Linssen, **Zen: The Art of Life**, Pyramid, New York, 1969.
25. E.P. Wigner, "Remarks on the Mind-Body Question," **The Scientist Speculates**, I.J. Good ed., W. Heinemann Ltd., London, 1961.
26. Thomas G. Hieronymus, U.S. Patent No. 2,482,773, Sept. 27, 1949.
27. Langston Day and George De La Warr, **New Worlds Beyond the Atom**, Vincent Stuart Publishers Ltd., London, 1973.
28. Jule Eisenbud, M.D., **The World of Ted Serios**, Pocket Books, Simon and Schuster, New York, 1968.
29. Sheila Ostrander and Lynn Schroeder, **Psychic Discoveries Behind the Iron Curtain**, Prentice-Hall, 1970.
30. Carl G. Jung, **Man and His Symbols**, ed. by Carl G. Jung and after his death by M.S. von Franz, Aldus Books Ltd., London. 1964.
31. **The Unfathomed Mind: A Handbook of Unusual Mental Phenomena**, compiled by William R. Corliss, The Sourcebook Project, Glen Arm, Maryland, 1982.
32. Charles Panati, ed., **The Geller Papers: Scientific observations on the paranormal powers of Uri Geller**, Houghton Mifflin Company, Boston, Massachusetts, 1976.
33. Ken Wilbur, **The Spectrum of Consciousness**, The Theosophical Publishing House, Wheaton, Illinois, 1977.
34. "Godel's proof," **Scientific American**, June 1965, p. 81-86
As Ken Wilbur puts it, "Thus logically as well as **physically** verification is not an absolute mark of reality. If all **is** to be verified, how do you verify the verifier, since he is part of **the** all?"

35. Erwin Schroedinger, **What is Life? and Mind and Matter**, Cambridge University Press, London, 1969.
36. Teilhard de Chardin, **The Phenomenon of Man**, Harper Torchbooks, New York, 1965.
37. D.T. Suzuki, **The Zen Doctrine of No Mind**, Rider, London, 1970.
38. Frederick S. Perls, **Gestalt Therapy Verbatim**, Real People Press, Lafayette, Indiana, 1969.
39. Frederick S. Perls, Ralf F. Hefferline, and Paul Goodman, **Gestalt therapy**, Dell, New York, 1951.
40. John White, ed., **The Highest State of Consciousness**, Anchor, New York, 1972.
41. J. Blofeld, trans., **The Zen Teaching of Huang Po**, Grove Press, New York, 1958.
42. R.E. Ornstein, **The Psychology of Consciousness**, W.H. Freeman and Company, San Francisco, California, 1972.
43. Joseph C. Pearce, **The Crack in the Cosmic Egg**, Julian, New York,
44. Andrija Puharich, **Beyond Telepathy**, Anchor Press, Doubleday & Company, Garden City, New York, 1973.
45. Jacques Vallee, **Passport to Magonia: From Folklore to Flying Saucers**, Henry Regnery Company, Chicago, Illinois, 1969.
46. Robert Bruce Lindsay and Henry Margenau, **Foundations of Physics**, Dover publications, New York, 1957. See p. 2-3 for the blunt statement that physics has nothing at all to say about a possible real world lying behind its concepts and equations. That is, physics is simply a model, and the assumption of a kind of reality is an interpretation and an hypothesis.
47. Ted Bastin, ed., **Quantum Theory and Beyond**, Cambridge University Press, 1971.

48. Edgar D. Mitchell, **Psychic Exploration: A Challenge for Science**, edited by John White, G.P. Putnam's Sons, New York, 1974.
49. Hector Hawton, **Philosophy for Pleasure**, Fawcett Publications, 1956, Fifth printing, June 1970. (A real gem.)
50. Jiro Kikkawa and Malcom J. Thorne, **The Behavior of Animals**, Plume, The New American Library Inc., New York, 1974.
51. Helena Curtis, **Biology**, Worth Publishers, Inc., New York, 1968 (fourth printing); p. 614-637 contains a good discussion of instinct, learning, and memory.
52. John Cunningham Lilly, **The Mind of the Dolphin: A Nonhuman Intelligence**, Avon, New York, Mar. 1969.
53. Isaac Asimov, **The Human Brain: Its Capacities and Functions**, Signet Science Library, The New American Library, Inc., New York, 1963.
54. R.W. Sperry, "The Great Cerebral Commissure," **Scientific American**, Jan. 1964, p. 42-52.
55. Michael S. Gazzaniga, "The Split Brain in Man," **Scientific American**, Aug. 1967, p. 24-29.
56. Roger Sperry, "Problems Outstanding in the Evolution of Brain Function," James Arthur Lecture, American Museum of Natural History, New York, 1964.
57. Jose M.R. Delgado, **Physical Control of the Mind: Toward a Psycho-Civilized Society**, Harper Colophon Books, Harper & Row, New York, 1971.
58. B.B. Kazhinskiy, **Biological Radio Communications**, Izdatel'stvo Akademii nauk Ukrainskey SSR, Kiev. 1962. Trans, available through DDC, AD 415676.
59. S.K. Lisitsyn "New Approach to the Analysis of Electroencephalograms," in **Problems of Bionics (Selected Articles)**, p. 16-25, DDC Report AD 730045.

60. Evert W. Beth, **The Foundations** of Mathematics, Harper Torchbooks, Harper & Row, New York, 1966. p. 481-518 contains a discussion of the "contradictions" of logic painfully noted by mathematicians shortly after the turn of the century.
61. Stanley Krippner and James Hickman, "West Meets East: A Parapsychological Detente," **Psychic**, May/June 1974, p. 51-55.
62. G.G. Globus, ed., **Consciousness and the Brain**, Plenum, New York, 1976.
63. Karl Pribram, **Emotion: the Search for Control**, McGraw Hill, New York, 1968.
64. Karl Pribram, **Languages of the Brain**, Prentice Hall, Englewood Cliffs, 1971.
65. Charles Hampden-Turner, **Maps of the Mind: Charts and Concepts of the Mind and Its Labyrinths**, Collier Books, Macmillan Publishing Co., New York, 1981.
66. Adam Smith, **Powers of the Mind**, Random House, New York, 1975.
67. Peter Tompkins and Christopher Bird, **The Secret Life of Plants**, Harper & Row, New York, 1973. (a real gem.)
68. The Louis Kervran material.
69. The Antoine Priore material.
70. Langston Day and George De La Warr, **Matter in the Making**, Vincent Stuart, London, 1966.
71. Sister Justa Smith, "Paranormal Effects on Enzyme Activity," Professional Paper No. 2, **Human Dimensions**, 1(2), 1972.
72. John Pierrakos, **The Energy Field in Man and Nature**, Institute of Bioenergetic Analysis, New York, 1971.
73. Jeffrey Mishlove, **The Roots of Consciousness**, Random House, New York, 1975.

74. Andrija Puharich, "Psychic Research and the Healing Process," in **Psychic Exploration**, ed. John White, Putnam, New York, 1975.
75. Andrija Puharich, **Beyond Telepathy**, Darton, Longman and Todd, London, 1962.
76. Lyall Watson, **Supernature**, Hodder & Stoughton, London, 1973.
77. Jule Eisenbud, "The Mind-Matter Interface," **Journal of American Society for Psychical Research**, 69(2), Apr., 1975.
78. George W. Meek, **From Enigma to Science**, Samuel Weiser, New York, 1973.

References Related to Antoine Priore's Work

1. Antoine Priore. "Procedee et dispositif de production de rayonnements utilisables notamment pour le traitement de cellules vivantes." Republique Francaise: Brevet d'Invention P.V. No. 899.414, No.1.342.772, 1963. For the U.S. patent, see Antoine Priore, "Method of producing radiations for penetrating living cells," U.S. patent No. 3,280, 816. Oct. 25, 1966.
2. Letter, R. Pautrizel to his colleagues at the University of Bordeaux, Sept. 11, 1979.
3. Letter, R. Pautrizel to his colleagues, Mar. 26, 1969.
4. Jacques Sylvain and Jean-Michel Graille, "Depuis quinze ans le "rayon Priore" divise le monde scientifique." [For fifteen years the "Priore Ray" has divided the world of science.]. **Sud-Ouest Dimanche**, Jan. 27, 1980.
5. "Affaire Priore: L'armee va trancher? [The Priore Affair: Will the Army resolve it?] **Sud-Ouest Dimanche**, May 20, 1980.
6. "Affaire Priore: L'armee va tranchera." [The Priore Affair: The Army will resolve it.]. **Sud-Ouest Dimanche**, Apr. 12, 1981.

7. M.R. Riviere, A. Priore, F. Berlureau, M. Fournier and M. Guerin, "Action de champs electromagnetiques sur les greffes de la tumeur T8 chez le Rat." [Action of the electromagnetic fields on the graftings of the TB tumor on the rat.]. **Compt. Rend. Acad. Sci.** (Paris), 1964, **259**, 4895-4897.
8. M.R. Riviere, A. Priore, F. Berlureau, M. Fournier and M. Guerin, "Effets de champs electromagnetiques sur un lymphosarcome lymphoblastique transplantable du Rat." [Effects of Electromagnetic fields on lymphoplastic lymphosarcoma transplantable from a rat.]. **Compt. Rend. Acad. Sci.** (Paris), 1965, **260**, 2099-2102.
9. M.R. Riviere, A. Priore, F. Berlureau, M. Fournier and M. Guerin, "Phenomenes de regression observes sur les greffes d'un lymphosarcome chez des souris exposees a des champs electromagnetiques." **Compt. Rend. Acad. Sci.** (Paris), 1965, **260**, 2639-2643.
10. G. Delmon and J. Biraben, "la croissance du carcinome de Guerin sous l'action de champs electromagnetiques." **Rev. Path.**, comp, 1966, 3, no. 2, 85-88.
11. M.R. Riviere and M. Guerin, "Nouvelles recherches effectuees chez des rats porteurs d'un lymphosarcome lymphoblastique soumis a l'action d'ondes electromagnetiques associees a des champs magnetiques." **Compt. Rend. Acad. Sci.** (Paris), 1966, **262**, 2669-2672.
12. R. Pautrizel, M.R. Riviere, A. Priore, and F. Berlureau, "Influence d'ondes electromagnetiques et de champs magnetiques associes sur l'immunité de la souris infestee par **Trypanosoma equiperdum**." [Influence of electromagnetic waves and associated magnetic fields on the immunity of the mouse infected with the *Trypanosoma equiperdum*.]. **Compt. Rend. Acad. Sci.** (Paris), 1966, **263**; 579-582.
13. R. Pautrizel, A. Priore, and F. Berlureau, and A.N. Pautrizel, "Stimulation par des moyens physiques des defenses de la Souris et du Rat contre la trypanosomiase experimentale." [Stimulation, by physical means, of defenses of the mouse and of the rat against the experimental *Trypanosoma*.]. **Compt. Rend. Acad. Sci.** (Paris), 1969, **268**, 1889-1892.

14. R. Pautrizel, A. Priore, F. Berlureau, and A.N. Pautrizel, "Action de champs magnetiques combinees a des ondes electro-magnetiques sur la trypanosomiase experimentale du Lapin" [Action of magnetic waves combined with electromagnetic waves on the experimental trypanosoma on the rabbit.]. **Compt. Rend. Acad. Sci.** (Paris), 1970, **271**, 877-880.
15. A.J. Berteaud, A.M. Bottreau, A. Priore, A.N. Pautrizel, F. Berlureau, and R. Pautrizel, "Essai de correlation entre revolution d'une affection par **Trypanosoma equiperdum** et l'action d'une onde electromagnetique pulsee et modulee." [Trial of the correlation between the evolution of a disease by Trypanosoma equiperdum and the action of a pulsating and modulated electromagnetic wave.]. **Compt. Rend. Acad. Sci.** (Paris), 1971, **272**, 1003-1006.
16. R. Pautrizel, P. Mattern, A. Priore, A.N. Pautrizel, and D. Bernard, "Etat de protection vis-a-vis de **Trypanosoma equiperdum** chez des souris splenectomisees et soumises a une stimulation physique." **1er Multicolloque Europeen de Parasitologie**, Rennes, 1 au 4 Septembre 1971.
17. R. Pautrizel, A. Priore, M. Dallochio and R. Crockett, "Action d'ondes electromagnetiques et de champs magnetiques sur les modifications lipidiques chez le Lapin par l'administration d'un regime alimentaire hypercholesterole." [Action of electromagnetic waves and magnetic fields on provoked lipidic modifications in the rabbit by the administration of an alimentary hypercholesterol diet.]. **Compt. Rend. Acad. Sci.** (Paris), 1972, **274**, 488-491.
18. G. Mayer, A. Priore, G. Mayer and R. Pautrizel, "Action de champs magnetiques associes a des ondes electromagnetiques sur l'orchite trypanosomienne du lapin." [Action of the magnetic fields associated with electromagnetic waves on the trypanosomian orchitis of the rabbit.]. **Compt. Rend. Acad. Sci.** (Paris), 1972, **274**, 3011-3014.
19. R. Pautrizel, A. Priore, P. Mattern, and A.N. Pautrizel, "Stimulation des defenses de la souris trypanosomee **par** l'action d'un rayonnement associant de champ magnetique et ondes electromagnetiques." [Stimulation of the defenses of the trypanosomized mouse by the action of a ray associated with a magnetic field and electromagnetic waves.]. **Compt. Rend. Acad. Sci.** (Paris), 1975, **280**, 1915-1918.

20. R. Pautrizel, A. Priore, P. Mattern, A.N. Pautrizel, and A. Capbern, "Guerison de la trypanosomiase chronique du Lapin a **Trypanosoma equiperdum** par l'action combinee de champs magnetiques et d'ondes electromagnetiques modules." **J. Protozool.**, 1975, **22**, no. 3, A 84.
21. R. Pautrizel, "La trypanosomiase experimentale: stimulation des defenses de L'organisme par des moyens physiques." **XVIIth Seminar on Trypanosomiasis Research**, Londres, 22-23 Septembre 1976.
22. R. Pautrizel, P. Mattern, A.N. Pautrizel, and A. Priore, "Effets des champs magnetiques et des ondes electromagnetiques modules sur la trypanosomiase experimentale." [Effect of magnetic fields and modulated electromagnetic waves on the experimental trypanosomiasis.]. **Ann. Soc. Beige Med. trop.**, 1977, **57**, 501-523.
23. R. Pautrizel, P. Mattern, A. Priore, A.N. Pautrizel, A. Capbern and T. Baltz, "Importance des mecanismes immunitaires dan la guerison de la trypanosomiase experimentale par stimulation physique." [Importance of immune mechanisms in the cure of the experimental trypanosomias by physical stimulation.]. **Compt. Rend. Acad. Sci.** (Paris), 1978, **286**, 1487-1492.
24. R. Pautrizel, and A. Priore, "Un aspect spectaculaire du bioelectromagnetisme: permettre a l'organisme de se debarrasser d'une infection aigue ou chronique sans l'aide d'aucune substance medicamentese." [A spectacular aspect of bioelectromagnetism: permitting the organism to rid itself of an old chronic infection without the aid of any medical substance.] **Communication presented to the 104 eme Congres National des Societes Savantes**, Bordeaux, 17-21 Avril 1979 — section Sciences, p. 112.
25. R. Pautrizel, and A. Priore, "Guerison de la trypanosomiase experimentale par association de champs magnetiques et d'ondes electromagnetiques," [Cure of the trypanosomias by associated magnetic fields and electromagnetic waves.]. **Communication presented to the Symposium International des Therapeutiques Ondulatoires**, Versailles 19-20 Mai 1979, p. 9.

26. R. Pautrizel, A. Priore, A.N. Pautrizel and P. Chateau-reynaud-Duprat, "Guerison de la trypanosomiasse experimentale par l'association de champs magnetiques et d'ondes electromagnetiques: une stimulation des defenses de l'organisme." [Cure of the trypanosomias by associated magnetic fields and electromagnetic waves: a stimulation of the organism's defenses.]. **Communication presented to the Journees Nationales Microondes - Colloque Hertzienne et Dielectriques**, Lille 26-29 juin 1979, p. 31.
27. David M. Rorvik, "Do the French have a Cure for Cancer?" **Esquire Magazine**, July 1975, p. 110-111, 142-149. Excellent summary of the Priore Affair, with some details of the working of the machine.
28. J.B. Bateman, "A Biologically Active Combination of Modulated Magnetic and Microwave Fields: The Priore Machine," Office of Naval Research, London Report R-5-78, Aug. 1978. Comes very close when he states that "The possibility that some hitherto unrecognized feature of the radiation from a rotating plasma may be responsible for the Priore effects should not be dismissed out of hand..." Indeed, none of the persons who checked the machine or pondered over it knew anything about phase conjugation — which plasmas can do.
29. J.B. Bateman, "Microwave Magic." Office of Naval Research London Conference Report, ONRL C-14-77, 1977.
30. D.S. Greenburg. "The French Concoction." **Saturday Rev. Sci.**, May, 1978. p. 36-44.
31. Lord Zuckerman, "The great Bordeaux magnetic mystery machine." **Sunday Times Weekly Review**, Jan. 7, 1973.
32. Lord Zuckerman, "Pride and Prejudice in Science. William Randolph Lovelace Commemorative Lecture. **Aerospace Medicine**, 1974, 45, 638-647.
33. L.B. Bateman, "Staging the perils of non-ionizing waves." Office of Naval Research London, **European Scientific Notes**, ESN 32-3: 85-88.

34. R. Courrier, 1977. "Expose de M. le professeur R. Courrier secretaire perpetuel de l'Academie des Sciences fait au cours d'une reunion a l'Institut sur les effets de la machine de M.A. Priore le 26 Avril 1977.
35. M. Riviere, A. Priore, F. Berlureau, M. Fournier and M. Guerin, "Phenomena of regression observed on the graftings of a lymphosarcome in mice exposed to electromagnetic fields." Mar. 1, 1965.
36. Jean-Michel Graille, **Le Dossier Priore:** De Noel, Paris, 1984. Published in France.
37. G. Lakhovsky, "Apparatus with circuits oscillating under multiple wave lengths," U.S. Patent No. 1,962,565. June 12, 1934.
38. G. Lakhovsky, "Tube for producing multiple wave lengths." U.S. Patent No. 2,351,055. June 13, 1944.
39. Thomas H. Moray, "Electrotherapeutic apparatus," U.S. Patent No. 2,400,707. Feb. 1, 1949.
40. Robert C. Beck, "Extremely low frequency magnetic fields and EEG entrainment: A psychotronic warfare possibility?" Audiotape; presentation at the 1978 U.S. Psychotronics Association (USPA) Conference, Atlanta, Georgia.
41. T.G. Hieronymus, "History of radionics. Parts 1 and 2." Audiotape; presentation at the 1979 USPA Conference, University of Houston, Texas.
42. Robert C. Beck, "Extreme low frequency magnetic pulses and E.E.G. entrainment: Soviet Psychotronic Weapon?" Audiotape; presentation at the 1979 USPA Conference, University of Houston, Texas.
43. Al Bielek and William Bise, "A magnetic pacer." Audiotape; presentation at the 1980 USPA Conference, Dayton, Ohio.
44. Thomas E. Bearden, "Mind and matter interaction." Audiotape; presentation at the 1980 USPA Conference, Dayton, Ohio.

45. John Moray, "Sea of energy." Audiotape; presentation at the 1980 USPA Conference, Dayton, Ohio.
46. T. Galen Hieronymus, "Sunspots trigger earthquakes." Audiotape; presentation at the 1981 USPA Conference. Available from USPA, 3459 Montrose Ave., Chicago, IL 60618.
47. Al Bielek and Bill Bise, "Measurements of ELF and its parameters." Audiotape; presentation at the 1981 USPA Conference.
48. Martin Ruderfer, "Misconceptions in established science and their relevance to psychotronics." Audiotape; presentation at the 1981 USPA Conference.
49. Material on the Kaznacheyev experiments. See Kaznacheyev section for references.
50. Material on phase conjugation. See phase conjugation section for references.
51. Material on Ehrenhaft experiments. See Ehrenhaft section references.
52. Material on Kervran's work. See Kervran section for references.
53. Extensive proprietary scalar electromagnetics experiments by Frank Golden and John Bedini.
54. Material on Royal Raymond Rife's work. See Rife section for references.

References Related to the Australian Work

1. Private correspondence, Dr. B.L. Reid.
2. Private correspondence, Dr. S. Barsamian.
3. B.L. Reid, "Propagation of properties of chemical reactions over long distance in the atmosphere as seen by crystal growth pattern changes," **Australian Journal of Medical Laboratory Science**, Vol. 7, Feb. 1986. p. 30-35.

4. H.E. Anderson and B.I. Reid, "Vicinal Long Range and Extremely Long Range effects on growth of sodium chloride crystals from aqueous solutions containing protein," **App. Phys. Comm**, vol. 4, 1984. p. 217.
5. W.H. Campbell and J.M. Young, "Auroral zone observations of infrasonic pressure waves related to ionospheric disturbances and geomagnetic activity," **J. Geophys. Res.**, vol. 68, 1963. p. 5909.
6. G. Chimonas and C. Hines, "Atmospheric gravity waves launched by auroral currents," **Planet Space Sci.**, vol. 18, 1970. p. 565.
7. F.B. Abeles, **Ethylene in Plant Biology**, Academic Press, New York, 1973.
8. G.I. Distler, **Jour. Cryst. Growth**, Vol. 3 & 4, 1968. p. 175.
9. G.I. Distler and V.P. Vlasov, **Thin Solid Films**, vol. 3, 1969. p. 333.
10. G.I. Distler, **Jour. Cryst. Growth**, Vol. 9, 1971, p. 76.
11. B. DeWitt, **Phys. Rev.**, 19C, 1975, p. 297.
12. W. Greiner and J. Hamitton. **Amer. Sci.**, vol. 68, 1980, p. 154.
13. P. Davies and T. Birrell, **Quantum Fields in Curved Space**, Cambridge University Press, Cambridge, 1982.
14. P. Mitchell, *Nature*, vol. 191, 1961. p. 144.
15. A Rothen. **Proc. Nat. Acad. Sci.** (U.S.), vol. 72, 1975. p. 2462.
16. L. Niemeyer, L. Betroniero, and H.J. Weismann, **Phys. Rev. Lett.**, vol. 52, 1984. p. 1033.
17. T.A. Witten and L.M. Sander, **Phys. Rev. B.**, vol. 27, 1983. p. 5686.
18. T.D. Lee, **Particle Physics and Introduction to Field Theory**, Harwood Academic Publishers, New York, 1981. See particularly Chapter 16, "Vacuum as the source of asymmetry."

References Related to Royal R. Rife's Work

1. Royal R. Rife, "Bacteria," Apr. 28, 1939.
2. Royal R. Rife, "The filterable virus of carcinoma," Apr. 26, 1939.
3. Royal R. Rife, "The Rife microscopes," Apr. 28, 1939.
4. Royal R. Rife, "History of the development of a successful treatment for cancer and other viruses, bacteria and fungi." Allied Industries, Dec. 1, 1953.
5. Arthur Isaac Kendall and Royal Raymond Rife, "Observations on Bacillus Typhosus in its filterable state," **California and Western Medicine**, California Medical Association, Dec. 1931.
6. Arthur Isaac Kendall, "Filtration of bacteria; studies in bacterial metabolism," **Science** **75**, Mar. 18, 1932. p. 295-301.

Arthur Isaac Kendall, "The filtration of bacteria," **Science**, Mar. 18, 1932.
8. E.C. Rosenow, "Observations on filter-passing forms...", **Proceedings of the Staff Meeting of the Mayo Clinic**, July 13, 1932.
9. E.C. Rosenow, "Observations with the Rife Microscope of Filter-passing forms of micro-organisms," **Science**, n.s., vol. 76, Aug 26, 1932. p. 192-193.
10. E.C. Rosenow, "Microdiplococci in filtrates of natural and experimental poliomyelitic virus compared under the electron and light microscopes," **Proceeding of the Staff Meeting of the Mayo Clinic**, 17(7), Feb. 18, 1942. p. 99-106.
11. E.C. Rosenow, "Observations of filter-passing forms of Eberthella Typhi (Bacillus Typhosus) and of the Streptococcus from Poliomyelitis," **Proc. Staff. Meet. Mayo Clinic** 7, July 13. 1932. p. 408-413.
12. E.C. Rosenow, "Transmutations within the Streptococcus-Pneumococcus Group," **Journal of Infective Diseases**, vol. **14**, 1914.

13. "Powerful microscope makes very tiny objects visible," **Science Newsletter**, vol. 33, Jan. 22, 1938. p. 55.
14. "The Rife microscope or 'facts and their fate'," Reprint No. 47, The Lee Foundation for Nutritional Research, Milwaukee, Wisconsin.
15. R.E. Seidel, M.D. and M. Elizabeth Winter, "The new microscopes," **Journal of the Franklin Institute**," Feb., 1944. p. 103-129.
16. R.E. Seidel, M.D. and M. Elizabeth Winter, "Filterable bodies seen with the Rife microscope," Science Supplement, **Science**, Dec. 11, 1931. p. 10-11.
17. "Is a new field about to be opened in the science of bacteriology?" Editorial, **California and Western Medicine**, California Medical Association, Dec. 1931.
18. Christopher Bird, "What has become of the Rife microscope?", **New Age Journal**, Mar. 1976.
19. Peter Tompkins and Christopher Bird, **The Secret Life of Plants**, Harper & Row, New York, 1973.
20. Lida H. Mattman, **Cell Wall Deficient Forms**," CRC Press, Cleveland, Ohio. 1974.
21. Georges Lakhovsky, **La Cabal: Histoire d'une Decouverte L'oscillation Cellulaire**," G. Doin, Paris, 1934.
22. Georges Lakhovsky, "Apparatus with circuits oscillating under multiple wave lengths," U.S. Patentno. 1,962,565. June 12, 1934. See also G. Lakhovsky, "Tube for producing multiple wave lengths," U.S. Patent No. 2,351,055. June 13, 1944.
23. Georges Lakhovsky, "**L'oscillation Cellulaire**," **Ensemble des Recherches Experimentales**, G. Doin, Paris, 1931.
24. Harold Saxton Burr, **Blueprint for Immortality: The Electric Patterns of Life**, Neville Spearman Ltd., London, 1972.
25. George De La Warr and Douglas Baker, **Biomagnetism**, De La Warr Laboratories, Oxford, 1967.

26. Ruth Beymer Drown, **The Theory and Technique of the Drown H.V.R. and Radiovision Instruments.** (Private printing.). Artists' Press, Los Angeles, 1939.
27. Ruth Beymer Drown, **The Science and Philosophy of the Drown Radio Therapy.** Los Angeles, 1938.
28. Albert Abrams, **New Concepts in Diagnosis and Treatment.** Philopolis Press, San Francisco, 1916.
29. Albert Abrams, **Iconography: Electronic Reactions of Abrams.** San Francisco, 1923.
30. Jagadis Chandra Bose, **Response in the Living and Non-Living,** Longmans, Green & Co.; New York, 1902.
31. Jagadis Chandra Bose, **The Physiology of Photosynthesis,** Longmans, Green & Co.; New York, 1924.
32. D.M. Bose, "J.C. Bose's Plant Physiological Investigation Relating to Modern Biological Knowledge," **Transactions of the Bose Research Institute,** Vol. 37, Bose Research Institute, Calcutta, 1947-48.
33. "Invisible ultra-violet life frequencies made visible," **New Light on Therapeutic Energies,** Source/data unk., p. 51-55.
34. Wilhelm Reich, **The Cancer Biopathy.** Orgone Press, New York, 1948.
35. V.M. Inyushin and P.R. Chekorov, "Biostimulation through laser radiation and bioplasma," Kazakh State University, U.S.S.R.
36. Philip Medley et al, "The filterable forms of bacteria," **Journal of Infectious Diseases,** vol. 48, 1931.
37. Gianni A. Dotto, "Method for constructing a thermionic pile," U.S. Patent no. 3,839,771. Oct. 8, 1974.
38. Gianni A. Dotto, "Story of the Dotto Ring." notarized in Montgomery County, Ohio on Feb. 8, 1972. Certain parts of Dotto's theory, apparatus, and recommended treatment method suggest potential effects on recombinant genetic structures.

39. Gianni A. Dotto, "Electrostatic Wand," U.S. Patent No. 3,785,383. Jan. 15, 1974.
40. T.H. Moray, **The Sea of Energy**. 5th Edition. History and biography by John E. Moray. Foreword by Thomas E. Bearden. Cosray Research Institute, 2505 South 4th East, Salt Lake City, Utah 84115. 1978.
41. T.H. Moray, "Electrotherapeutic Apparatus," U.S. Patent no. 2,460,707. Feb. 1, 1949.
42. John Moray, "Radiant Energy," in **1st International Symposium on Non-Conventional Energy Technology**, Toronto, Canada. Planetary Association for Clean Energy, 1981. p. 316-319.
43. Antoine Priore's research and devices.
44. Wilhelm Reich's orgone energy work and devices.
45. Radionics researchers' work and devices.
46. Jonathan Tennenbaum, "Soviet Work on Electromagnetic Pulse Weapons," EIR Special Report, **"Electromagnetic-Effect Weapons: The Technology and the Strategic Implications,"** Wiesbaden, Federal Republic of Germany, 1988.
47. Ron Iscoff, "Dye Lasers Used to Treat Blood," **Lasers & Optronics**, 7(3), Mar. 1988, p. 26-28.

APPENDIX I

The Case of Antoine Priore and His Therapeutic Machine: A Scandal in the Politics of Science

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Forty- four years ago, in 1944, an Italian engineer working as a prisoner and forced laborer for the Germans in the huge submarine base in Bordeaux, approached a French police agent to plead for his **life**. He would be killed when the Germans left Bordeaux, he said, and since they were by that time obviously losing the war, the day of his execution was at hand.

The police officer, who also worked clandestinely for the French underground, told the engineer to get in his car, then simply drove him out of the base and introduced him to the 7th battalion of underground resistance fighters, in the nearby province of Dordogne. There he so distinguished himself in military operations that he was ultimately decorated by the French government.

It was due to his thankfulness to his savior, and his loyalty to his companions-in-arms, that Antoine Priore decided after the war's end to live out the rest of his life in Bordeaux. Thus he became the focus of one of the strangest, and most scandalous, chapters in the scientific history of France or any other nation.

Antoine Priore had earlier graduated from a small provincial school for electricity in Trieste, Italy and become a radar operator in **the** Italian Navy. During this period he observed what to him was an exciting anomaly: some oranges left in a room filled with electrical bric-a-brac had fallen into an assemblage where they seemed to have been preserved in the same fresh state they had enjoyed when **bought** off a fruit stand. Other oranges in the room, bought at the same time, were rotten and putrid.

Stunned by his observation, Priore dreamed throughout the war of one day working out an electrical means of conserving foods in **their** fresh state based on what he surmised was a new, and wholly unexplained, principle. Newton's apple had become Priore's orange.

Occupied during the day as a humble electrical repairman — and **projectionist** in a movie theater — the almost wholly self-taught **Priore** devoted all his free time and his meager resources to research. With the help of his war-time companions, some of whom had attained high rank in the Bordeaux police force, he was able to beg, borrow, steal, scrounge, or otherwise acquire a mini-warehouse of electrical and electronic components and parts. With these he put together a device worthy of Rube Goldberg. Exposing lentil seeds to a magnetic field of 225 gauss and electromagnetic frequencies of 80,

32, 3 and 10 Hertz, Priore's device caused the lentil plants which sprouted from them to grow 12-15 centimeters in length, as against only 5 centimeters for controls not subjected to the same treatment. He got similar results for tulips, asparagus and other plants.

Shifting his focus, he next irradiated fertilized hens' eggs, only to see the chicks hatch in 19 days, instead of the normal 21. Though he could not explain these astonishing results, he realized he had stumbled upon a process basic to the enhancement, or speeding up, of cellular growth.

It was at this point that one of his police friends introduced him to Francis Berlureau, the former Director of Studies at the School for Veterinary Medicine in Toulouse and, at the time of their meeting, director of the Bordeaux abbatoir. Priore asked Berlureau to supply him with various animal tissues for experimentation. For 10 years they worked together, Priore's free time allowing, during which Priore noticed he could get no electrical measurement from a cancerous bull's testicles. Since he realized that, in some way, his newly constructed device (no trace of which remains today, except for a snapshot of it) affected the electrical properties of cells, he put two and two together and his sum of four led him to believe that he might be onto an electromagnetic cure for cancer. Newton's gravity had become Priore's cancer cure.

Berlureau next allowed him to expose a cat with cancer of the mammary glands to radiation of his machine. To make absolutely sure that he was not exposing himself to mockery, the veterinarian had all the histological work done by his friend and colleague, a Professor Drieux at the famous Veterinarian School of Maisons-Alfort, near Paris. Drieux wrote a technical report proving that a tumor taken from a cat had, before treatment, started to become cancerous and, after treatment, had become benign.

By 1953, with the help of a doctor of general medicine, Maurice Fournier, Priore began treating human patients whose cancers had been judged hopeless. The huge file of cases maintained by Fournier, and filed with a notary until after his death, was subsequently mysteriously lost. But a few details were preserved in letters discovered in an old dog-eared file.

Some of these dating to the year 1954 concerned a 12-year old boy, Alain B., whose diagnosis wavered between one of reticulo-histio-sarcoma and a malignant form of Hodgkin's disease. The boy was taken by his parents to Priore, who irradiated him. Though the exact nature of the radiation was not known, 12 years later a Bordeaux physician, after a medical examination, certified that the boy, now become a man of 24, was free of disease.

A second case unearthed from the old file indicated that a patient

with cancer of the larynx was able to avoid a laryngectomy and be totally cured after Priore's new ministration.

Fascinated by the principle which he suspected must lie behind the strange Priore Ray, Dr. Berlureau tried to get some Bordeaux University physicists interested in the problem but was laughed out of their offices. He next turned to cancer specialists, beginning with Professor Lachapele, the Director of the Bergonie Foundation, a prestigious center for cancer research, to whom he proposed animal experiments to prove the efficacy of Priore's methodology. His plea met with a stony affirmation on Lachapele's part to the effect that he and his colleagues had no need of the new discovery, inasmuch as "all the patients treated in his hospital were cured and departed in perfect health." As if bound in the chains of his curt reply, years later Lachapele was to become one of the bitter adversaries of Priore's pioneering research.

Only somewhat discouraged, Priore kept up his momentum. He went on to build a new and more complicated version of his treatment device, called the P-1, over the next year. When it was finished he secretly and unofficially began to treat dozens of cancer patients who had been given up by their doctors as incurable. At his funeral in March of last year, among the crowd of mourners was, it is said, a small platoon of older people who had been cured of their terrible afflictions by Priore in the 1950s.

While his findings excited him, he nevertheless felt tremendously frustrated that he could apparently get no one in the world of medicine or science to pay attention to them. Undaunted by his previous rebuffs, his friend Berlureau next introduced the Italian at the end of 1959 or the beginning of 1960 to Professor Tayeau, vice dean of Bordeaux's Medical Faculty. Unlike Lachapele, Tayeau behaved as a true physician and scientist. He sent Priore to two researchers, Biraben, head of the Faculty's Department of Pathological Anatomy, and his assistant, Delmon. The two had been working together on cancerous rats for two years—specifically on animals grafted with T-8 tumors, discovered by the internationally famous team of Guerin and Oberling in Paris, which had proven to be intractable to any form of treatment yet known. To their utter surprise, the tumors in the rats treated with Priore's machine were reduced in volume by 60%, marking the first time in the history of cancerology that the virulent T-8 tumor had in any way been affected by any form of treatment.

Knowing that the mayor of Bordeaux, Jacques Chabans-Delmas—who has kept his post until this day, and was soon to become prime minister of France-- was most interested in the work of Priore (who, he too, had known as a fellow resistance fighter), they also

informed Chaban.

Promptly Chaban convoked not one, but two, commissions made up of Bordeaux and Parisian scientists to study the Biraben-Delmon results in detail. Both commissions rejected Priore and his machine out of hand, and without appeal. It is curious that, in the science of our day, a result, undeniable though it may be, seems to have no hearing unless and until all means to effect it can be adequately explained. It was for this ostensible reason that the two commissions decided to so adamantly reject the research: Biraben and Delmon could not explain the nature of the radiation engendered by the Priore device.

One can stress the word *ostensible* here because the principal reason for the rejection lay elsewhere. The decision by the first commission was, in fact, hardly unanimous. But among its members was the same Professor Lachapele who had refused Berleureau's plea for assistance. His opinion was that even the results themselves were of little value because they were obtained, not on spontaneously arising, but on grafted, cancers. The fact that no treatment whatsoever had ever affected a T-8 tumor was totally discounted. As the sole cancerologist on the commission, Lachapele's dictum was preponderant.

When he learned that the rejection of the first commission had actually been a split decision, the Bordeaux mayor asked for the formation of a second commission to re-examine the problem. Fearing a reversal, Lachapele was able to get one of his colleagues, Professor Courtial, director of the Radium Institute in Paris, and one of the so-called top authorities of French cancer research, named to it. It was all but impossible for the other physicians on the new commission now to outvote not one, but two, cancer specialists, so again the antagonists won the day.

At no time did either of the commissions bother to interview Priore himself or to run a supplementary experiment under their own control.

This seemingly incomprehensible attitude on the part of scientific authority was only a foretaste of what was to come, again and again, over the years. Biraben and Delmon went on to do new experiments. They modified either the time after grafting that the radiation was applied, or the length of its duration. This time their efforts were crowned with unequivocal and complete success. The tumors stopped growing and, when still living cells were excised from them and implanted in healthy control animals, none of them became malignant.

Though these results should normally have fascinated any academy of medicine or sciences, the two researchers did not publish

them. Why? The reasons horrify or disgust. It seemed that Biraben was simultaneously preparing an examination for the *agregation*, the highest French academic degree leading to a senior university teaching post. In charge of the committee to pass on, and award, this degree was none other than that same Professor Lachapele who told him: "Either you get the degree, necessary to your professional advancement, or you publish your research paper. But not both!" Discouraged, Biraben ceded to this demand but nevertheless continued to work on the research that looked so exciting and promising.

Most mystifying to him was how the machine operated to achieve its startling results. At the 3rd Congress of Biometerology held in 1963 in the Pyrennees mountains, a New York City researcher by the name of Kenneth McLean reported he had been able to obtain regressions on tumors and improve the health of cancer patients by using a magnetic field of a strength of 3000 gauss or more. Acting on this hint, Biraben and Delmon made an electromagnet that put out a field of 4,500 gauss and tried it out on the T-8 tumors but without the slightest success. Obviously, something other than a simple magnetic field was at issue.

In 1966, after others had had the same success with the T-8 tumor by irradiating it with the "Priore Ray," the two scientists finally published a memoir in the *Revue of Comparative Pathology* in which they stated that neither magnetic fields nor X-rays had any effect on the T-8s and that "only certain devices associating a magnetic field with high frequency waves seem at present to reveal therapeutic properties..."

Their conclusions were too late for, by that time, a campaign to stamp out Priore and his electromagnetic approach to cancer cure was well underway, a campaign that has lasted right up to the present moment.

The all-powerful Lachapele had sealed the fate of the Priore device as far as the local Bordeaux medical community was concerned. Veterinarian Berlureau and Priore next decided to carry their case to Paris. They contacted Professor Guerin at the cancer Institute at Villejuif, the leading French center for cancer research and the equivalent of the American National Cancer Institute in Bethesda, Maryland. Guerin, one of the discoverers of the T-8 tumor, which for the first time had been stopped in its tracks by the Priore device, courteously received his guests and heard them relate the whole story of how the device had come into being, starting at the point when Priore had seen the oranges strangely preserved by some unaccountable electromagnetic effect.

Guerin was sufficiently impressed that he assigned his colleague, Marcel-Rene Riviere, to delve into the whole question. For

two years, Riviere, who also had teaching responsibilities at the University of Rennes in Brittany, unremittingly worked to corroborate the Biraben-Delmon findings. On 9 December 1964 a note was sent for publication in the **Proceedings** of the French Academy of Sciences detailing the research and modestly concluding: "... as of now, one may already state that our first observations show that electromagnetic fields used can lead to most interesting data from a point of view of the biological behavior of grafts and their therapeutic action on experimental tumors."

Riviere next decided to see if the Priore Ray could affect another tumoral form that had never been affected by any therapeutic method, the 347 lymphoblastic lymphosarcoma. The results were even more spectacular than for the T-8 tumor. The effects produced were of broader scope and took place more rapidly. A second note was sent to the Academy for publication. The conclusion read: "We can now already affirm that our research offers proof that electromagnetic fields are capable of producing effects on quite different types of neoplasms."

At this point one of the key characters in this extraordinary drama must be introduced. There might have been no drama at all without his appearance on stage. This personage was Robert Courrier, an eminent endocrinologist, who had been named, while still in his 30s, a full professor. Courrier was now perpetual secretary of the Academy of Sciences and later would become President of the Academy of Medicine. Because no scientific paper can be accepted by an academy unless introduced by one of its members, Riviere would have had no chance to see his work so prestigiously published had not Courrier, who knew Riviere well, since he had shepherded him through the winning of his doctorate, taken the responsibility for its introduction.

It was Courrier who, at this point, also took up the cudgel to interest various highly placed French organizations responsible for the administration of scientific projects and their funding. Thus, he sent a personal letter to the French Minister for Scientific Atomic and Space Research, who immediately offered to try to make funds available for further research on and with the Priore Ray. He also personally asked the Director of the CNRS (National Center for Scientific Research, which coordinates and oversees all such activity in France) to receive Priore and Riviere.

That this meeting was, in its way, somewhat of a disaster, can be explained in part only by a brief resume of the complex character of Priore himself. Priore throughout his life had great difficulty making himself understood in the French language and, as the **years** went by, he even forgot how adequately to speak his own mother

tongue, Italian. Added to these twin impediments was his lifelong fear that his discoveries and inventions were prone to being stolen, a fear which led him never to fully explain the exact nature of the complex radiation emitted from his machine, far less the settings which controlled its various parameters. Whether Priore would not, or could not, exactly explain the functioning of his invention (which, as we shall see, went through several increasingly complex generations) is a question to which no precise answer has been given. It would appear that Priore was an excellent engineer gifted more with a God-given intuition than with school-book reasoning and logic. In short, Priore had a combination of talents that could remind one of the same enigmatic personality that was Nikola Tesla, the deductive reasoning behind some of whose discoveries has never fully been unravelled.

Highly placed scientific administrators are neither comfortable with, nor sympathetic to, what they see as self-appointed geniuses who have not run the same academic gauntlet through which they themselves had to pass. Thus the CNRS director took aversion to Priore's somewhat incomprehensible, yet fairly prolix explanations of his technology and only recommended that a physicist be sent to look over his device to properly decipher its working. At the same time, the Minister, together with the head of the general delegation for Scientific Research (DGRST) — still another key body in the administration of the French scientific decision-making process — let it be known to Robert Courrier that they had not understood a tingle thing about Priore's invention despite his best efforts to present it.

Advancing one more step into what was to become for him a 20 year-long expedition into a jungle of scientific intrigue, Courrier next resolutely decided to send to Bordeaux one of his most trusted laboratory workers, Madame Colonge, to repeat Riviere's experiments under her personal supervision. The DGRST director fully concurred with Courrier's decision, while letting slip his admission that he strongly suspected that Riviere might well have been duped in some manner by Priore. When Courrier asked the minister for travel funds for Madame Colonge, he was refused with the dry remark that such a request was "premature." The now angry Courrier telephoned to reply: "You've been spending millions for programs and hypotheses about the cancer problem. Riviere has been presenting you with facts!"

The physicist who had been sent to try to elucidate the functioning principles of Priore's device, reported that he could make neither "head nor tail" of the machine.

Madame Colonge's experimentation was as prolonged as neces-

sary. She was so meticulous that, in order not to take her eyes off the experimental animals for an instant, she limited her lunches to sandwiches eaten in the laboratory. She returned, profoundly impressed, to Paris.

Nor was Riviere idle during this period. He decided to experiment with the L-52 lymphosarcoma, a tumor similar to, but even more malignant than the 347. This time, he used not rats, but mice, as hosts for the grafts. So successful were his results that, this time, Courier decided to bar no holds. Instead of simply having a note published in the Academy Proceedings on the quiet, he decided to present it personally, orally, and in all solemnity, before his fellow academicians at an official meeting scheduled for 1 May 1965.

That date was, and is, a turning point in what came to be known in France as the "Priore Affair." From then on the whole French, and even the international, scientific community could be divided into a minority and a majority group, the first that believed in the research, the second that did not know enough details about it, did not or would not believe, or simply didn't give a damn.

Before Courier could make his presentation, its scheduling and subject were inadvertently and prematurely leaked to the press. Immediately thereafter, a horde of journalists arrived in Bordeaux. After one or two of them managed to all but force entry into his lab, Priore closed its doors and, with the help of his friends, wrote a printed press release that stressed his thankfulness to the many people who had helped him over the years rather than providing any comprehensible details about the machine he had brought to birth. Stymied, many of the newsmen travelled across town to seek an explanation from its leading cancerologist, Professor Lachapele, who informed them acidly that the machine was all but useless and unworthy of their attention or their time.

The journalists' reports, founded as they were on rumor of outright lies, roiled the pages of their newspapers and magazines in such a way that they either over-exaggerated the potential or a forthcoming cancer cure, or came close to billing Priore as just one more cancer-cure charlatan. All of which so alarmed, among many others, Dr. Wilhelm Bernhard, world specialist in electron microscopy, that he called his friend Courier to warn him that his forthcoming presentation to the academy might put his hard-won reputation at risk as well as those of Guerin, Riviere and the Villejuif cancer institute itself.

In the journalistic melee, no one had bothered to read the declaration carefully issued by Riviere from Rennes, where he was occupied with his university courses, which formally stated: "Our experiments are of real interest. Much more experimental research

has of course to be done before any therapeutic application on human cancer victims can even be considered. It goes without saying that this will take a certain time and no little effort of many types, both scientific and financial. Our work, as fascinating a perspective as it might hold, in no way, therefore, allows anyone to offer the public hope which could only lead to deception at the present time."

On May Day, Courier gave his report to an Academy assembly hall crowded with scientists, newspapers and television reporters, photographers and an unusual number of curious bystanders. Accompanied with slides showing histological details, and animals before and after treatment, his lecture was heard out in almost tomb-like silence. When the lights came on again, he announced that he had personally checked the validity of Riviere's findings through the offices of his personal assistant, Madame Colonge. He then went on to say that he had taken the responsibility of presenting three notes to the Academy for two reasons. The first was a ringing declaration and a challenge to critics and skeptics of every stamp. It reads "When it is a question of a problem as serious as that of cancer and when one sees a little light beginning to dawn, one has the obligation to see what this light might represent. One has no right to snuff it out before learning what it may be worth."

The second was a tribute to his colleagues who had done the pioneering work, particularly Guerin, Riviere and Madame Colonge, and a statement of the essence of the problem to be faced down the road. It read: "Attention must naturally be given to the apparatus which Monsieur Priore has conceived and constructed. It has apparently already been examined by several physicists. It is found to be too complicated. While that may be possible, it is nevertheless a fact that Guerin and Riviere have obtained results with it that had to be made public. What is emitted from such an apparatus? I hope Monsieur Priore will allow disinterested physicists to study it at their leisure, for Science cannot tolerate apparatuses enveloped in mystery." Then, as almost a footnote to the history of the moment: "The biological action of magnetic fields is the object of intense research in the United States. In specialized institutes, the influence of these fields on tissue cultures, microbes, plant forms, diastases and certain tumors is under study. Up to now, the results obtained on grafted tumors seem less significant than those which have here been presented."

After Courier sat down, a leading cancer specialist, Professor Lacassagne, rose to ask snidely why the notes had included no bibliographical references on work done on the bio-effects on tumors from electromagnetic fields, and criticized the experimentation as "impromptu." When Courier denied this allegation as ludicrous,

Lacassagne stalked out of the assembly hall in full view of the audience.

The meeting caused a new eruption of media reports which unfortunately accented one of three aspects of the problem at the expense of the other two. These were 1) the hope that a miraculous cure for cancer was in the offing 2) the contradictory, not to say discordant, reception of the data by various academics and 3) the enigma of Priore's personality.

Remarkably, no serious discussion among the scientists present at the meeting ever took place. This led a foreign scientist, present in Paris at the time, to remark: *"I don't understand. Here is a report given to the most authoritative scientific body in France by one of the most respected and eminent of its members and it is publicly subject to doubt without that leading to any reaction whatsoever."*

The General Delegation for Scientific Research was at this point still open to the idea of providing funds for more research with the Priore Ray. The big stumbling block, however, was one related to niceties involved in relations up and down the scientific hierarchy. To open the way to the allocation of such funds required the approval of the Delegation's own section for cancer research and that section was headed by none other than the same Professor Lacassagne who had so rudely walked out of the Academy's assembly hall.

At the same time the General Delegate diplomatically covered himself by suggesting to Robert Courrier that he had to have more information underscoring the potential importance of the research accomplished. Courrier told him to simply re-read the three notes he had presented to the academy. His matter-of-fact, yet terse, come back then elicited his invitation to a full-dress meeting of scientific experts at the Institute for Scientific Cancer Research.

In this short historical account we obviously cannot go into the ins and outs of what transpired at this meeting or any of the many similar meetings which followed it. A paragraph in a brilliant book, four years in the writing, by the courageous Bordeaux journalist, Jean-Michel Graille and entitled: **Dossier Priore, A New Pasteur Affair** (of which this account is but a tenuous synopsis) must suffice to pointedly characterize the nature of the problem in its most general sense.

Writes Graille: "To read what follows in this chapter might well seem tedious: an enumeration of names and titles, the content of a debate held at an administrative meeting, personal remarks by one ranking personage or another, exchanges of letters following the meeting itself and the official report which came out of it. Tedious but indispensable for not a few reasons. It is important to know who were the participants at this meeting and what of these participants each

was trying to represent. It is important to know how such scientific meetings go about their business at the 'top level,' And, finally, it is important to learn about and to understand, in the particular case of the Priore Affair, the behavior and reactions of all concerned. A reading of all this could be difficult (and it won't be the only such passage in this book) yet it is necessary to understand the essence of the dossier in order to be able to create for oneself as clear and well-motivated a personal opinion about it as to subsequently be able to discuss it, or to hear it discussed, with a thorough knowledge of the facts."

In this single paragraph, Jean-Michel Graille has, in my opinion, pointed to both the nub and the difficulty in getting at the essence of the real facts behind a case such as that of Priore's that are so important to its proper understanding, an understanding which can be painted against the backdrop of the history of science and the backdrop of human pettiness and maliciousness or human courage and magnanimity.

One of the participants, Professor Andre Lwoff, soon to become a Nobel Laureate for his work in virology, was violently against the meeting's central issue: namely, whether or not funds should be spent to build a new and better Priore machine. Not only did Lwoff aver that the three notes presented to the Academy never should have been published, but he also opined that since all the work was done, not on spontaneously generated but on grafted cancers, the effects of the machine were hardly impressive. He later added in writing that 1) the patents issued to Priore for his device were nothing but a web of nonsense, 2) the machine itself could never be duplicated based on any description given for it by its inventor and, in a repetition of his oral remarks, 3) the fact that only cancer grafts were experimented with was nothing to shout about. He strangely added that because the animals who had been irradiated subsequently were able to entirely reject new grafts, the whole phenomenon offered no proof that cancer cells could be killed while healthy cells were not. The whole thing came down to a question of immunity, he said, as if that were not of the greatest possible importance.

To which, in due course, Guerin and Riviere replied: "It has been claimed that our experiments are valueless because they were carried out on grafted tumors and that other therapeutic measures were known to get rid of such tumors and their metastases. *We defy those persons who have made such affirmations to prove, with the use of such other measures, that animals infected with T-8 tumors can be cured at a percentage rate identical to those obtained by using the device which Monsieur Priore has developed.*"

Not a soul has responded to this challenge, then or since.

A second cancer expert at the meeting, a woman of great influence, resorted only to the cavil that the experiments had been of doubtful quality since none of the animals had been *weighed*. The fact that those same animals had survived normally lethal cancers seemed not to have *weighed* with her.

There were many more observations of the same ilk. They seem atrociously paltry, trifling and picayune coming from professionals who, if they no longer believed in the Hippocratic oath to which they once swore, are considered by the public in general, and by cancer patients in particular, at least to be concerned with seeing what a little light on the problem might reveal before extinguishing it, as Professor Courrier expressed it.

At the same time, we must not forget Priore's decidedly difficult personality. He was an inventor determined at all costs that his invention be developed for the benefit of humanity, yet anxious that that same humanity not steal it from him. As author Graille puts it, "His conceptions and attitude directly or indirectly conditioned the overall essence of this affair. Full of enthusiasm, from the very day he discovered that the ray he had developed had a curative effect on a cancerous cat, he developed a single-minded fixation on cancer. One could understand and sympathize with him on this score. Here he is, a little Italian immigrant without money or means, and he is going to offer the world a cancer cure. He is so convinced that he wants to move ahead to doing just that. He will never understand or accept the exigencies of Science or Medicine. For him, experiments, controls, verifications and parallel research are a waste of precious time. 'I've made machines which cure cancer. Take them and treat cancer patients. Don't bother with the rest.' Such would be a summation of his point of view."

Through the efforts of persons kindly disposed to the inventor, this point of view was softened and he came finally to understand the necessity for what has been called scientific rigor, on the other hand. another aspect of his character never changed an iota. This was his determination to preserve the secret of his invention, motivated first of all by his unshakeable desire that it be developed in Bordeaux, the city of his adoption, for the citizens of that city. Deeply rooted was his belief that if he made his secret public, the machine would be taken from the Bordeaux region and further developed by Parisians, those who considered themselves to be in the penthouse of the scientific edifice. Once this was accomplished, he would likely not have one more word to say about the matter. Therefore he continued jealously to conserve his secret and put confidence in nobody.

As Graille generously concedes, he may well have been right. and adds: "All his life he had to go up against men, whether scientists

or industrialists, who had but one idea in their heads: to get to the bottom of the inventor's secret in order to build for themselves a machine which they then could exploit for their own account, for their own glory. Many such 'Priore Machines' were to be actually built more or less surreptitiously or clandestinely. Not one of them ever worked."

While one might easily accuse Priore of a limited view, the horizons of the researchers themselves were certainly not as broad as they might have been. Those involved in bio-medicine were content with the results produced by the machine, the workings of which were of no concern to them. A black box, as it were, emitted a ray that definitely affected experimental animals. At the same time, as researchers specifically interested in the cancer problem, they never gave a thought to what the Priore Ray might accomplish in the wider clinical domain of other afflictions.

As for the physicists, they were seemingly not up to the task of comprehending a complex radiation that had miraculously sprung, as from the head of Zeus, out of the intuition of a man they considered to be an undereducated and all but illiterate gadgeteer. Still others, whether physicists, biologists, doctors of medicine or specialists in a dozen other fields, were willing to throw the baby out even before it went into the bath water. In their eyes Priore was just a nobody.

Behind the scenes, many of these scientists resorted to using the press to achieve their own ends. Thus, the chief medical chronicler for *Le Monde* (the French New York Times), herself a doctor of medicine, was led to write outright lies about the Priore Affair—specifically and falsely stating that cancer patients had been treated with the Priore Ray in the clinic of Professor Lachapele in Bordeaux with not only negative, but disastrous, results.

On the other hand, a journalist for another leading Paris daily, *Le Figaro*, scrupulously conscious of his responsibility to fairly report what was going on, aptly wrote: "We would like to see at least one thorny point clarified as soon as possible. Several years ago Professor Biraben of the Bordeaux Medical Faculty (who at that time had not become a ranking professor) was involved with the Priore device. According to certain reports from medical circles, his results seemed, even at that time, to have been already quite positive on small animals and he seems to have written a report to that effect. He was advised by highly placed authorities "to keep quiet" and stop talking about this affair. If this turns out to be true, it would be a veritable medical scandal to be judged in the harshest terms."

Could one have put it more succinctly?

The foregoing is to present something of the flavor of what was transpiring in the wide world far removed from the laboratory of

Priore who, at the time unaware of it, was revelling in the fact that his machine had been successfully used by high-ranking French cancerologists and its results reported in three separate notes to the Academy of Sciences.

His courage was also more than buoyed by the arrival on the scene of the commercial director of a large French industrial firm specializing in the intricacies of manufacturing glass components. This man had heard that Priore needed a large tube that was beyond all existing norms and perhaps did not exist anywhere in the world. This tube, it can be stated, contained a rare gas, neon, which when excited into a plasma, seemed somehow to convert the various electromagnetic inputs into a single Priore Ray which surged from the business end of the tube. In the tube were an anode and cathode. Peculiar to the anode was that it had to *rotate* to produce the desired biological effects and this is but one of the anomalies in Priore's equipment which physicists and bio-physicists have to this day been unable to explain.

The manufacturing company, a subsidiary of the internationally known company, Saint Gobain, was looking for a new product. The commercial director thought the new tube might fill the bill, particularly if it could be adapted to a machine that might ultimately cure cancer, a product that indubitably would have an enormous market across the world. There were plenty of problems with regard to the tube, notably those of its large dimension, its resistance and its conductability. When the tube was finally made, it now seemed that Priore would have to explain his discoveries to the scientists of the company that had made it. One of these was sent to elicit such an explanation but was, so to speak, "shot down in flames" by Priore. So a second attempt was made by Ivan Peyches, a senior executive of the company, and president of the Society of Civil Engineers of France, who made a detailed investigation of the device. His reports were subsequently lost, but there remained an article he published in a leading French journal, *Sciences and Technics*, a short time before his death in 1978. It bore the intriguing title: "What Are So-Called Paranormal Phenomena?"

In it the engineer wrote: "There was so great an accumulation of components capable of having some kind of action, and being unable to work separately, that the results of measurement were limited to proving that there were no specific rays that issued from the tube (Priore talked about canal rays), no more than there were any X rays. On the other hand one could detect a magnetic field which was the end result of a field proper to the tube and of the magnetic field of a solenoid that constituted the experimental chamber, an electromagnetic field with a frequency of 16 megacycles (19 meters) and a high

frequency field (metric waves), the whole being pulsed at a very low frequency of an order of one per second. It was impossible, in such an imbroglio, to determine what was necessary and what was sufficient. Priore maintained that the simultaneous action of his various generators was indispensable to achieving his effect."

Peyches then went on to relate how he tried to persuade Priore to offer a more precise definition of his thinking about the workings of his device. He wrote the inventor: "At this point, I would say that all reticence on your part, which in your eyes would be justified by the fear of seeing yourself partially dispossessed of your work, would be of far greater detriment to you than any safeguard of your interests. Moreover, since it has become a question involved in public health, you are no longer entirely your own boss...you absolutely must bring all this to the clear light of day and I don't believe you can do it alone...You must supply all the characteristics so that third parties can reproduce your results." Then, he concluded by citing the words of an academician: "Many phenomena are rejected by the scientific world because they are considered irrational: But it is not B proof of scientific honesty to refuse a priori to try, out of homage to truth, to have a look at them and perhaps to understand them. Will Science one day be able to abandon its taboos?"

It was Peyches' final conclusion that, in the end, Priore was a man of genius who knew absolutely nothing about what occurred in his machine from the scientific point of view. The company which he represented no longer exists since it was bought out by the American firm of Corning Glass.

Industrial interest in the Priore device was not limited to the Saint Gobain subsidiary. Next into the lists was a company in Angouleme, Leroy-Somer, which specialized in electric motors, generators and later was to branch out into solar power. Its president, Georges Chavanes, took the initiative to write to Priore in 1965 that his company was interested in providing some of the complex electrical equipment needed by the inventor, more particularly high-powered generators, on the condition that Priore move his operation to the company seat at Angouleme. When the inventor categorically refused, Chavanes tentatively agreed to build a factory to manufacture the Priore device in Bordeaux itself.

The alliance between Leroy-Somer and Priore, shaky at best, lasted two years and blew up on Holy Thursday of 1967. The period was a stormy one for both parties to the agreement. Priore did his best to convince Chavanes to commit himself to building a huge machine with a magnetic gauss strength of 10,000 gauss. In the end he got one that put out only 920 gauss, not much stronger than the machine he had already built which put out 620 gauss. Since the field

of action increased with the gauss strength, Priore reasoned that a machine of literally behemoth size would be able to irradiate the whole, or every part, of a human cancer victim lying on a stretcher, whereas the smaller machines had been effective only for small animals or for treating a limited portion of the human body.

Chavanes and his company were aware that it would be a tremendous financial burden to contemplate building the larger machine. So they went ahead with plans for the smaller one while at the same time putting great pressure on Priore himself to make him feel that he was the least important cog in a new gear, in fact that his status was reduced to being a simple employee of Leroy-Somer. In Graille's estimation, this lack of psychological finesse on Chavanes' part constituted what he called "the blackest pages in the Dossier Priore."

Even the smaller machine was to cost about half a million dollars, a price which today, due to inflation, could be tripled or quadrupled. During a stage in which an intermediate machine was designed by the chief Leroy-Somer engineer, Ribeau, a machine that never did function properly, Chavanes all but forced Priore, who was heavily in debt, to sign a contract which was falsified. The falsification was a matter of one word which was changed in the contract. In a phrase reading that an exclusive license of patents, and subsequent patent modifications, would accrue to the company "for all countries solely for therapy on cancers concerning animals and humans," a word was inserted by hand so that the phrase read. "*concerning particularly* animals and humans" implying that other uses of the machine, whatever they might turn out to be, would also accrue to the company. This one word change was amended on Priore's copy of the contract by calling the word "particularly" a "nullified word," but on Chavanes' copy it was called an "added word."

Leroy-Somer believed it was sufficiently well positioned in the driver's seat to be able to deal on behalf of Priore himself with the French governmental institutions, mainly the General Delegation, concerned with the funding of the new machine. When Priore learned of Chavanes' contact with the General Delegation he wrote a letter informing it that no one had the right to deal in his name. Nor did Chavanes even attempt to cut the Saint Gobain subsidiary, which alone could supply the tube, key to the device's functioning, in on the government funding.

In the meantime, no less a figure than Professor Kastler, soon to win the Nobel Prize in Physics, came down from Paris to inspect the existing Priore device. He brought with him Delmon, who, we recall, had worked with Berlureau on the first animal experiments and who

NOW, it turned out, was trying to build his own version of a Priore device on the sly without telling Priore. Kastler's bringing Delmon with him to Priore's lab so angered Robert Courrier that he told the physicist he had committed a real gaffe. He also convinced Kastler that Leroy-Somer should build a machine with a power of at least 5000 gauss, but Chavanes refused. There seemed to be no harmony of outlook between the leading industrialist concerned, on the one hand, and the top physical and biological scientists on the other.

While all these, and many more, peripatetics were proceeding, Priore's sister in Italy came down with cancer. Beside himself with **grief**, Priore informed all concerned to commit themselves either to building an intermediate machine correctly, under his supervision or, better, the 5000-gauss machine, and to do this in time to save his sister, or he would wash his hands of the entire matter. Confronted with this ultimatum, the company began to work round the clock to perfect the intermediate machine but engineers involved, believing themselves to be more adroit with respect to its design than Priore, left out a host of what, to them, were unnecessary components. The result was that when the machine was first put to trial, most of the components burned out or otherwise failed, and the machine itself became a useless pile of rubble.

Shortly thereafter, Priore's sister died of cancer. Her **grief-stricken** brother went into what amounted to total isolation, unwilling to talk to a soul.

The whole Priore affair might have ended at that point, in the early part of 1967, were it not for the entry onto the scene of a key **figure**, Professor Raymond Pautrizel. Born on 3 June 1916 in Basseterre, capital of the French Caribbean island of Guadeloupe, at forty years of age he was on the Faculty of Medicine at Bordeaux. He **soon** became known, world-wide, as the "father of parasitological immunity," a title he never accepted, saying that, if others had awarded it, **it** was simply because "he had searched through old scientific publications to find ideas that were as valid for modern research as they were forgotten by modern researchers." And he later was **quoted** as adding: "It is really too bad that researchers today don't pause from time to time to dig into studies made by their predecessors, some of which were performed even decades ago!"

Professor Pautrizel was awarded the first academic chair in **France** for immunology, and later a special unit was created for him for parasitological immunology, a subject which is both simple and complex. The simple part involves the fact that various immunological techniques can be applied to diagnosing specific parasites that have invaded an organism in order to develop preventative actions **against** them via vaccines, or curative actions via serums.

When invaded by parasites, organisms react by creating antibodies, specific substances aimed at killing the invaders also known as antigens. These antibodies are liberated, like an attacking army, into the blood. Simple enough so far. The complexity arises because the defending army, the parasites, don't just lie down and die under the attack. They are capable of modifying their "personalities," as it were, and of changing various of their characteristics such that the mechanisms that the host uses to recognize, or detect, the invaders are invalidated. Thus, the substance which an organism would secrete to destroy an invader A becomes incapable of recognizing A, now become A-I, and therefore incapable of destroying it.

The organism at this point seems to realize it has to create a different substance to rid itself of its antagonist but, in the meantime, the metamorphized parasite is getting on with its assigned destructive task. Alternatively, the parasite has another capability: that of itself liberating substances which can annul or annihilate the organism's overall defense system. A sort of "in the blood" version of Star Wars is going on at the microscopic level.

The study and classification of the substances - - call them weapons - - emitted by parasite-attacked organisms allows for the establishment, in turn, of batteries of tests to define the exact nature of the parasites themselves in order to come up with an appropriate therapy or counter-weapon.

This then, is the essence of parasitological immunology, Raymond Pautrizel's area of research. He specialized on a particularly lethal parasite known as trypanosome, the scourge of tropical third-world countries where, in one form, it causes sleeping sickness in animals and humans, in another, equine syphilis, in still others, other afflictions. Over the years, during which he produced a small library of literature on the problem (known mostly to specialists in countries where that problem is acute), Pautrizel and his team discovered, among other things, that the trypanosome can modify itself, again and again, up to 101 times over a period as short as only three weeks.

Even before his work on trypanosomes, Pautrizel, back in 1949, was one of the first researchers to discover what is known as *ambivalence* in drugs, notably histamine. Histamine is a substance which is secreted by an organism as a defense mechanism but if oversecreted by certain cells circulating in the blood, it becomes virulently noxious, mainly by overdilating blood vessels, thus making them permeable to water and leading to edema and even death. This process occurs, for instance, in some human beings who are highly susceptible and over-reactive to bee or wasp stings.

Pautrizel's research on the noxious aspects of histamine led to

his finding that the same substance, applied in requisite small doses, is extremely important to the defense system of the organism. Today he stresses the notion of *ambivalence* in many areas of his work and characterizes it as "a key to the biology of the day after tomorrow."

To finish with the background on Pautrizel, before bringing him on stage in the Priore drama, it may be added that only a few years ago, at a formal reception for him attended by the medical elite of France, he was given a Basque *makila*, an iron-bound honorific cane of sculptured wood, in tribute to his work. On it was the incised inscription: "Sometimes to heal, often to alleviate, always to console," an epithet that perfectly characterizes a medical doctor imbued with that kind of rare compassion that marked Pautrizel's character.

When Robert Courrier sent Madame Colonge to Bordeaux, it was Pautrizel whom he asked to provide her with every assistance. In this way, Pautrizel was first introduced to Priore and his device. After witnessing the results obtained with it he was to say: "What stupified me, and led me to ponder the question, was to see the control animals die from their tumors in 3 weeks, while at the same time I could observe that the tumors in the animals under treatment were literally melting away and the same animals were taken back to Courrier's lab at the College de France in Paris in perfect health." As a result of his thinking about the problem, Pautrizel came to the belief that the machine, however it worked, did not exert any action at all to kill cancer cells but, through as yet unexplained mechanisms, stimulated the afflicted organisms to provide themselves with new immunological weapons that could overpower the cancer cells.

To shed light on this problem, Pautrizel proposed the simple expedient of experimenting, not on cancer-infested animals, but on *in vitro* cultures of cancer cells. He made this proposition to both French and British cancerologists but they were convinced that the Priore device *had to be actually killing cancer cells themselves*. They could not see the point that, if the machine did not kill cancer cells, then it was doing something else to the body to allow it, and not the machine, to do that job.

Pautrizel's involvement with the British was the result of a team being sent from England to experiment with cancer mice with the Priore Ray. What happened cannot be related in this brief resume except to say that, out of a lack of understanding on the part of certain British cancer experts and malicious conniving on the part of one member of the cancer "aristocracy" in Paris, the experiments were put under a cloud. It was alleged that mice had been substituted somewhere during their long round-trip voyage between

England and Bordeaux to make it look as if a failed experiment had been successful. This did not prevent Sir Alexander Haddow, chief of the prestigious Chester Beatty Research Institute for Cancer from stating, at a meeting in Paris, that the Priore machine had been indubitably effective on the English mice and supporting Pautrizel's idea that experiments should forthwith be done to see if the Priore Ray had any effect on cancer cells *in vitro*. Haddow's suggestion backing Pautrizel's recommendation fell on deaf ears.

Because of the emotional turmoil and rancor with respect to cancer that had so long surrounded Priore and the workings of his machine, Pautrizel suggested that it be tried in a completely new area, one he knew so well, namely on afflictions caused by the trypanosomic pathogen. Before these could get underway, however, someone had to persuade the still desolate Priore to return to work. Pautrizel, known to those really concerned with and knowledgeable about the potential of the Italian's invention, at last was able to convince the inventor to cooperate and get back into harness. This he did with that rare combination of diplomatic tact and warm human sympathy with which only the Pautrizels of this world are gifted.

In the meantime, Riviere had gone on to implant new 347 tumor grafts in rats previously cured of 347 tumors. When none of the tumors developed, that result added one more argument to back Pautrizel's idea that the machine was, in fact, affecting the immunological defense system of the animals. However, when Riviere tried the same procedure with the T-8 tumors, his animals died. This led to the conclusion that the immunity acquired by the animals to lymphoblastic lymphosarcoma 347 was specific to that tumor. When a note on this research was sent, again through Courier's good offices, to the Academy, for the first time, it strangely omitted from the listing of the participating researchers the name of Antoine Priore. It seemed that Riviere had been taken to task by fellow cancerologists who believed that Priore was nothing but a naive bumpkin or, worse, a swindler. They had warned him against publishing any papers with which Priore's name would be associated. This rank injustice and lack of fair play again sent Priore into a fit of despondency and depression from which he could only be withdrawn by those subtleties involved in Pautrizel's sympathetic and friendly counsel.

On 25 July 1966, another note was sent to the Academy filed for the first time not under the rubric Cancerology but under the rubric Immunology. It was entitled "Influence of Associated Electromagnetic and Magnetic Fields on the Immunity of Mice Infected with *Trypanosoma equiperdum*." The conclusion read: "The treatment allows the organism to rid itself of parasites even when these

have invaded it in a most intensive way.... There is an enhancement of both the specific and aspecific factors of immunity."

Thus, for the first time, the field of research shifted from the narrower field of cancer to the much vaster domain of immunology. And, for the first time, Pautrizel's name appeared as the senior author on the paper. It also appeared that, for the first time, there should no longer be any problem about experimenting with the Priore machine. Such was not the case.

Still complicating the whole issue was the fact that Priore himself was using different setting to produce different varieties of radiation depending upon his own intuitive evaluation of the particular biological experiments being run with his machine. He would never reveal the nature of these settings.

At this point there appeared on the scene a new researcher who became Pautrizel's loyal ally, a young woman, Pierette Chateau-Reynaud Duprat. During her work in Paris, she had learned of the Priore controversy, and, against the stern advice of mentors senior by many years to her in the cancer hierarchy, she came to Bordeaux to meet Pautrizel and learn more about the research.

Her work, performed over many years, is too detailed for presentation here but it led to important conclusions. One was that the Priore Ray had no direct effect on the trypanosomes themselves but stimulated and reinforced the defense mechanism of the infested organisms, allowing them to reject the parasitical influence with an effect so durable that they were no longer subject to this influence even after treatment stopped.

Another conclusion was even more important and involved, in part, British research. It pertained to the effects of the machine on both *allografts* or those made between two different individuals of the same species, and *isografts*, or those made between two different individuals of the same genetic line having in common antigens that were characterized by what is called the same histocompatibility. The conclusion was that not only was the rejection of *allografts* accelerated by the Priore Ray but that *isografts* were also rejected. This meant, in sum, that the ray stimulated not only the *defense* mechanisms of the organism but also, and more importantly, its *recognition* mechanisms. In the case of an isograft, this allowed the recognition of weak antigens that were not recognized in non-irradiated animals. In other terms, where at first the anti-aircraft batteries could not shoot down the aircraft because they could not see them, now they could shoot them down because they could see them. In immunological terms, the ray affected both humoral and cellural, both specific and aspecific, immunity.

Here we must return to the mystery of the settings on the device.

As a result of the new experimentation it seemed that, depending on those very settings, the active ray, complex as it was, could have either similar, totally different, or diametrically opposed effects. Thus it was not a question of a ray having universal effects — a kind of magic bullet capable of killing any target — but of multiple radiations which, due to the complexities in Priore's personal make-up, have unfortunately yet to be sorted out and explained.

Thus, the machine originally designed by Priore, called the P-1 when it put out a wave length of from 19-21 meters, had a radical effect on certain animal cancers, on *cellular* defense mechanisms, and finally, but not universally, on organisms infested with **Trypanosoma equiperum**, (hereinafter called T.e.).

A second machine, dubbed the P-2, was at first not able to produce these frequencies. What it did put out was a frequency of 17 meters that *was* universally effective against T.e. and seemed to act not on the cellular, but the *humoral*, defense mechanisms. The rejection of grafts depends on the cellular defense mechanisms, which partially explains why Pautrizel when using the P-2 machine, selected the T.e. vector, as it is called in microbiology, just because this creature is fought by the organism's humoral defense system.

Consequently, the bio-effects that were successfully attained depend on the varying, not to say quixotic, nature of the radiation. At one point Pautrizel actually did experiments on animals infected with *plasmodia* — the vector for malaria which attacks red cells — and found that the settings used were effective while never learning exactly what they were or the exact nature of the radiation. Furthermore, Priore himself maintained that over the years he had successfully treated cases of human tuberculosis but, again, never revealed which frequencies had been used to achieve this.

Several more notes were sent to the academy on the successful work performed with the Priore Ray on animals affected with T.e. But the central issue remained: how to find out exactly how the machine worked. It fell, not to civilian scientists, but to those in the French army service to attempt, at this point, to work out the problem. The army service brought into the picture was the DRME (an acronym which translates as Administration for Research **and** Test Methods), to which Pautrizel had sent a request for funds in 1968.

This request was the subject of a meeting at which were present three of the top names in French science, one representing biology, the second physics and the third, medical physics. The latter two turned in extremely unfavorable reports recommending that no money be wasted on the problem. The biologist, however, turned in a most favorable report and, despite the fact that he was in the

minority, his opinion won the day.

As remarkable as was this victory, it was even more stunning and incredible given the fact that this biologist was the same Andre Lwoff who had so adamantly opposed the Priore research a couple of years previously. Lwoff had summoned the courage to completely reverse himself only after he sent one of his most trusted colleagues to do secret experiments with the Priore Ray on mice injected with peroxylase (an antigenic solution) to see if they would produce a higher level of antibodies than non-irradiated animals. This they did so well that Lwoff became convinced that the Priore Ray caused an extremely important increase in immune reactions. These results were never published because, before the experiments could be repeated to be absolutely sure of their results, the machine suffered one of its many interminable breakdowns.

The DRME report was at length, and in length, issued but not publicly since it was protected by a military classification. However, a synthesis of it was finally published in November 1979 by Herbert Gossot, Secretary General for the French Association for Bioelectromagnetism, under the title: "A Scientific Balance Sheet on the Priore Ray." Its contents were as follows:

"The two physicists assigned by the army made a complete analysis of the electromagnetic radiations and magnetic fields activated by the Priore device. They thus determined the spectrum of frequencies which the device emitted. They showed particularly that frequencies in the visible light and infrared range had no biological effect; that there were no X-rays or Y-rays; and that the pulsed ultra-high frequency electromagnetic wave was modulated in amplitude to that of a high-frequency wave. They did a topographic survey of the respective intensities of the various magnetic and electromagnetic fields in the experimental plane of the device. In particular, they determined the spatial repartition in this plane of the density of the strength of the ultra-high frequency wave. They showed that its value was very weak and that it could not produce any kind of overall significant thermal effect imputable to the hyperfrequency ray.

Finally, and most importantly, by using what they had learned about these repartitions, they demonstrated a clear correlation between the biological effects obtained and the intensity of the hyperfrequency ray. What they actually observed was that, on the **biological** model used, i.e. experimental trypanosomosis of the mouse, there was a diminution of the rate of evolution of the parasitemia that was proportional to the strength of the hyperfrequency wave. To quote them: *'These experiments of correlation are of certain interest: they confirm, if there is still any need of so doing, the*

biological efficacy of this device."

The two physicists, Bottreau and Berteaus, are still interested in rebuilding a Priore device with which additional biological research could go forward. At the same time they suggested to administrative bodies in French science the creation of a special laboratory for bioelectromagnetism to fund more work, a suggestion in which Professor Pautrizel concurred. No action was taken and their report was kept under wraps. In a note they presented to the Academy of Sciences on their investigation, they were not allowed to include the names of the laboratories where they worked: in the case of one, the CNRS Magnetic Laboratory at Bellevue near Paris, and of the other, the Laboratory of Ultra-Hertzian Optics and Talence near Bordeaux. Why? Because the directors of these laboratories did not want any mud in the Priore affair to be spattered on them.

The next experiment done by Pautrizel was on rabbits whose testicles had been so seriously affected by trypanosomes as to be almost entirely destroyed. After radiation the same testicles took on their normal histological appearance and the rabbits, able to procreate again, in no way abstained from their newly regained ability. **This implied the complete regeneration of an organ that had all but completely degenerated.**

Yet journalists, who sought out truths about the Priore affair in Paris from high officials they believed would know best about what was going on, continued to be led astray. For example, an American scientific reporter, writing in the **Saturday Review of Science** in 1973 saw fit to state: "It is really a question of a mystical problem that has little to do with science." He was quoting Professor Bader, a man who for 15 years held top administrative posts in science that could have allowed him to back the Priore research with all the funding necessary to its accomplishment. At the time Graille's book came out, Bader issued a book of his own about the Priore affair which offers no real idea of what was involved. When I asked several people in France why Bader had written the book, they were unaware of Bader's inmost motivation.

Machinations continued to swirl about the case over the next several years. Behind-the-scenes intrigues, distorted accounts in the press, lethargic attitudes on the part of administrative officials who would not take responsibility to cut an increasingly tight Gordian knot, outright fear of various personalities to become too deeply implicated lest they lose their jobs - - all these, and more, continued their daily round in an atmosphere of "Business As Usual," and "Don't Risk Your Neck."

To get to the nexus of the situation, we have but to cite the observation of one of the few perspicacious journalists who, in **the**

prestigious scientific monthly, *Sciences and Life*, wrote: "The physicists are convinced that the effective Priore Ray is very complex but to analyze this further some things first have to be made clear. One is to raise the suspicion that has surrounded Monsieur Priore with a fabulous accretion of misunderstandings, insults and accusations of being a swindler over many years. What is needed is a veritable national effort to act effectively and to act rapidly."

Over the next two years the decision-making process of the French government lumbered its way along until it was finally decided to back the construction of a powerful machine. This decision was not favorably accepted in many quarters. As *Le Monde* would comment: "The decision was made in spite of the disapproval of many scientists. When money is tight, one should pay particular attention to how it is being spent. Such seems not always to be the case. A credit of some \$3.5 million francs (or about a million dollars) has just been accorded to finance the construction of a new Priore machine."

The scientists to whom the article referred were in a rage. They understood, at this juncture, that the only way to put an end to the affair was to eliminate Pautrizel who, because of the very success he was having with his research, was seen as a dangerous competitor that might even become one of the top figures in medicine and science on a national, or perhaps, on a world scale. Indeed, it was learned that Professor Courrier had gone to the length of sending a report on Pautrizel's behalf to the Nobel Committee in 1979.

To make a long story short, the large powerful machine, the M-600, was built but a huge tube in it, after functioning for about a week, exploded. Due to the galloping inflation of the 1970's, to replace it would have cost another million dollars. The money was not forthcoming.

In the meantime Pautrizel, ever experimenting with the still functioning smaller machine, was to discover new facts. Mice with their spleens cut out, for example, also could survive injections of T.e. The Priore Ray had important implications for Arterio-sclerosis, since it effected lipid modifications in rabbits given a dietary regime high in cholesterol. This research, published in another note in the *Academy Proceedings*, instead of being warmly received, only irritated the cardiological fraternity which felt, as some of its members put it, "trapped" by Pautrizel's efforts.

One particularly virulent opponent was Professor Bricault, Dean of the Bordeaux Medical School who, as late as 1980, was telling his own students that the published results were a farce and had never been obtained. The students, who carried out a special investigation of the matter on their own, were able to judge what a

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farce their own medical dean might represent.

L'Express, the **Time** magazine of France, read by at least half the population of French intellectuals, had the gall to compare the results of the Priore research to those of the infamous Trofim Lysenko of the Russia of Stalin's day. Haughtily **L'Express** added: "Today Priore's defenders explain that his machine has not only cured cancer but, in all probability, altered the immunological characteristics of mice. Were this, in fact, so, all the immunologists, all the geneticists of the world would unite to affirm that a machine capable of changing the genetic patrimony is the discovery of the century, far more important than the atomic bomb or the conquest of the moon. Unfortunately, the history of the whole thing has never been properly elucidated." The article was illustrated with photos distortedly selected to convince viewers that the Priore machine was as serious and effective as the one that purportedly brought Frankenstein to life.

In this poisonous atmosphere the slow work of building the M-600 went forward. To give anyone who was not there a feeling for this endeavor we may now cite verbatim a passage from Graille's book: "The construction and assembly of the prototype — the M-600, that of highest power and variable parameters — were fraught with many uncertainties and delays on the one hand and, on the other, were marked by the stamp of Antoine Priore's sparkling genius.

"To go from an apparatus that developed 1,240 gauss applied over an effective area of some 20 centimeters, to one developing 5000 gauss over an area of 60 centimeters means to take on an extremely risky technical and technological wager. Electrical, mechanical and glass-blowing specialists plunged into the unknown. They had to conceive, make, adapt and put together all the various myriad components almost haphazardly with no precise technical study being previously available. Priore's stubbornness forced them to take on a trial-and-error manufacturing "gimmickry" without precedent. As the thing was put together and preliminary tests made, it became clear that many of the components were unsuitable and that they would have to be modified or replaced. The tube itself, made of pyrex, 60 centimeters in diameter, and 6 meters tall, had to be replaced twice after it imploded. In fact, practically everything had to be reconsidered or readapted. "Everything" meant the parts going to make up a generator of 50 tons in weight. For example, the coil which created the magnetic field: 5.5 tons with 11 miles of copper wire. For example, the numerous cooling circuits which stabilized the thermal equilibrium of the generator and its environment or, additionally, the circuits governing command, control regulation and selection — 6 tons of electrical cables of which 15 miles were of

tele-command wiring.

"Priore astonished everyone. Breakdown after breakdown, incident after incident, it was he alone who showed what to do next, indicated the proper steps to take, the right settings to adopt, the right way to assemble the components: He was virtually building his machine by himself, nursing its construction along day after day, all the engineers' studies and efforts actually, and ultimately, serving only as a preliminary attempt, a sketch as it were. When Priore made his presence felt, things began working."

Then.... after the machine was built: "The part of the entire apparatus to generate electricity was set up on a provisional basis. It was so noisy that, while functioning, it woke up the whole neighborhood. The number of experiments had therefore to be curtailed so that the machine would not be used at night. And, all at once, everything came to a halt. The Faraday cage, shielding and isolating Priore's apparatus, was torn and fissured by the shock of the cement pilings that were being sunk into the ground all around to hold up the building under construction. This allowed high-frequency waves to escape which disturbed radio broadcasts emitted by local radio stations, the army, and civilian aircraft for miles around."

Nevertheless during the week or ten days that the machine was in good operation the results of experiments performed with it were more than formidable. First of all, it allowed for as many as forty experiments to be performed on some 280 animals in a remarkably short period of time. Among the discoveries made were: The ray emitted provided the treated animals with an extremely strong immunitary response. Animals whose immune defenses had been attenuated by an immuno-depressant were able to overcome the effects of injected parasites but relapsed a few days later. One could therefore conclude their immune response was much weaker than those normally infested and treated.

Newborn animals, whether treated or not, developed a marked parasitemia leading to their deaths. At the time of death, the parasites had the same antigenic structure as those of the innoculum which thus implied that they had met with no defense at all in the infected organisms. This also proved that the Priore Ray did not act directly on the parasites themselves but only by way of an increase in the immune defense system of the organisms. The newborn animals succumbed to their parasitemia because their immune system was not yet sufficiently developed to be stimulated by the P-Ray. The phenomenon of a stimulation of the immune defenses was demonstrated by the fact that animals which had received soluble antigens developed, after being irradiated, a level of antibodies far

superior to the controls.

These and other conclusions were the object of notes presented to the Academy of Sciences by Pautrizel and his team in 1978. Even before, at a colloquium held in Antwerp, Belgium devoted to African human trypanosomiasis, the same team had offered the conclusion that the stimulation of the immune defense system that allowed organisms to throw off the effects of trypanosomiasis had to be very significant in that all attempts to try to effect such stimulation through immuno-stimulants as well known as B.C.G., or *Corynebacterium granulosum*, had led neither to the cure produced by the Priore Ray, nor to any prolongation of the infected animals' lives, nor even to the slightest modification in the evolution of the Trypanosomiasis.

These three scientific papers did little for the cancerologists who read them except to exacerbate their urge to oppose the Priore research, if not to arouse their outright hatred for the principal experimenter, Raymond Pautrizel. Could this have been because, for over 20 years, the same cancerologists had been working in vain to provoke in cancerous organisms immuno-stimulative reactions by intensively and successively vaccinating them with B.C.G.? Many others had been life-long apostles of chemotherapeutic cocktails of all sorts, or life-destroying ionizing radiations, or, what more recently has become the fashion, of applying the two methods in endless combination.

For this reason, they saw Priore and Pautrizel as nothing more than spoil-sports who had to be destroyed.

One of the opening shots in this campaign was a letter received by Pautrizel to inform him that his request for funds to continue his research through Unit-89, a unit that had been specially set up for him to direct, had been denied. It took many months of investigation for Pautrizel to learn that the real reason for the refusal was because of his work with Priore.

Next Pautrizel was informed that his appointment as director of the same research unit would be extended for only two years, whereas the normal extension for similar units was five years. A third insult came when Pautrizel tried to win a post within his unit for a high-ranking military physician, who had been his student and who had decided to quit the military in order to participate in the fascinating research prosecuted by his mentor. Pautrizel's request for funds to pay this physician, who all his life had been working on tropical medicine closely associated with problems of trypanosomiasis, were refused four times in a row with no cogent reason given. The physician, who in the meantime had volunteered his time without pay, finally became so emotionally overwrought that he gave up his

medical career and retired to the countryside where he gave himself over to alcohol. Then Pautrizel tried to get a salaried post for another of his brilliant collaborators (who still works with him). He was told that this man could take up his new functions only if he left Bordeaux. One could go on with many other shocking stories but we will leave it to Graille to conclude: "Everything possible was done to isolate Pautrizel, to separate him from his collaborators. Every single one of these collaborators saw their careers put in jeopardy, compromised, or broken."

As a final insult, when the time came again to renew Pautrizel as director of Unit 89, those responsible, not daring to overstep what even they knew to be decent limits by not extending him, simply abolished the unit. And to add injury to that insult, a doctoral thesis that had now been prepared by Priore, and backed not only by Pautrizel but by Nobel Laureate Andre Lwoff himself, was summarily refused by the President of the University of Bordeaux.

It is perhaps unnecessary to state that the details behind all of this skulduggery could, and did, fill up two chapters of a book and make for the most heart-rending reading imaginable.

So what happened next? In the autumn of 1977, Professor Georges Dubourg, one of the leading lights in Bordeaux's company of surgeons and a friend and admirer of Pautrizel's, came to him to say openly and baldly: "My friend, at the point you've reached, there is only one more way to jolt medical opinion and that is to treat human cancer patients." Pautrizel was hesitant, believing his role to be one of continuing with his animal experiments but where would the funds for that come from now? He therefore asked his old mentor, Robert Courier's advice. Courier gave the green light. The treatments were restricted to terminal cancer patients whose immune defense systems had been disastrously weakened by chemotherapy or radiation or both. At least one of them was totally cured. The other lived, without pain, for a period many times longer than predicted by prognosis. Dubourg, Pautrizel and their collaborators wrote up the results and sent them as an official communication to the French Academy of Medicine for publication.

The reply they received from that Academy's perpetual secretary reads: "Experts whom we consulted consider that your work does not fall within the jurisdiction of our members and that it would doubtless find an audience more worthy of its purpose in a more specialized society."

To which Pautrizel formally replied: "Since two of the four signatories of our note are corresponding members of your Academy, could we not benefit from the remarks and comments made by the committee which saw fit to refuse our paper? And even, if this is not

too indiscreet a request, to learn the names of the expert members who were consulted which would allow us to get into contact with them directly and to benefit from their singular competence?"

His letter has remained unanswered for four years.

There was nothing more to do except one thing which Raymond Pautrizel, as a man of science, had always been careful to avoid: Get a responsible journalist interested in the case, inform him of all possible details, and let him carry the Priore Affair in all its harrowingly loathsome aspects to the broad reading public. That journalist was Jean-Michel Graille.

For four years, Graille went about his task, publishing three consecutive long articles in his newspaper **Sud-Ouest France** and finally the book to which we have referred and of which this presentation is largely a resume. As early as 1980, Graille would write in his newspaper: "The Priore Affair is simple in essence. It can be reduced to a simple alternative: either the machine developed by Antoine Priore is of no interest and, having shown this, the affair can be considered at an end. Or else the machine is of real and demonstrable medical interest and, if that is officially recognized, he would be allowed to get on with the work. For this dilemma runs the risk, yet again, of being buried under delays and evasions. Beyond all the powers-that-be that have been directly connected to the affair for many years now — the power of finance, the power of medicine, the power of science — perhaps it is now political power with which responsibility lies if it can rise to meet and assume that responsibility through decision."

That was Graille's statement in 1980. His book which came out four years later ends with the sentence: "The Dossier Priore thus depends, from here on out, on a decision that must be taken on the very highest level, and imperatively. This responsibility devolves, in last resort, on the chief of state and on him alone. Will he assume it?"

Would the President of the United States?

Note added by T.E.B.: Antoine Priore is now dead. His machine has been dismantled. The iron dogma and hatred of electromagnetic medicine by bureaucratic science may have doomed hundreds of millions of humans - - whom Priore's device could have saved - - to bitter, agonizing, and unnecessary deaths. Hitler, Stalin, and Mao combined were not responsible for the deaths of so many.

APPENDIX II

PATENTS

**English Translation of the French Patent No. 1,342,772
of Antoine Priore, 7 Oct. 1963.**

**Procedure and Assemblage for Production of Radiation
Especially Serviceable for the Treatment of living cells.**

Brevet d'Invention. P.V. no. 899.414 no. 1.342.772 Classification
Internationale: A61 k-H 05 g

**Procedure and assemblage for production of radiation
especially serviceable for the treatment of living cells.**

Antoine Priore

Requested 1 June 1962, 14.52 hours, Paris

Released by decree (arrete) of 7 Oct 1963

The invention deals in a general manner with radiation capable of penetrating matter. More exactly, it aims at a procedure and an apparatus making it possible to obtain a combination of radiations of different types able to penetrate matter and especially to penetrate intimately living organic tissues in order to produce in them certain effects, particularly in human tissues with a view to a therapeutic effect without destroying essential elements such as the enzymes.

In conformity with the present invention, one emits in a cavity a stream (rayonnement) of electrically charged particles upon which one superposes electromagnetic radiation of the centimeter wavelength range, the wavelength of which is preferably between 3 cm and 80 cm, and one directs the resulting radiation emerging from the cavity on to the object to be irradiated.

This applicant has shown that the penetration and, in particular, the curative effects are very distinctly improved when one gives **the** electromagnetic radiation a frequency determined as a function **of** the organ or the tissue to be penetrated or to be treated. For example, a wavelength of 14 cm is suitable for the liver and a wavelength of 19.5 cm for the spleen.

Preferably, the stream of charged particles is accelerated in a particle accelerator in such a way **as** to increase the force of penetration.

The resulting radiation is advantageously applied and directed upon the target, that is to say, upon the tissue to be penetrated, by the intermediary of a tube which is the site of electric fields and of magnetic fields for acceleration and control, the said radiation being preferably guided and/or reflected by a rotary deflector placed in the tube.

It is often advantageous to modulate or impose rhythm on this stream of particles by means of variable magnetic and/or electric fields so as to augment still more the force of penetration. This rhythm is preferably consistent, especially in medical applications, with the intrinsic period of the tissue to be penetrated or of the neighboring tissues, for example, muscle. These intrinsic periods are well-known in medicine and are applied, particularly, for diathermy: they are situated in the wavelength range from 1 m to 50 m and more especially from 1 m to 18 m.

Preferably, one arranges to modulate the emission of radiation, the accelerating magnetic and electric fields, and perhaps also the rotary deflector, to the cardiac rhythm of the subject.

It seems that the result obtained by the invention in the treatment of maladies of living cells (vegetable or animal) are due to certain phenomena which will be described, it being understood that this exposition will not circumscribe the invention.

As a function of its electro-physico-chemical constitution, the cellular pair nucleus-protoplasm is endowed with electric conductivity in direct relationship with ion exchange processes provoked by metabolic phenomena. One finds in tissues the presence of an accumulation of electricity at different potentials according to the different cellular densities of the tissues.

The work of Renshaw, Forbes, Morison, Amassian, de Vito, Ruset, Albe-Fessard, Tauc, Adrian, etc. has shown with the aid of micro-electrodes the existence of slowly oscillating elementary electric activity in the interior of cells; it can be thought that the *rythmeur* (or pace-maker) is achieved by the oscillatory electro-magnetic system comprising the cell nucleus. This nucleus, in effect, is made up essentially of tubular filaments of insulating material (related to chitin) containing in its interior an electrically conducting saline liquid, and these filaments, coiled upon themselves, can be considered to constitute real little oscillatory circuits.

The recent work of Warson (sic) in America, as well as that of French scientists, including a communication from Polonsky, Donzon and Sadron presented to the **Academie des Sciences** by Prof. Francis Perrin on 16 May 1960 (**Rec. comptes rend, heb.**, 250 No. 20, 3414-3416) making it clear that experimental samples of **solid** DNA manifest properties analogous to those known in ferroelectric

materials, makes plausible the hypothesis that a potential difference may exist between nucleus and periphery of cells. Certain recent theories go even further and liken the cell to an electronic receiver-emitter device normally functioning in harmony with the ambient media. The oscillatory system of demand waves, constituted by the cell nucleus, would behave in accordance with the laws governing semi-conducting materials.

The applicant is led to the conviction that in a normal state of physico-electric equilibrium, the cell nucleus is positively charged, but can acquire a negative surcharge following phenomena analogous to polarization.

The invention, especially, enables organs afflicted by this inversion of their electric potential, particularly in the case of the pathologic negative surcharge of cancerous nuclei, to recover their former equilibrium.

The following description in regard to the attached drawing, given as a non-restricting example, will make it possible to understand how the invention can be realized, the details which emerge both from the text and the drawing being, of course, part of the said invention:

Fig. 1 is a schematic section showing an apparatus for production and emission of an electromagnetic field combined according to the invention.

Fig. 2 is a frontal elevation of the cathode, taken from the right of Fig. 1.

Fig. 3 is a section through III- III in Fig. 1.

Fig. 4 is the overall scheme of the electric supply.

Fig. 5 is a view analogous to Fig. 1 showing another mode of implementation.

Fig. 6 is a section through VI-VI in Fig. 5.

Fig. 7 represents schematically an apparatus for pulsing the electric current.

Fig. 8 is the circuit of an amplifier permitting activation of the apparatus of Fig. 7 at the cardiac frequency.

Fig. 9 is the circuit of an oscillator permitting modulation of the

electric current according to a wavelength between 1 m and 18 m.

The assemblage of Fig. 1 contains an apparatus 1 emitting electrically charged particles 2 in a cavity or passage 3, a cyclotron 4 accelerating the particles 2 and sending them into a cavity 5 forming a tube into which merges another cavity 6 acting as waveguide for electromagnetic radiation of frequency in the centimeter range emitted by a magnetron 7. The cavity 8 formed by the joining of tube 5 and waveguide 6 leads into a tube 9 in which the resulting radiation is accelerated and aligned. The interior of the cavity-formed by the assemblage of elements 1, 3, 5, 6, 8, and 9 contains argon at a pressure of 2 mm mercury.

The particle emitter 1 consists of an electron gun comprising a plate 10 and a cathode 11.

The cathode 11 is of molybdenum and has the very special form represented in Figs. 1 and 2. It consists of a rim 11a connected by two aligned spokes 11b to a hub 11c pierced by a hole 11d with its axis along XX'. The rim 11a is in two parts (as one sees in Fig. 1) which may be held together by screws (for example) forming a cavity of revolution 11e traversed by a number of holes 11f parallel to the axis XX' and regularly spaced. The filament for heating, 12, situated in the interior of the cavity 11e and is connected to the power supply conductors 12a.

The best results are obtained with a cathode 11 of molybdenum. The applicant has obtained satisfactory, but slightly inferior, results with tungsten cathodes. It turns out that molybdenum, and to a lesser degree tungsten, are the metals whose valency is closest to the mean valency of the chemical molecules constituting living tissues and more particularly those of human beings. One might well seek to use this fact to explain scientifically the phenomena involved, but it is understood that *the invention is not limited by any scientific explanation*. Concerning, on the other hand, the gas present in the apparatus at low pressure, the best results have been obtained with argon; the applicant has also obtained satisfactory, but slightly inferior, results with other gases of the rare gas series.

Surrounding the tube which constitutes the electromagnetic chamber are arranged: an electromagnet 13 with its winding 13a, placed at the level of the accelerating coils 14 and 15. Other accelerating coils 14, 15 and 16 are similarly dispersed around the cavities 3, 5 and 8.

The two semi-circular boxes or "dees" 4a of the cyclotron 4 are placed in the usual manner between the poles of the frame around which are wound the accelerating coils 4b and 4c.

The magnetron 7 is of a familiar type and must be capable of

emitting in the cavity 3 a centimeter wave of adjustable wavelength from 3 cm to 80 cm.

The lower portion of the tube 9, for acceleration and alignment, contains a cathode 17 resembling the cathode 11, with a filament 17a. This cathode 17 is supported by a hollow pillar 18 pierced by holes 18a close to its junction with the bottom of tube 9. This pillar 18 communicates with a tube 18b emerging on the axis of a rotary deflector 19 carrying at each end a "crown" of graphite plates 19a inclined at 45° to the vertical. The rotating axis 19b of the rotary deflector is mounted in a support 20 fixed to the interior of tube 19 and carries at its upper extremity magnetic bobs 19c which ensure that it will be set in motion in cooperation with the magnetic bobs 21a mounted on the shaft 21b of a motor 21. The lower extremity of the rotary deflector 19 is composed of a piece of molybdenum or of tungsten 19d in the form of a pyramid whose apex is opposite the open end of the tube 9.

The hollow base 18 and the tube 18b can be of a borosilicate glass of low coefficient of expansion such as that sold under the trademark "Pyrex." They may also be of quartz. Tube 9 itself can be of "Pyrex" as above or of another glass of the quality currently used for the manufacture of electronic tubes, but its bottom 9a, which is traversed by the radiation, is advantageously made of quartz.

The duct 8 joins the tube 9 by way of several tubulures such as 8a and 8b directed in vertical planes towards the plates 19a at a certain angle, which is advantageously about 22.5° . An electromagnet 23 analogous to the electromagnet 13 of the emitter tube 1 is placed around the cathode 7. Similarly, accelerator windings 24 are disposed around the tube 9. This tube also carries, at positions indicated in the drawing, three electrodes 25, 25a, and 25b surrounded by windings 26, 26a, and 26b, respectively. The drawing shows the supply lines, 17b, 17c of the cathode and its filament and that of the plate, 22a.

The basic plan of the electric supply is represented in Fig. 4. The part 27 feeds an initial branch with low voltage alternating current: this consists of a rectifier 28 (e.g., a Kenotron) whose rectified current is modulated at a frequency variable between 30 and 120 pulses per minute by means of a resistance 29, the control apparatus for which will be described with reference to Figs. 7 and 8. The current so modulated is passed through the electromagnets 13 and 23 in such a manner as to generate, normal to the cathodes 11 and 17, a modulated field of 10,000 to 20,000 gauss.

The part 27 also feeds a variometer (interrupter) 30 which modulates the current of this part at a variable frequency 30 to 120 pulses per minute, the current pulsed in this way serving to feed the

remainder of the installation, to wit: The magnetron 7; a converter 31 whose excitation is modulated at a variable frequency 300 to 900 Hz, yielding a doubly modulated current (first at 30-120 pulses per minute, then at 300-900 Hz) which feeds the coils 15, 16 and 26; another converter 32 producing a low voltage direct current modulated at 30-120 pulses per minute by the variometer 30. This current feeds the motor 21 as well as the motors driving the variometer 30 and the apparatus controlling the resistance 29.

The current produced by the converter 32 also feeds a voltage step-up apparatus 33 consisting of a vibrator followed by a transformer and a rectifier, and producing a direct current varied at 30 to 120 pulses per minute imposed by the variometer 30. The maximum value of the voltage produced by the apparatus 33 is, for instance, 300,000 V, but this value may vary up or down, depending on the power one wishes to operate with.

The current produced by the voltage step-up apparatus 33 feeds the coils 4b of the cyclotron and 24 of tube 9, as well as a rheostat 34 permitting regulation of voltage to the desired value between 5000 V and 70,000 V. This voltage is applied to an oscillatory circuit 35 which produces oscillations at a frequency variable at will of wavelength between 1 m and 18 m. The current available to the output terminals 35a, 35b of this oscillating circuit 35 is thus a high tension current modulated first at 30 to 120 pulses per minute (by the variometer 30) and secondly at a wavelength 1-18 m. This current feeds the coils 4c and 14; the electrodes, 25a and 25b are connected to terminals 35a and 35b, respectively, and electrode 25 is connected to the mid-point 35c.

Cathodes 11 and 17, the "dees" of the cyclotron, and the plates 10 and 22, not shown in the diagram of Fig. 4, are connected to the output of the step-up assembly 33, while the heating current for the filaments 11e and 17a is furnished by the resistance 29.

To operate the apparatus, one adjusts the controls of the resistance 29 and the variometer to the desired rhythm; in medical applications, this is advantageously the subject's cardiac rhythm: This rhythm is thus imposed upon the whole installation. The cathode 13 emits toward the left a stream of positively charged particles 2, which are concentrated by the electromagnet 13 and accelerated by the coils 14, 15 and 16 and by the cyclotron 4. Superimposed on this particle stream in the duct 8 is the electromagnetic radiation from the magnetron 7, which is adjusted to the wavelength found by experience to be most appropriate to the cells which are to be penetrated, e.g., 14 cm for the liver and 19.5 cm for the spleen. The resulting radiation is deflected, directed and accelerated

in tube 9 and is directed by way of the base of this tube toward the target to be penetrated.

It must be noticed that the magnetic field of the coils 15, 16 and 26 is modulated, by means of the converter assembly 31, at a frequency adjustable *between 300 and 900 Hz*. This modulation has the effect of concentrating the particles, that is to say to detach them from the walls of the tubes, and it also permits an appreciable saving in weight of the iron cores of the coils. One chooses the highest frequencies (i.e., around 900 Hz) when one wishes to produce hard radiation at the exit of tube 9, and the lower frequencies for soft radiation.

The unidirectional magnetic fields of the coils 4c of the magnetron (sic) (cyclotron?) and the accelerator coils 14 as well as the electric field of electrodes 25, 25a, 25b, are modulated by the oscillatory circuit 35 at a chosen wavelength between 1 m and 18 m. In medical applications notably one selects the wavelength that best suits the organ to be treated or its surroundings, such as muscle. As already indicated, experience with diathermy makes it possible to determine the most suitable wavelength.

It must be noted that the resulting radiation already possesses, in tube 8 (Fig. 1) a considerable penetrating force. One could therefore use the assemblage described by omitting tube 9 and terminating the cavity at the end of tube 8 by means of a glass or quartz base, the resulting radiation being accelerated and directed, for example, immediately upstream from the base, by a final coil (not shown) surrounding tube 8. However, tube 9 appreciably improves the results.

Figs. 5 and 6 represent another mode of realizing the assemblage in accordance with the invention, in which the elements playing the same role are indicated by the same signs as in Figs. 1 and 3, modified by primes.

The arrangement of the connecting ducts of Fig. 5 in relation to tubes 1' and 9', to the magnetron 7' and the cyclotron 4', is different from that of Fig. 1 and has been used successfully by the applicant. The waveguide 6' of the magnetron 7' opens into the end of tube 1' and the duct 3', carrying the resulting radiation, divides into two branches: Branch 36, which conducts the radiation directly to tube 9', and branch 37 which conducts it to the cyclotron 4'. This blocks the electromagnetic radiation and accelerates the stream of particles which is passed by way of duct 38 to the tube 9'.

This arrangement can be used with a particle emitter and an accelerator and director tube similar to tubes 1 and 9 of the preceding figures. However, tubes 1' and 9' of Figs. 5 and 6 are constructed in a different manner with regard to their cathodes and anodes.

Tube 1' contains a first electrode 11' exactly like that of the cathode 11 of tube 1, and an identical second electrode 39 furnished with a filament 39a. Tube 9' (Fig. 6) contains in its lower part a first electrode 17' with filament 17'a and an identical second electrode 40 with its filament 40a.

In normal operation, i.e., to produce radiation identical to that described in connection with Figs. 1 to 4, electrode 11' serves as cathode and electrode 39, given a positive potential, plays the role of the plate 10 in Fig. 1, the filament 39a being unheated. Electrode 40 and its filament 40a are disconnected; cathode 17' and plate 22' are supplied as in Fig. 3.

To obtain particularly penetrating radiation, the polarities are reversed: Electrode 11' becomes an anode and its filament 11'e is disconnected, while electrode 39 receives the cathode supply and its filament 39a is heated; electrode 17' (with filament 17'a disconnected) and electrode 22' become anodes, while electrode 40 serves as cathode and its filament 40a is heated. For example, one can establish a potential difference of 250,000 V between 40 and 17', and 50,000 V between 40 and 22'. It is understood that in these conditions the cathode 39 emits to the left a stream of electrons which is concentrated, modulated and accelerated by the various coils and in the cyclotron, the polarities of which must of course be established in the proper direction. This stream of electrons is combined with the centimeter radiation emitted by the magnetron 7', resulting in tube 9' in the emission of very hard x-rays, modulated at the chosen frequencies, combined with the centimeter radiation of the desired frequency.

The assembly shown in Figs. 5 and 6 thus permits one to obtain at will either very hard x-rays or the radiation described in connection with the preceding diagrams.

The following description, referring to Figs. 7 and 9, relates to certain details of the apparatus used for modulating the electric current.

Fig. 7 represents schematically the apparatus for control of the resistance 29 and the variometer 30. The variable resistance 29 consists of a graphite helix 29a immersed in a conducting liquid **29b**; another electrode 29c, also of graphite, partly immersed in the liquid, is set into up-and-down oscillations by a connecting rod 41a linked to a fly-wheel 41. The fly-wheel is set in rotation, through the intermediary of a worm transmission 41b, by an axle 42 which can be driven, thanks to a double clutch 42a, 42b, either by a motor 43, or by the shaft 30a of the variometer 30. The variometer 30 is driven by a motor 44 by way of the worm transmission 44a.

If the fly-wheel 41 is driven by the motor 43 at the proper speed,

the resistance 29 causes the supply current of the electromagnets 13 and 23 (Figs. 1 and 4) to vary at the chosen rhythm which as we have seen can be between 30 and 120 pulsations per minute and which can be checked by means of a rotation counter shown schematically in 45. In this case, the motor 44 of the variometer 30 can be stopped and the remainder of the installation is then not pulsed. If, on the contrary, the fly-wheel 41 is engaged in 42b and disconnected from 42a, the motor 44 activates the variometer 30 and the resistance 29 at the chosen rhythm.

The speed of rotation of motors 43 or 44 can be regulated at the required speed, corresponding visibly to the cardiac rhythm of the subject, by acting upon the excitation of these motors by means of a manually adjustable rheostat. If one prefers to regulate the speed of motors 43 or 44 in direct accord with the cardiac rhythm of the subject, one can use an assembly such as that represented schematically in Fig. 8: At 46 there is a contact microphone which, when placed over the subject's heart, produces impulses. These are amplified in the circuit shown and applied to an electromagnet at 47 with a moving core which activates a rheostat; this in turn regulates the current running the motors 43 or 44.

Fig. 9 shows schematically the principle of the oscillating circuit 35. The rectified potential, adjustable between 5000 V and 70,000 V by means of rheostat 34 (Fig. 4) is applied between the terminals 48 and 48a. Terminal 35c (which is also connected to electrode 25, Figs. 2 and 4) is connected to the neutral point on the high tension side of **the** transformer which is a component of the step-up assembly 33 (Fig. 4). The terminals 49 and 49a receive the heating current produced by the resistance 29. The variable condensers 50 and 50a make it possible to regulate to the desired wavelength (which, as seen, is between 1 m and 18 m) the current available at the output terminals 25a and 25b of the oscillator shown.

The modes of implementation described have been successfully carried out but it is self-evident that these are only examples, and that they might be modified, notably by substitution of equivalent techniques, without going beyond the bounds of the invention. In particular, the electron gun 1 or 1' could be replaced by another charged particle generator.

Resume

The invention includes especially:

A procedure for obtaining a combination of radiations of different kinds capable of penetrating matter, especially of

intimately penetrating living tissues in order to produce in them certain effects and more particularly in human tissues with a therapeutic effect in mind, consisting of the emission in a cavity of a stream of electrically charged particles, upon which is imposed electromagnetic radiation in the centimeter wavelength range, and the guiding of the resulting radiation emerging from the cavity toward the target to be penetrated.

2. Types of implementation exhibiting the following features taken separately or in the various possible combinations:
 - a. The centimeter radiation has a wavelength between 3 cm and 80 cm;
 - b. This wavelength is set at the value found by experience to be most suitable for the tissues to be penetrated, e.g., 14 cm for liver and 19.5 cm for spleen;
 - c. The particle stream is accelerated by magnetic and electric fields such as those which are used in particle accelerators;
 - d. The resulting radiation is accelerated and guided, before its emergence from the cavity, by means of electric and magnetic fields;
 - e. The resulting radiation is guided, before its emergence from the cavity, by means of deflecting and/or reflecting surfaces;
 - f. The stream of particles and/or the resulting radiation are concentrated and accelerated by means of individual magnetic fields modulated at a frequency between 300 and 900 Hz, the highest frequencies being used to produce hard rays and the lower frequencies to produce soft rays;
 - g. The emission of the particle stream, as well as the acceleration and concentration of the radiation resulting at its exit from the cavity, are aided by individual magnetic fields of temporally variable intensity, advantageously pulsed at a rhythm between 30 and 120 pulsations per minute and preferably at the cardiac rhythm of the subject;

- h. The assemblages for production of the resultant radiation are pulsed in their entirety at the same rhythm as the magnetic fields according to g;
 - i. The stream of particles and/or the resulting radiation are accelerated and concentrated by direct magnetic and/or electric fields modulated at a wavelength between 1 m and 50 m and preferably between 1 m and 18 m, this wavelength being advantageously chosen as that which is known in diathermy as suitable for the tissues to be penetrated or for the surrounding tissues.
3. An assemblage making it possible to obtain a combination of a stream of electrically charged particles and a beam of centimeter electromagnetic waves in order to penetrate intimately and to irradiate living tissues and particularly human tissues, the said assemblage comprising at least a particle emitter, means for channeling said particles in a cavity serving as waveguide for an emitter of electromagnetic radiation of which the wavelength is included in the range of centimeter waves and preferably adjustable from 3 cm to 80 cm, means for generating in the cavity magnetic field for acceleration and concentration and means for concentrating and accelerating the resulting radiation at the exit of the cavity.
4. Modes of implementation with the following details taken separately or in the various possible combinations:
- a. The particle emitter is an electron gun of which the anode is at the end of the cavity and the cathode is situated further along, this cathode being hollow and placed in the magnetic field of an electromagnetic in order to ensure emission of a stream of particles towards the mouth of the cavity;
 - b. The cathode consists of a rim connected by two aligned spokes to a hub, the said rim being provided internally with an annular housing containing a heated filament and the said housing communicating with a number of holes arranged annularly and traversing the rim transversely;
 - c. The cathode is made of a metal of valency close to the

mean valency of the chemical molecules comprising the tissue to be penetrated;

- d. The cathode is of tungsten or preferably of molybdenum;
- e. The cavity contains a rare gas, preferably argon, under a vacuum of the order of 2 mm Hg;
- f. The cavity contains a duct carrying at least part of the stream of particles to a cyclotron and a duct bringing back into the cavity the particles accelerated in the cyclotron;
- g. The cavity passes through several coils, the supply current for the various coils being capable of undergoing modulation at different frequencies;
- h. The downstream end of the cavity is composed of a tube containing, in the part from which the resulting radiation must emerge, a cathode and an electromagnet which may be identical to the cathode and the electromagnetic according to para. a, an anode near the other end, and a rotary deflector consisting of a number of plates arranged *en couronne* on a rotor facing the incident radiation at such an angle that the radiation deflected and/or reflected is directed toward the cathode, several coils whose supply current can be modulated being distributed over the length of the tube;
- i. This tube also contains electrodes supplied by alternating current generating an electric field at the level of the rotary deflector, each of the said electrodes being surrounded by a bobbin of which the supply current can be modulated;
- j. Methods are anticipated for modulating, at an adjustable rhythm between 30 and 120 cycles per minute, the supply current of the electromagnetic according to a and h, and preferably to modulate the supply current of the rest of the assemblage at the same rhythm;
- k. Methods are anticipated for modulating, at a frequency between 300 and 900 Hz, the supply current of the bobbins surrounding according to i and one or several

coils according to g;

1. Methods are anticipated for modulating, at an adjustable wavelength between 1 m and 50 m and preferably between 1 m and 18 m, the supply current of the electrodes according to i, of one or several of the coils generating the magnetic field of the cyclotron;
- m. The electrodes of the electron gun consist of two electrodes identical to the cathode according to a, b, c, or d, the cathode of the tube according to h is replaced by a double electrode reproducing the arrangement of the electrodes of the electron gun, and methods are anticipated for reversing at will and simultaneously the polarities of these two pairs of electrodes and the direction of flow of the current supplying the acceleratory coils, a first pattern of polarities assuring the functioning of the apparatus in the conditions which are laid down according to a, and a second pattern of polarities assuring emission in the cavity of a stream of electrons combined with the centimeter radiation and giving rise, at the exit of the said tube, to emission of very hard x-rays.

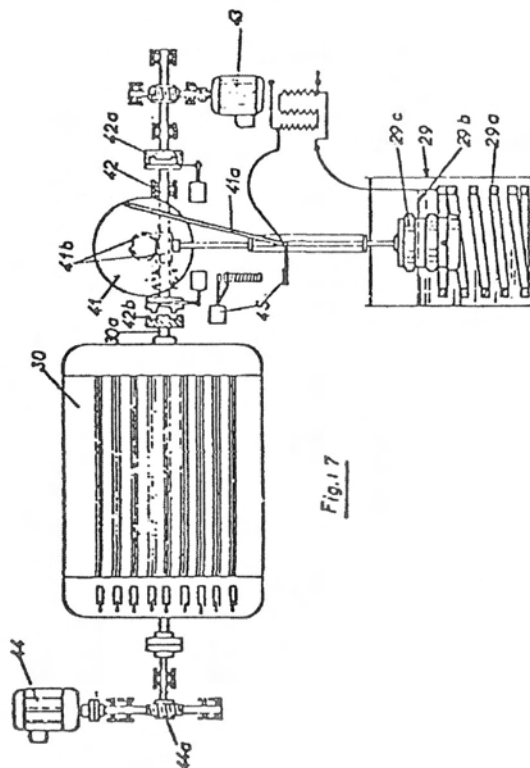


Fig. 17

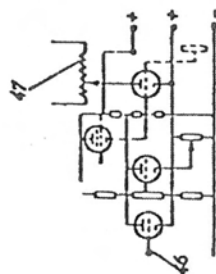


Fig. 18

Fig. 13

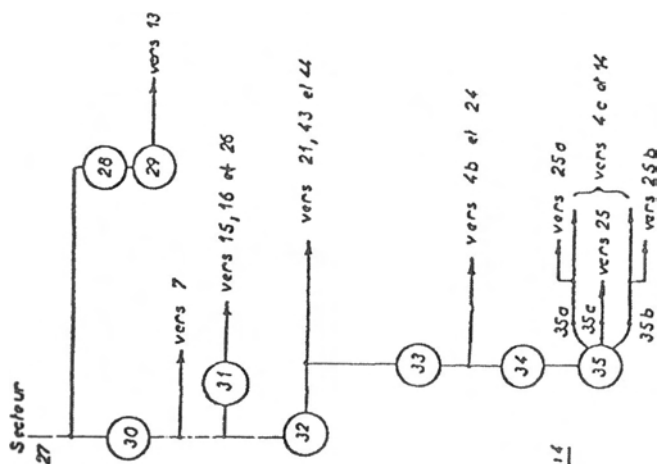
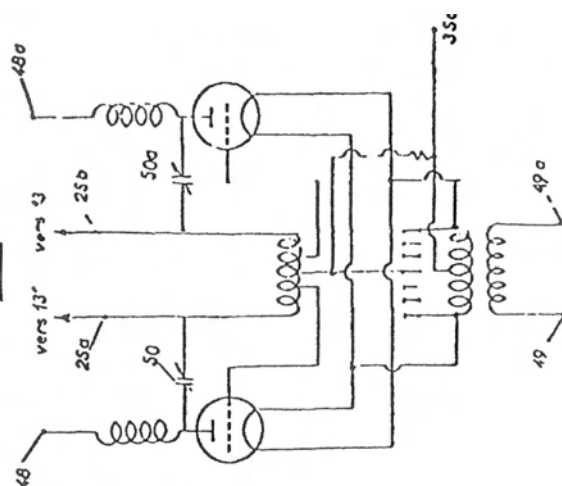


Fig. 14

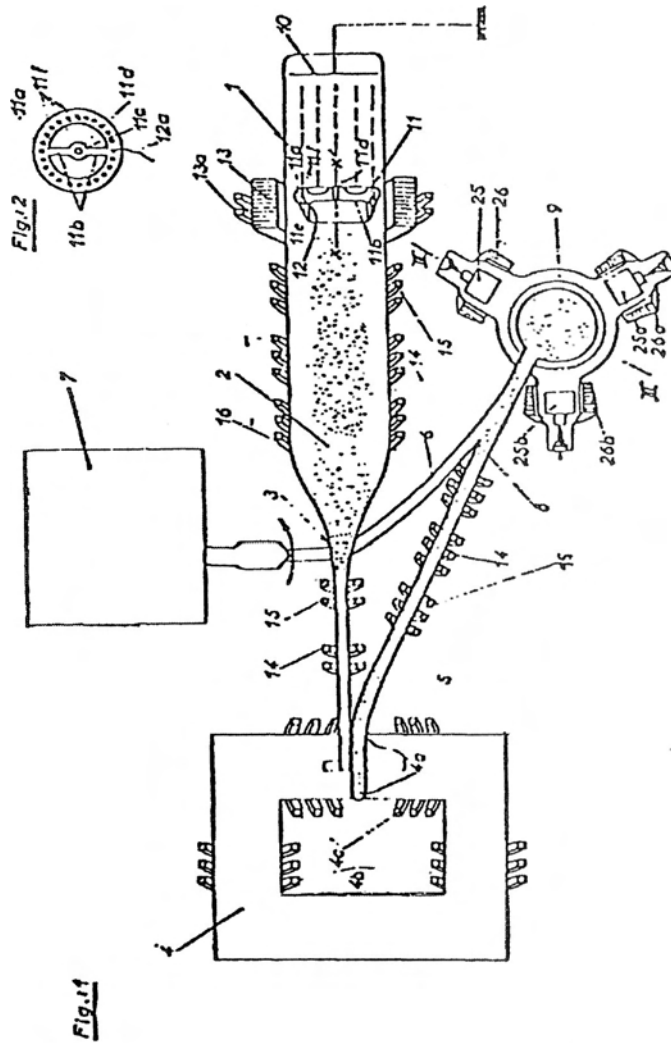


Fig. 3

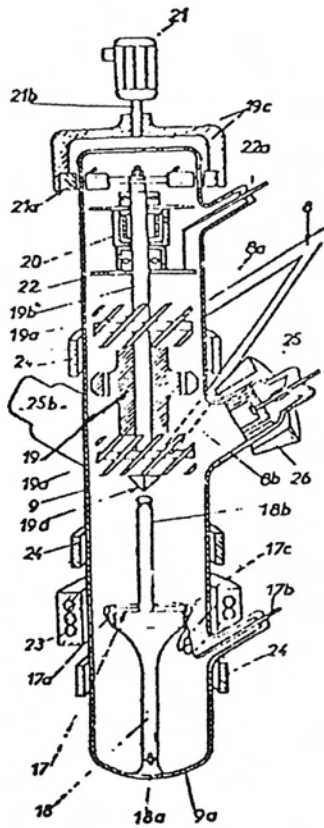
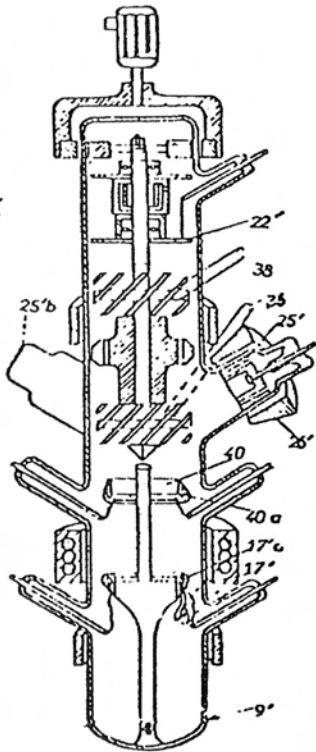


Fig. 6



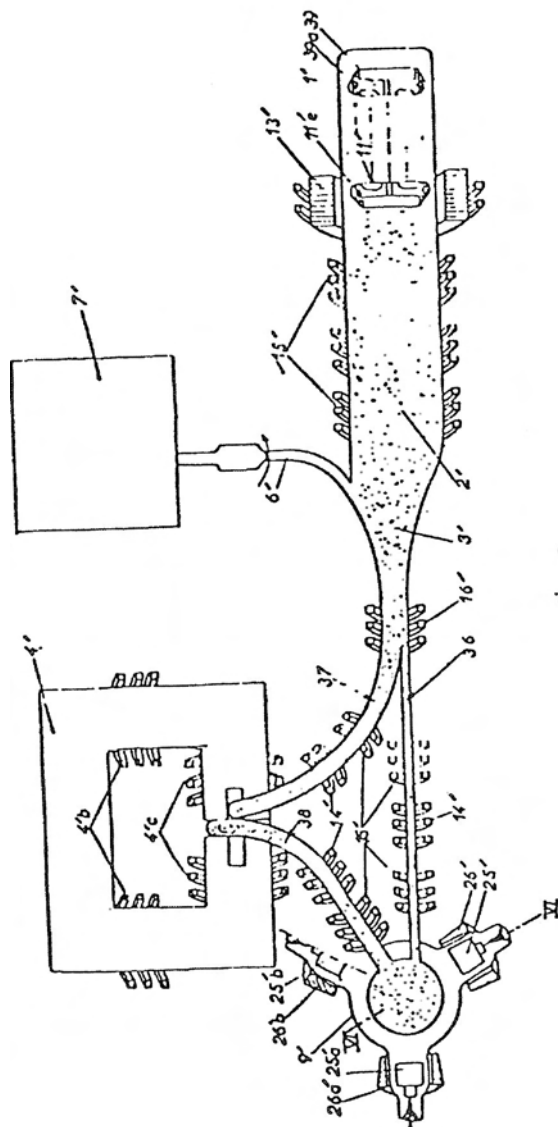


Fig. 5

Patents

*Two Patents of
G. Lakhousky*

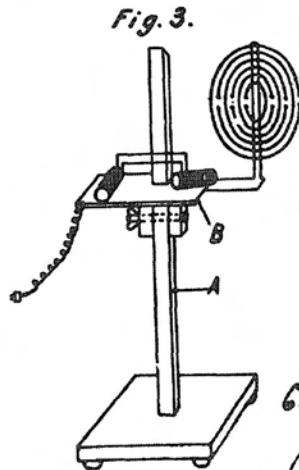
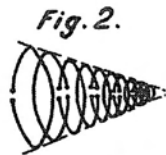
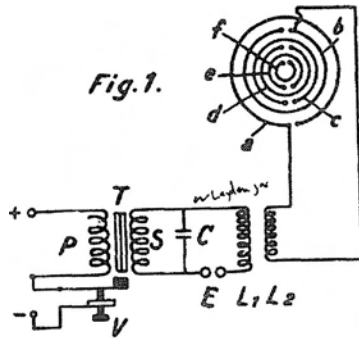
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1,962,565

APPARATUS WITH CIRCUITS OSCILLATING UNDER MULTIPLE WAVE LENGTHS

Filed Nov. 13, 1931



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UNITED STATES PATENT OFFICE

1,962,565

APPARATUS WITH CIRCUITS OSCILLATING
UNDER MULTIPLE WAVE LENGTHS

Georges Lakhovsky, Paris, France

Application November 18, 1931, Serial No. 574,597
In France May 3, 1931

7 Claims. (Cl. 258-33)

The present invention has for its object an apparatus capable of sending out simultaneously different wave lengths so that among these waves or their harmonics there is found almost always one or several capable of producing the best effect sought for any application whatever.

There is used for that purpose the property of open circuits having a fundamental or natural self induction and capacity to oscillate upon a well determined wave length if they are excited by electric impulses emanating from discharges of any source.

The radiating part of the system, producing waves of various lengths, is therefore constituted by a certain number of concentric open rings of different diameters, which are maintained insulated by any appropriate process. These rings may or may not be terminated by small spheres forming capacities.

These rings may be arranged either in the same plane or in different planes so as to form any surfaces, such as portions of cones, spheres, paraboloids, ellipsoids, etc. . . . these surfaces being of a nature to concentrate the waves in a determined direction in the manner of a reflector, for example.

These rings may be fed by any producing device whatever of high frequency, for example, a combination comprising a trembler coil (or any other transformer) and a high frequency circuit provided with a self-induction coil and a capacity.

One or several points of this high frequency circuit is or are connected to the end of one or several of the rings forming the radiating apparatus. The other rings not connected are excited by induction.

The complete apparatus (coil, high frequency circuits, rings, etc. . . .), may be mounted in a box or upon a small board capable of sliding along a guide or rocking so as to be able to be placed in the most convenient position.

In the accompanying drawing, by way of example, not limitative, there is shown:

Fig. 1 a diagram of the system.

Fig. 2 the position of the rings in the form of a cone.

Fig. 3 the apparatus mounted upon a foot or base.

In Fig. 1 there is seen at T the transformer or coil (P the primary, S the secondary of this coil), V, the screw of the trembler, C the condenser the discharge of which across the spark gap H produces oscillations in the self-induction coil L', which in its turn acts by induction upon

the self-induction coil L'; this self-induction coil L' is connected on one side to the first exterior ring a, on the other side to the following ring b. It thus forms an electrostatic field of high frequency which induces oscillations in the other rings c, d, e, f.

As a modification, L' may be suppressed and the rings a and b may be connected each to one of the ends of L'.

One of the ends, or even any point of the self-induction coils L' or L' may likewise be connected to any one of the rings.

Fig. 2 shows the arrangement of the rings in the form of a cone.

The open circuits a, b, c, . . . f can be constituted by solid conductor. They can also be tubular circuits, this being advantageous, since, for the same bulk, the radiating surface is larger. Finally, the area of the cross section of each of these various circuits can vary from one circuit to the other; for instance, this area can decrease from the periphery (ring a) to the center (ring f) of the radiating system.

Fig. 3 shows the apparatus mounted upon a foot A along which it can slide, in order to be placed at any desired height and upon a hinge B which allows it to be oriented upon the horizon.

I claim:—

1. An apparatus adapted to produce electric fields of high frequency having multiple wave lengths, comprising a high frequency producing device, a series of high frequency radiating circuits constituted by concentric insulated split rings of different diameters, the split ends being spaced from each other and terminating with small spheres.

2. An apparatus adapted to produce electric fields of high frequency having multiple wave lengths, comprising a high frequency producing device, a series of high frequency radiating circuits constituted by concentric insulated split rings of different diameters and arranged in one and the same plane the split ends being spaced from each other and terminating with small spheres, in staggered position as regards adjacent rings.

3. An apparatus of the type described comprising a base, a plate slidably mounted on said

base, a support pivoted to the said plate, a series of open and insulated, high frequency radiating circuits mounted on the pivoted support, and a high frequency producing device for the excitation of the said circuits.

5 3. An apparatus adapted to produce electric fields of high frequency having multiple wave lengths, comprising a high frequency producing device, a series of high frequency radiating circuits, said circuits being open, insulated, and having dimensions different from each other.

10 4. An apparatus adapted to produce electric fields of high frequency having multiple wave lengths, comprising a high frequency producing device, a series of high frequency radiating cir-

cuits arranged in the same plane, said circuits being open, insulated, and having dimensions different from each other.

7. An apparatus of the type described comprising a transformer, a high frequency energizing circuit fed by the said transformer and provided with a self-induction coil and a capacity, a series of open and insulated high-frequency radiating circuits having dimensions different from each other, an inductive connection between two of these radiating circuits and respectively each of the poles of the outgoing element of the high frequency energizing circuit.

GEORGES LAKHOVSKY. 90

UNITED STATES PATENT OFFICE

2,351,055

TUBE FOR PRODUCING MULTIPLE WAVE LENGTHS

George Lakhovsky, New York, N. Y.; Anne-Marie Louise Lakhovsky, administratrix of said George Lakhovsky, deceased, assignor to Henry S. Blum, Chicago, Ill.

Application November 21, 1941, Serial No. 420,006

11 Claims. (Cl. 250—33)

This invention relates generally to electric devices excited by electric impulses and more particularly to multiple wave length conducting and/or producing means. This invention has for its primary object the provision of such means disposed within a vacuum tube or a tube containing rare gas or gases.

My work over a period of more than 20 years has led me to the belief that there is great need for means conducting and/or producing multiple wave lengths which may be employed in many industrial and medical fields. Suitable apparatus for producing waves of various lengths is disclosed in my U. S. Letters Patent No. 1,962,565, dated June 12, 1934. Embodiments of this apparatus have been in use the world over. Because of the need for simplification in such apparatus so that it may be handy and easily used by persons lacking skill in electrical matters, I have concluded that by providing one unit which incorporates oscillation generating means and another in which the wave lengths are produced, the apparatus may be more universally used in the treatment of cellular life in therapy, in the aging or treating of liquids and in other industrial fields.

The present invention deals with those units, preferably combined with one another and constructed as a portable device and as stated above, has for its major object the provision of a unitary multiple wave length producing and/or conducting device in the form of a vacuum tube.

The present invention further contemplates the incorporation in such a tube, of means for varying the effect of wave lengths, or selectively employing the means therefor enclosed in or forming part of said tube.

This invention further seeks to provide a tube of the indicated type incorporating means for generating oscillations.

Another object of the invention is to provide a single unit which contains an oscillation generator, which produces waves of definite frequency, and further inductance means each permitting emanation of wave lengths of various values.

The structural features of my invention also form a material part of this disclosure, the objects and advantages being attained in structures such as shown in the accompanying drawing, which exemplifies the invention. The following specification, based on said drawing, more clearly points out the purposes and advantages of my invention.

In the drawing:

Fig. 1 is a vertical, partial sectional, partial ele-

mental view of a tube incorporating features of my invention.

Fig. 2 is a similar view of an alternate form thereof.

Fig. 3 illustrates in a similar manner a modified form of my invention.

Fig. 4 is a fragmentary sectional view of a modification made in accordance with the invention.

Fig. 5 is a similar view of another modification.

Figs. 6 and 7 are sectional views illustrating types of wires used in either of the forms of my invention as shown in Figs. 1, 2 and 3.

Fig. 8 is a partial sectional, partial elevational view illustrating a tube incorporating a plurality of grids and selective capacity means for varying the effects of said grids.

Fig. 9 is a similar view of a tube, such as shown in Figs. 1 or 2 and incorporating oscillating or vibrating means.

In that form of my invention shown in Fig. 1, there is provided a sealed preferably transparent envelope 10 made of glass or like material affixed in the usual manner to a screw or Edison plug 11. The latter is conventionally provided with a shell terminal 12 and a central terminal 13. The support or seal 14 of the tube serves to hold wires such as 15 and 16 which connect to the terminals 12 and 13.

Connected to the wires 15 and 16 is a primary inductance member in the form of a loose coil 17 which may be disposed axially of the envelope 10, as shown. The upper end of said member 17 forms a tight wound coil 18 which serves to radiate the strongest induced wave lengths.

Surrounding the primary inductance member 17, there are arranged a plurality of separate coils of wire each being of different length and capacity. Thus, I provide a coil 19 having greatest capacity and successive coils 20, 21, 22, 23, 24, and 25, each having less capacity than the preceding coil. These coils 19 to 25 form secondary inductance means each permitting emanation of a wave length of different magnitude and value than the other.

I may support the secondary coils in several ways. As shown, I prefer to provide a dielectric member such as a glass sleeve 26 surrounding the primary inductance wire member 17 and to mount the secondary coils 19 to 25 on the outer surface of said sleeve, leaving the coil 18 exposed at the top thereof. In order to effectively support and centralize the glass sleeve 26, I provide spacing washers 27 and 28 of mica or the like, top and bottom, and provide a supporting cross-piece 29 on the lower portion of the wire 17.

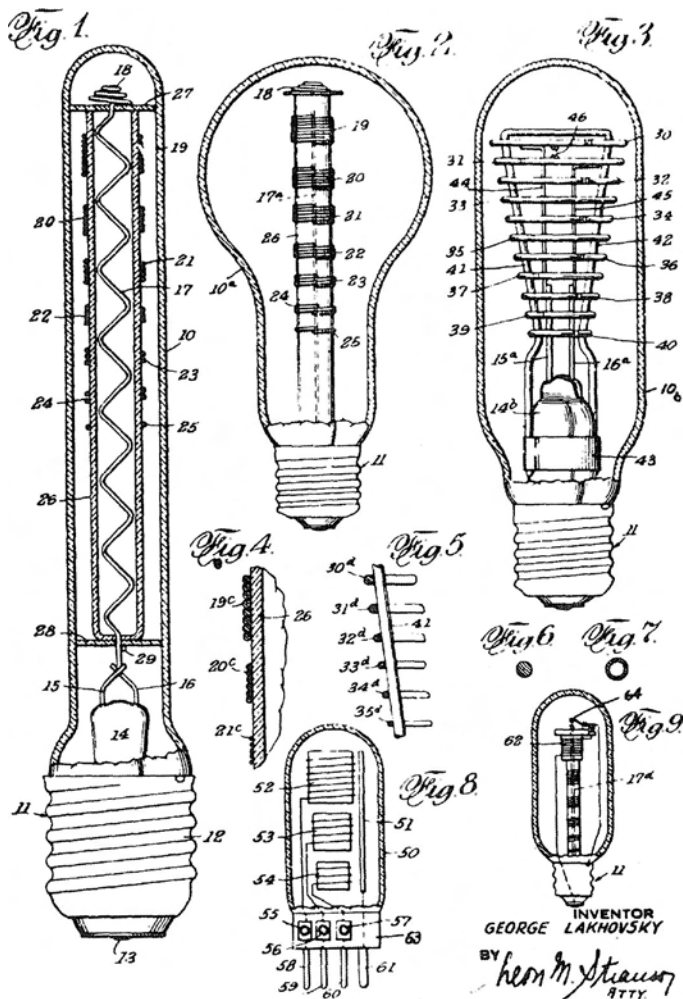
June 13, 1944.

G. LAKHOVSKY

2,351,055

TUBE FOR PRODUCING MULTIPLE WAVE LENGTHS

Filed Nov. 21, 1941



The tube above described may be employed as indicated for the treatment of cellular structures by connecting it to any one of the lines in the electrostatic field of high frequency, such as shown in said U. S. Letters Patent No. 1,962,865 each of the coils 13 to 25 producing by induction a different wave length, as can be understood.

In the form of my invention shown in Fig. 2, the envelope 10a is somewhat differently shaped, and the wire 17a straight instead of arranged as an open coil. In other respects, the structure follows that described with reference to Fig. 1.

As shown in Fig. 3, there may be arranged a plurality of open rings 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, and 40 in frusto-conical form, for instance, with the largest of said rings at the top and the smallest one adjacent the bottom. I have shown said rings as supported, for instance, by glass posts 41 and 42, said posts being supported on the seal 14b, as by a band 43. I provide extensions for the terminal wires 15a and 16a and connect said extensions 44 and 45 to the upper ring 30 and the next lower ring 31, respectively.

The rings 30 and 31 may become the primary inductance members, whereas the remaining rings constitute the secondary inductance members as before set forth. Electric current conducted to the suitably spaced rings 30, 31 will cause a spark 46 to be drawn between the rings 30 and 31 providing oscillations emanating from electrical discharges therebetween and causing the radiation of waves of various lengths within the envelope 10b and affecting the remaining rings.

In Figs. 1 and 2, I have shown the secondary coils as formed of wires having uniform cross-section. Fig. 4 illustrates how such wires may be made progressively smaller in the succeeding coils 15c, 20c, and 21c, etc. Similarly, I have shown the rings of Fig. 3 made progressively smaller in Fig. 5, said rings being designated by numerals 30d, 31d, 32d, 33d, 34d and 35d, etc. In such various manners, the wave length producing effect of the secondary coils or rings may be arrived at.

The secondary coils or rings may be round or somewhat flattened wire as shown in Fig. 6 or tubular as in Fig. 7, offering a yet greater flexibility of design.

The devices of Figs. 1 and 2 above described may be incorporated in the system shown in said U. S. Letters Patent by connecting one of the lines a, b, c, d, e, or f with plug 11 of Fig. 1, since either terminal 15, 16 is in contact with primary inductance member 11. To this end a conductor (not shown) connects such a ring with said plug or socket.

In Fig. 8, I have shown a modification of the invention which comprises a vacuum tube 50 containing a plate 51 and a plurality of different wave lengths producing grids 52, 53, and 54. I connect each grid with a variable capacity device, such as 55, 56, and 57 carried by said tube 50 and preferably by its base support 63, whereby the grids may be selectively connected into an operating circuit (not shown) by means of the respective prongs 58, 59, and 60, and the plate prong 61. Heating or other exciting means may be incorporated in the tube in a well-known manner. This combination tube 50 is designed to replace a plurality of known tubes each operating with different and variable wave length effect, mere exterior manipulation at said base support brings about change of the capacities 55, 56, and 57 and cutting in one or more of the grids 52, 53, and 54.

The effect of the spark as produced in the form of the invention depicted in Fig. 3 may be further utilized in Fig. 9 in which I also incorporate a vibrator 62 which produces electrical oscillations by a spark intermittently generated between the end of the primary inductance member 11d and vibrator armature 64. In other respects the structure follows that of Fig. 1.

It may be noted that any type of spark producing or oscillation generating means may be substituted for the vibrator shown. The tubes shown in Figs. 3 and 9 may be used in the manner described for Fig. 1 by connecting one terminal of the base as set forth to produce an induction effect. These tubes may be also connected across both terminals with a suitable potential to obtain the spark effect.

From the foregoing it may be seen that I have provided tubes in various forms for the purpose of generating and conducting multiple wave lengths. Other forms of the invention may be produced within the spirit and scope of the invention as claimed.

Having thus described my invention, what I claim as new and desire to be secured by Letters Patent, is:

1. A device of the character described comprising a vacuum tube having an envelope and base, primary inductance means, and a plurality of separate secondary inductance means of different length for radiating waves of various lengths extending above said primary inductance means, all said inductance means being arranged within said envelope.

2. A device of the character described comprising a vacuum tube having an envelope and base, a primary inductance member axially arranged in said envelope, and a plurality of secondary inductance members spaced apart and independent from each other each member surrounding a respective portion of said primary inductance member and within the field of influence thereof.

3. A device of the character described comprising a vacuum tube having an envelope and base, a primary inductance member axially arranged in said envelope, and a plurality of secondary inductance members each surrounding the primary inductance member and within the field of influence thereof, each of said secondary inductance members having a different wave length effect than the others.

4. A device of the character described comprising a vacuum tube having an envelope and base, a primary inductance member comprising a pair of split rings in inductive relation, and a plurality of secondary inductance members each comprising split rings.

5. A device of the character described comprising a vacuum tube having an envelope and base, a primary inductance member comprising a pair of split rings in inductive relation, and a plurality of secondary inductance members each comprising split rings, said latter rings being arranged in different planes and being of different length to produce a different wave length effect.

6. In a device of the character described, means for producing multiple wave lengths comprising a wire member, enclosing dielectric means for said member, and a plurality of separate wire coils of different lengths on said dielectric means and in the field of inductance of said wire member.

7. In a device of the character described,

means for producing multiple wave lengths comprising a wire member, enclosing dielectric means for said member, and a plurality of wire coils on said dielectric means and in the field of inductance of said wire member, each coil extending over said wire member and having a different number of convolutions than the others.

8. In a device of the character described, means for producing multiple wave lengths comprising two split rings in inductive relation, and a plurality of split rings in inductive relation to the two split rings.

9. In a device of the character described, means for producing multiple wave lengths comprising two split rings in inductive relation, and a plurality of split rings in inductive relation to the two split rings, the plurality of rings being of smaller diameter than the mentioned two rings and each progressively smaller than the others.

10. In a device of the character described means for producing multiple wave length, comprising two split rings in inductive relation, and a plurality of split rings in inductive relation to the two split rings, the plurality of rings being of smaller diameter than the mentioned two rings and each progressively smaller than the others, all of the rings being arranged in frusto-conical disposition.

11. In a vacuum tube having a primary inductance member and secondary inductance members, a vibrator arranged in the field of influence of said primary inductance member and secondary inductance members, a vibrator arranged in the field of influence of said primary inductance member for affecting the induction of said secondary members.

GEORGE LAKHOVSKY.

Patents

*T.H. Moray's Patent
Electrotherapeutic Apparatus
Feb. 1, 1949*

Feb. 1, 1949.

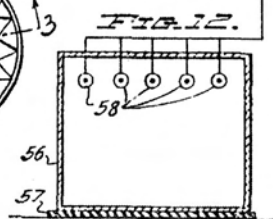
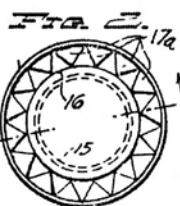
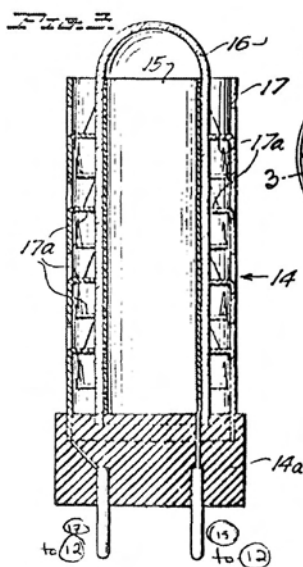
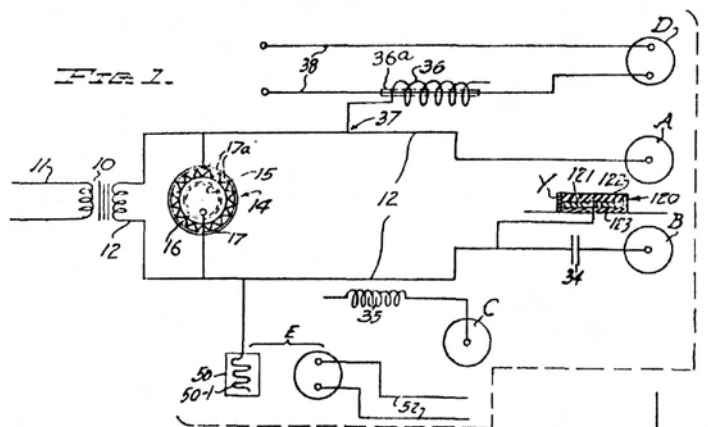
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2,460,707

ELECTROTHERAPEUTIC APPARATUS

Filed April 30, 1943

3 Sheets-Sheet 1



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Feb. 1, 1949.

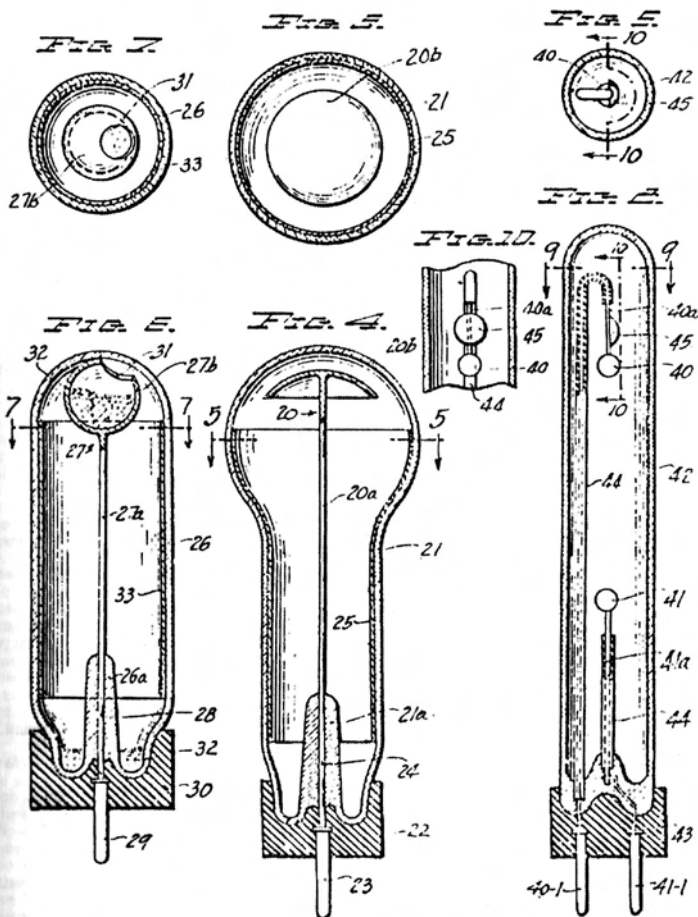
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2,460,707

ELECTROTHERAPEUTIC APPARATUS

Filed April 30, 1943

3 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,460,707

ELECTROTHERAPEUTIC APPARATUS

Thomas H. Moray, Salt Lake City, Utah

Application April 30, 1943, Serial No. 485,112

8 Claims. (Cl. 128—421)

1 This invention relates to electrotherapeutic apparatus, and to methods of applying electrical, radioactive, and other radiant phenomena therapeutically.

The invention is primarily concerned with the use of high potential, high frequency electricity though not necessarily limited thereto, in conjunction with radioactive and other types of electronic and radiation phenomena, for therapeutic purposes.

Among the objects of the invention are the following:

First.—To render highly effective, from a therapeutic standpoint, radioactive and other types of electronic and radiation phenomena, and, likewise, to render highly effective, from a therapeutic standpoint, high potential, high frequency electricity.

Second.—To augment the therapeutic effect of radioactive and other types of electronic and radiation phenomena by the conjoint use of high potential, high frequency electricity, and, conversely, to augment the therapeutic effect of high frequency, high potential electricity by the conjoint use of radioactive and other types of electronic and radiation phenomena.

Third.—To accomplish the above without danger of burning or of otherwise harming the patient.

Fourth.—To provide apparatus for accomplishing the above, which is relatively simple in construction and operation and relatively inexpensive to produce and operate.

Fifth.—To provide novel electronic and radioactive devices especially adapted for use in conjunction with high potential, high frequency electrical therapy.

I have found that, by enveloping a patient in a high potential, high frequency electrical field in such a manner that no closed circuit is completed through his body, radioactive and other electronic and radiation phenomena can be used therapeutically with considerably greater effectiveness than if used alone. The exact reason for this is not known, nor is it known definitely which, the electric field or the radioactive phenomena, acts upon the other to produce the advantageous results. It is thought, however, that the electric field, permeating the body of the patient as it does, attracts the radioactive emanations or radiations and enables them to penetrate considerably deeper into the tissues and vital organs of the patient than would otherwise be the case. In any event, remarkable therapeutic results have been achieved by use of the invention in the treatment

2 of malignant tumors, arthritis, sinus infections, and various other diseased conditions.

The invention contemplates the use, in therapeutics, of high potential, high frequency electricity to produce diversified forms of radiant energy, such forms being those which have been found best suited, individually, to benefit various human ailments. In accomplishing this purpose, several special discharge tubes have been developed to serve as treatment electrodes, by means of which correspondingly different curative results are obtained. Throughout the practice of the invention, a prime consideration is that only one terminal of any particular circuit shall be in contact with a patient's body at one time, so there will be no flow of current through a closed circuit of which the patient's body is a part. Such a terminal, too, is usually non-heat producing, so there is no danger of burning. In cases where there is a tendency for a tube to produce X-rays or other injurious rays, these are filtered out.

The present application constitutes a continuation in part of a copending application filed by me November 15, 1940, which bears Serial No. 365,798 and is entitled "Method of and device for the therapeutic application of electric currents and rays," and which has now become abandoned.

In the accompanying drawings, which illustrate several embodiments of apparatus preferred for carrying the method of the invention into practice:

Fig. 1 represents a wiring diagram of a preferred embodiment of apparatus for carrying out the method of the invention in general therapeutic work, several independent treatment stations being provided;

Fig. 2, a top plan view of the novel corona regulator of Fig. 1, employed in the circuit to control and adjust the current and as a governor to safeguard the transformer;

Fig. 3, a vertical section taken on the line 3—3, Fig. 2;

Fig. 4, a vertical section taken centrally through one novel type of discharge tube used as a treatment electrode in the apparatus of Fig. 1;

Fig. 5, a horizontal section taken on the line 5—5, Fig. 4;

Fig. 6, a vertical section taken centrally through another novel type of discharge tube used as a treatment electrode in the apparatus of Fig. 1;

Fig. 7, a horizontal section taken on the line 7—7, Fig. 6;

Fig. 8, a vertical section taken centrally through

a novel discharge tube used as a treating device in the apparatus of Fig. 1;

Fig. 9, a horizontal section taken on the line 9-9, Fig. 8;

Fig. 10, a fragmentary vertical section taken on the line 10-10, Figs. 8 and 9;

Fig. 11, a fragmentary view in vertical section, and drawn to a reduced scale, of a tub bath capable of use as a treatment station in the apparatus of Fig. 1;

Fig. 12, a view similar to that of Fig. 11, but showing a shower or vapor bath arrangement for the same purpose;

Fig. 13, a wiring diagram similar to that illustrated in Fig. 1, but fragmentary in nature, and of a somewhat different embodiment of apparatus;

Fig. 14, an elevation, partly in central vertical section, of a novel tube used in the apparatus of Fig. 13 in place of the corona regulator of Figs. 2 and 3;

Fig. 15, a top plan view, partly in horizontal section on the line 15-15, Fig. 14, of the tube of Fig. 14;

Fig. 16, a vertical section of another novel tube which may be used in place of the tube of Figs. 14 and 15;

Fig. 17, a vertical section taken on the line 17-17 of Fig. 16;

Fig. 18, a top plan view of still another novel tube which may be used in place of the tubes of Figs. 14 and 15 and of Figs. 16 and 17; and

Fig. 19, a vertical section taken on the line 19-19 of Fig. 18.

In accordance with the invention, provision is made for enveloping the patient in a high potential and, in certain instances, a high frequency electric field, and for applying to the patient, while so enveloped in the electric field, radiations and emanations having therapeutic value.

The apparatus of Fig. 1 is capable of administering various specific kinds of treatment, pursuant to the invention, at the several treatment stations provided. The treatment stations are indicated A, B, C, D, and E, respectively.

For supplying the high potential electric field, a suitable transformer is employed. This may be of any type capable of delivering high potential electricity, say from 10,000 to 30,000 volts. It is preferred, however, to utilize a conventional double magnetic circuit type of transformer, indicated at 10 in Fig. 1, having adjustable, laminated, magnetic shunts (not shown), the transformer being connected across an ordinary power line 11 charged with the customary 115 v. The output lines 12 from this transformer advantageously extend to the treatment stations A and B, respectively. The first secondary of the transformer 10 is preferably direct connected to the second secondary thereof. It is noted that this high potential electricity may be applied, without causing injury, direct to a patient who is not grounded. However, in order to safeguard the transformer 10 from damage by sparking across its output terminals, and to render the high potential electricity more suitable for therapeutic purposes, which is believed to include the automatic changing of the frequency to an extent which depends upon electrical characteristics of the patient's body, a governor or control device 14 is shunted across the leads 12.

This governor or control device 14 is a sparking condenser of high capacity embodying a multitude of spark gaps. A preferred embodiment of

this governor or control device 14 is illustrated in detail in Figs. 2 and 3.

As illustrated, the device comprises a cylindrical, electrically conductive plate 15 surrounded by a cylindrical dielectric 16. An outer cylindrical and electrically conductive element 17 surrounds the dielectric 16 exteriorly. It is provided with a multitude (for example, 250) of inwardly extending prongs 17a, which are advantageously formed by stamping out, and turning, triangular portions of the electrically conductive element 17. The internal plate 15 preferably contacts the interior surface of the dielectric 16, but, in any event, should lie closely adjacent thereto. Likewise, the tips of the prongs 17a preferably contact the outer surface of the dielectric. The several elements are advantageously mounted in a plug-in base 14a, which is adapted to mate with a suitable receiving socket (not shown) carrying the required electrical connections. The internal plate 15 connects with one of the electric lines 12, while the external element 17 connects with the other electric line 12, as shown diagrammatically in Fig. 1.

It is preferable that the dielectric 16 be in the form of a closed tube or envelope, as shown, and be exhausted to vacuum condition. The multitude of sparking prongs 17a produce a brush discharge.

Where the dielectric 16 is not a closed tube or envelope, it is preferred that it be of quartz.

The treatment station A is a discharge tube of a novel type, exemplified by the tubes illustrated in detail in Figs. 4 and 5 and Figs. 6 and 7. Either tube is plugged into the circuit of Fig. 1 at a suitable provided, single-terminal outlet. High potential electricity is, therefore, fed directly into the tube, which serves as an electrode. The tube also embodies radioactive material, which supplies radioactive emanations to the patient simultaneously with the electrical discharge.

As illustrated in Figs. 4 and 5, the tube or electrode may comprise an electrically conductive discharge element 20, having a supporting stem 20a and a major discharge cap or head 20b, which is preferably in the form of a thin, convex-concave plate. The head 20b may be spot welded to the end of the stem 20a.

The discharge element 20 is enclosed within a tube 21 of dielectric material, preferably glass, the stem 20a being fixed in the fused tongue portion 21a of the tube. The tube or shell 21 is fitted into an insulating base 22, provided with a single plug-in terminal 23, and an electrical connector 24 extends from the terminal 23 to the stem 20a.

The inside surfaces of the side walls of the tube or shell 21 are coated with a radioactive material, as at 25. The coating is conveniently made from uranium salts or powdered carnotite or other radioactive ore. The ends of the tube or shell are left uncoated.

Air is evacuated from the tube 21, and a small quantity of mercury introduced. The mercury is preferably triple-distilled to insure great purity. It is preferred that argon or like inert gas be also introduced.

Since the tube just described is plugged into the circuit of Fig. 1, the discharge element or cathode 20 is charged with high potential electricity, and, in its capacity of a treatment station in the apparatus of Fig. 1, serves as an electrode to similarly charge the patient. The patient is insulated from the ground, and the tube is applied directly to the affected part of his body, preferably in close contact with the body.

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Because of the construction of the tube, radiation of a radioactive nature is also directed against the patient through the uncoated top end of the tube. This radiation has been found to differ somewhat from the radioactive emanations discharging from the side walls of the tube, and is thought to comprise rays lying close to X-rays on the radiation spectrum. These rays appear to have a definite healing value, and to lack the injurious nature of X-rays. Where a predominantly radioactive emanation treatment is desired, the side walls of the tube are placed against the body of the patient.

Best results are obtained when the discharge element or cathode 20 is made of an alloy metal compounded from copper, lead, sulphur, and, if desired, aluminum. The relative percentages of the several ingredients may vary considerably, but a satisfactory mixture comprises 5.0% copper, 55.0% lead, 30.0% sulphur, and 10.0% aluminum. Should aluminum not be used, the difference may be made up by additional copper.

In preparing the alloy, the copper and aluminum are heated to a molten state, after which the sulphur is added while stirring the mixture. After cooling, the mass is again melted, and the lead, in a molten state, is mixed with it, the molten mass being thoroughly stirred. This new mass is then cooled, being later reheated, and, while hot, rolled to make it ductile, so it can be shaped into the desired forms.

The discharge tube or electrode of Figs. 6 and 7 is similar to that of Figs. 4 and 5, having an enclosing tube or shell 26 which is evacuated. A cathode discharge element 21 is positioned within the shell, being fixed in the tongue portion 26a. A conductor 28 connects the stem 21a of the element 21 with a plug-in terminal 29, which extends outwardly of the base 30. The cap or head 27b of the element 21 differs from the cap or head 20b of the electrode of Figs. 4 and 5, in that it is spherical in form and hollow. It has an opening 31 formed at its top, contiguous with the top inside surface of the tube 26. A quantity 32 of radioactive material, which may be the same as used for the coating 25 of the electrode of Figs. 4 and 5, is introduced into the tube or shell 26, along with a relatively small quantity of mercury, before the tube is sealed tight. Such material 32 is preferably powdered or granulated, and is shaken into the hollow of the head 27b through the opening 31 before any given treatment is commenced. The mercury is provided primarily as a getter, and does no harm if shaken into the head 27b along with the radioactive substance. The mercury also tends to produce a vapor in the tube, which aids in the operation thereof. As in the case of the electrode tube of Figs. 4 and 5, this tube may have a radioactive coating 33 covering the inner surfaces of its side walls.

The treatment station B of Fig. 1 differs from the treatment station A only in the fact that a condenser 34 is interposed in the electric supply line 12.

The treatment station C of Fig. 1 differs from the stations A and B only in the fact that the high potential electricity is supplied from the supply line 12 through an inductance 35.

The treatment station D utilizes a germicidal discharge tube, a preferred form of which is illustrated in detail in Figs. 8, 9, and 10. The high potential electricity is taken by induction from the particular supply line 12 concerned. For this

6

purpose, an induction coil 36 is provided, tapping the line 12 at 37. A pair of leads 38 from an ordinary 115 v. supply source extend to a plug-in socket connection for the germicidal tube, one of the leads passing through a glass tube 36a, Fig. 1, which is disposed within and extends along the length of the induction coil 36. Thus, high potential electricity is impressed, by induction, upon the ordinary current flowing through the particular lead 38 concerned.

The germicidal discharge tube of Figs. 8, 9, and 10 has a pair of discharge terminals 40 and 41, respectively, positioned in an evacuated tube or envelope 42, and electrically connected with plug-in terminals 40-1 and 41-1, respectively, by means of stems 40a and 41a, respectively. The tube or envelope 42 and plug-in terminals are mounted in a conventional base 43. It is preferred that insulating material 44, such as a ceramic sleeve, cover the major portions of the stems 40a and 41a. A piece of lithium metal 45, see particularly Fig. 10, is advantageously secured to the stem 40a adjacent the discharge terminal 40 to act as a getter. It may, however, be placed at any other convenient location in the tube. It is preferred that the discharge terminals 40 and 41 be formed of the special alloy previously described. Argon or other suitable inert gas is preferably injected into the tube or envelope 42, as is, also, a small quantity of mercury. The mercury, by vaporizing, aids electrical arcing between the discharge terminals. As will be noted, the high potential electricity induced in the one lead 38 will manifest at the upper discharge terminal 40, and will charge the patient simultaneously with the discharge into his body of germicidal rays from the tube.

The treatment station E embodies the tube of Figs. 8, 9, and 10, as above described, but impresses the high potential electricity directly on the patient instead of passing it first through the tube. For this purpose, a discharge device 50, in the form of a soft, flexible pad in which a coil 50-1 is embedded, taps one of the high potential electric lines 12. This pad 50 is wrapped around the patient's body adjacent the afflicted portion thereof, thus charging the patient. Any other electrode capable of charging the patient with high potential electricity may be used in place of the pad 50. The germicidal tube has its terminals 40-1 and 41-1 plugged into a suitable plug-in socket connected to leads 52 which extend to an ordinary 115 v. source of supply. The high potential electricity with which the patient is charged is induced into the germicidal tube, thereby further activating the discharge therefrom. A certain beneficial discharge from this germicidal tube will be had by induced activation alone, it being unnecessary, in such instances, to plug the tube into the 115 v. line.

Other types of germicidal and discharge tubes may be used in place of the tube of Figs. 8, 9, and 10, as, for instance, the well known infra-red and ultra-violet lamps, to produce results surpassing those ordinarily attained by the use of such infra-red or ultra-violet lamps apart from the apparatus of the invention.

It should be remembered that the patient is insulated from the ground while being treated at any of the treatment stations of the invention.

Figs. 11 and 12 show how a patient is treated, pursuant to the invention, while immersed in an electrically conductive fluid bath. In Fig. 11, a bath tub 53 is insulated from the ground by a

layer of insulation 54. A treatment electrode of the type shown in any of the figure groups 4 and 5, 6 and 7, and 8, 9, and 10 is positioned to charge the fluid of the bath with high potential electricity, as well as to discharge healing radiations and emanations into the patient. The particular electrode illustrated is diagrammatic in form and is designated 55. It may be connected into the circuit of Fig. 1 as shown at any of the treatment stations A, B, C, and D. In Fig. 12, a shower or vapor stall 56 is insulated from the ground by a layer of insulation 57. A plurality of treatment electrodes are designated 58, respectively. These correspond to the treatment electrode 55 of Fig. 11. A water spray or vapor, such as steam, may be admitted to the stall 56 in any well known manner (not shown), thus enveloping the patient during treatment.

Another embodiment of apparatus, pursuant to the invention, is illustrated diagrammatically by the wiring diagram of Fig. 13. While no treatment stations are shown, those provided are identical with the several treatment stations designated A, B, C, D, and E in Fig. 1. The distinction in this embodiment of apparatus resides in the fact that a special generator of high frequency electricity is provided in the system.

A transformer 60 has its input terminals connected across an ordinary 115 v. electric power line 61. Electrical conductors 62 and 63 lead from the respective output terminals of the transformer to a high frequency generator of the Oudin coil type, indicated generally at 64, a variable condenser 65 being interposed in the line 62, and the circuit being grounded at 66. Output conductors 67 and 68, leading from the high frequency generator 64, provide connections for the several treatment stations in the same manner as illustrated in Fig. 1.

The transformer 60 may be any ordinary high voltage type. A governor or control device 69 is shunted across the conductors 62 and 63.

In the illustrated instance, the governor or control device 69 preferably takes the form of a vacuum tube, having the construction shown by Figs. 14 and 15, Figs. 16 and 17, or Figs. 18 and 19. These tubes all possess high capacity, and include elements effecting a brush discharge. They serve, as does the device 14 of Figs. 2 and 3.

The tube of Figs. 14 and 15 embodies an outer shell or envelope 70 of insulating material such as glass, a plastic, or fiber coated with shellac. Inside the shell 70 is a bi-cylindrical element 71 formed of electrically conductive material. Separating element 71 from the enclosing shell 70 are spacers 72 made of rubber, Bakelite, or other insulating material. Inter-fitting with the element 71 is a second electrically conductive, bi-cylindrical element 73, the two elements being separated by a dielectric 74. Inwardly of the element 73, and separated therefrom by a dielectric 75, is a corrugated, cylindrical element 76. The shell or envelope 70 is secured in an insulating base 70-1, provided with plug-in terminals. One of the terminals, designated 77, is electrically connected with the element 71, while another, designated 78, is electrically connected with the corrugated element 76. These two terminals connect with the conductors 62 and 63, as illustrated in Fig. 13, and the brush discharge takes place at element 76.

Under certain circumstances, it is desirable that the outer shell 70 be made of quartz glass, and that a filament 79 be provided, the filament being heated by connection, through plug-in terminals

80 and 81, with a source of low voltage heating current (not shown). Plug-in terminal 81, which is electrically connected with element 71, may be used instead of or in connection with the terminal 77, since element 73 acts in a manner similar to element 71. A getter 83 of suitable material, and an insulating and reflecting shield 84 may be provided, as shown. While the tube may have either a high or a low vacuum condition, or may be filled with an inert gas, I have also found it advantageous to fill the tube with a moist vapor. The tube acts as an oscillator for electric currents, and has an enormous capacity, a capacity many times that of a condenser of approximately equal size.

The tube of Figs. 16 and 17 comprises an outer shell or envelope 85, which may be made of metal, glass, or fused quartz. This shell is mounted in an insulating base 86. Inside the shell 85 is a metal plate 87, and, spaced apart therefrom, a corrugated metal plate 88. A plug-in terminal 89, which extends from the base, is electrically connected with the plate 87, and a second plug-in terminal 90 is electrically connected with the corrugated plate 88. These terminals are adapted to connect, through a suitable socket, with the electrical conductors 62 and 63 of Fig. 13.

Under certain conditions of use, it is desirable to have other elements in the tube. These are provided, and may be utilized or not as occasion warrants. A filament 91 is disposed between the plates 87 and 88. It is electrically connected with the two plug-in terminals 92 and 93, which are adapted to be connected to a source of low voltage heating current (not shown). A slit screen, comprising shields 94 and 95, with apertures 96 extending therethrough, is disposed adjacent that side of corrugated plate 88 which is remote from plate 87. The apertures 96 are in alignment with each other, and the shields 94 and 95 are made of lead or other material capable of screening off X-rays. Between shields 94 and 95 is a sheet 97 of material which is readily permeable to X-rays. Within the shell 85 there is also mounted a shell or envelope 98 of glass, quartz glass, or similar material, having a portion 98a which is ground like a lens and directed toward the slit screen. This shell 98 really constitutes a tube within a tube. A filament or cathode 99, comprising electrically conductive legs 99a and 99b and an electron-emitting portion 99c, is disposed within the shell 98, plug-in terminals 100 and 101 being electrically connected to the respective legs 99a and 99b. A bombardment element 102 is disposed within the shell 98 opposite the portion 99c of cathode 99. Within the shell 98, but outside the shell 98, is a reflector 103 directed toward the slit screen.

The tube of Figs. 18 and 19 is essentially the same as the tube of Figs. 16 and 17, being equipped with a shell or envelope 105, a base 106, a plate 107, and a corrugated plate 108, the two plates being connected to plug-in terminals 109 and 110, respectively, which are adapted to connect electrically with the conductors 62 and 63 of Fig. 13. There is a filament 111 and an inner shell or envelope 112, but no slit screen. Instead of a lens portion being provided on the inner shell 112, a partition 113 of lens formation is disposed between the inner shell and the corrugated plate 108. It is fixed to the walls of the outer shell 105. Within the inner shell 112 is a filament or cathode 114, which corresponds to the similar element 99 of

the tube of Figs. 16 and 17. A reflector 115 is directed toward the lens partition 113.

Reverting now to Fig. 1, there is another advantageous way of treating a patient pursuant to the invention. As shown at Y, a foot pedestal 120 may be provided for making the patient a part of a condenser. The pedestal comprises an electrically conductive plate element or electrode 121, connected electrically with one of the high potential lines 12, and covered by an insulating platform 122 upon which the patient rests his feet while being treated at any of the previously described treatment stations A, B, C, D, or E. The electrode 121 and insulating platform 122 are conveniently mounted in a frame 123, which insulates the plate from the ground. The insulating platform 122 is made of a high quality insulating material, such as first grade hard rubber. In certain instances it is desirable that the device be made in other than foot-pedestal form. For instance, it may be of cylindrical formation for use in a bed against any part of the patient's body.

If desired, the patient may be charged with the high potential electricity by direct contact with a metal or electrically conductive electrode in place of the pad 50 of treatment station E, or of the tube electrodes.

The invention has been described in the foregoing with sole reference to its use for therapeutic purposes. It should be noted, however, that inorganic matter may also be treated to advantage pursuant to the method and with the apparatus of the invention. It has been found that metals, for example, lead, have changed physical properties after treatment in accordance with the above. In instances where the invention is not being used therapeutically, it is not always necessary to insulate the subject from the ground.

Whereas this invention is here illustrated and described with respect to particular specific embodiments thereof, it is to be understood that various changes may be made in such specific embodiments and various other embodiments may be utilized by those skilled in the art without departing from the spirit and generic scope of the invention as set forth herein and in the claims which here follow.

Having fully described my invention, what I claim is:

1. Apparatus for applying radiant energy therapeutically, comprising means for producing high potential, high frequency electricity; a high capacity sparking condenser, and a treatment electrode connected in circuit with the foregoing, said treatment electrode including a discharge element adapted to charge the patient with said high potential, high frequency electricity, and radiating means adapted to discharge radioactive emanations into said charged patient.

2. Apparatus in accordance with claim 2, wherein the sparking condenser is in the form of a vacuum tube of high capacity having mutually spaced capacity elements adapted to produce a corona discharge.

3. Apparatus for applying radiant energy therapeutically, comprising means for producing high potential, high frequency electricity; a high ca-

capacity sparking condenser; and a treatment device connected in circuit with the foregoing, said treatment device including discharge means adapted to charge the patient with said high potential, high frequency electricity, and radiating means adapted to discharge radiations into the charged patient.

4. Electrical treatment apparatus, comprising a high capacity sparking condenser; a treatment outlet electrically connected to said condenser; and means for electrically connecting said condenser to a source of high potential electricity.

5. Electrical treatment apparatus, comprising a transformer for producing high potential electricity; a high capacity sparking condenser electrically connected across the high potential output terminals of said transformer; and a treatment outlet electrically connected to said condenser.

6. Electrical treatment apparatus, comprising a transformer for producing high potential electricity; a high capacity sparking condenser electrically connected across the high potential output terminals of said transformer; and a plurality of treatment outlets independently electrically connected to said condenser.

7. Electrical treatment apparatus, comprising a transformer for producing high potential electricity; a treatment electrode electrically connected to one of the output terminals of said transformer; an electrical conductor sheathed by insulation electrically connected to the other of the output terminals of said transformer and disposed adjacent said treatment electrode so the subject to be treated may be placed between and in contact with the two; and a high capacity sparking condenser connected across the said outlet terminals of the transformer.

8. In electrical treatment apparatus equipped with means for the supply of high potential electricity and a treatment electrode, a high capacity sparking condenser electrically connected between the said supply means and the said treatment electrode.

THOMAS H. MORAY.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
628,351	O'Neill	July 4, 1899
647,687	Topham	Apr. 17, 1900
765,470	Friedlander	July 19, 1904
950,842	Davis	Mar. 1, 1910
1,156,317	Santos et al.	Oct. 12, 1915
1,193,018	Howard	Aug. 1, 1916
1,466,777	Winkelmann	Sept. 4, 1923
1,590,930	Falkenberg	June 29, 1926
1,655,783	Gallois	Jan. 10, 1928
2,010,018	Hodnetie	Aug. 6, 1935
2,073,428	Schmid	Mar. 9, 1937
2,126,070	Wappler	Aug. 9, 1938
2,192,638	Dixon	Mar. 5, 1940

OTHER REFERENCES

Tousey: Medical Electricity and Roentgen Rays (1910), pp. 493 to 498. Copy in Division 55.

Patents

*Two Patents of
William J. Hooper*

FIG. 1

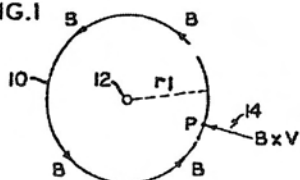


FIG. 3

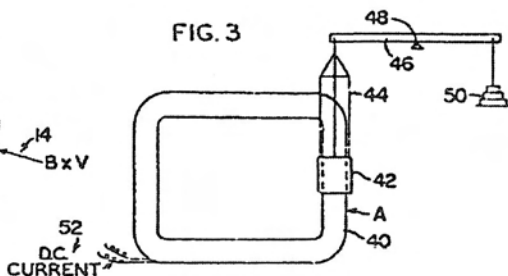


FIG. 2

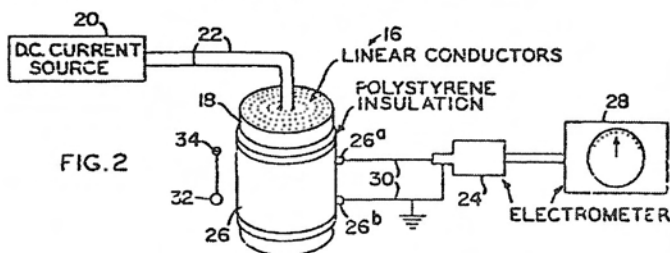


FIG. 4

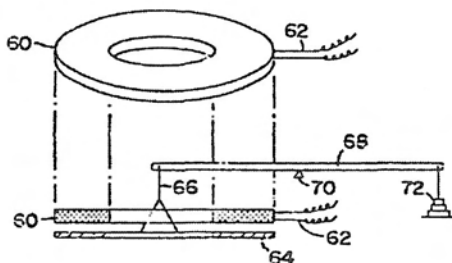


FIG. 5



FIG. 6



FIG. 7

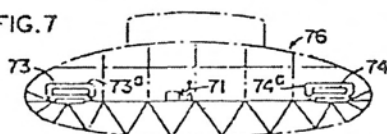
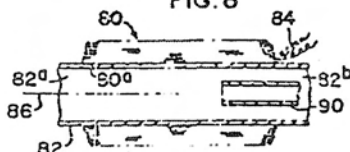


FIG. 8



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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,610,971

Dated October 5, 1971

Inventor(s) William J. Hooper

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Col. 1, line 14, after "conductor" insert -- with -- and delete "electric charges".

Col. 1, line 45, " 10^{17} " should be -- 10^{-7} --.

Col. 2, line 4, "nd" should be -- and --.

Col. 2, line 25, " 3.6×10^{12} " should read -- 3.6×10^{-2} --.

Col. 2, line 44, "motion" should be -- motional --.

Col. 4, line 7, "anitgravitational" should read -- antigravitational --.

Col. 4, line 22, "he" should be -- the --.

Col. 5, line 20, "out" should be -- our --.

Col. 6, line 26, after "conductor" delete "o" and insert -- to --.

Signed and sealed this 16th day of May 1972.

(SEAL)

Attest:

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[21] Appl. No. 516,356
[22] Filed Apr. 15, 1969
[45] Patented Oct. 5, 1971
[73] Assignee Electrodynamic Gravity, Inc.

3,359,784 7/1966 Vogel..... 338/297 X

OTHER REFERENCES

Textbook—The Electromagnetic Field in Its Engineering Aspects by G. W. Carter, 2nd Edition, 1967, Published by Longmans—48 Grosvenor St. London W.1, pp. 168, 169, 170 (Copy in Central Library, Washington, D.C.)

The Feynman Lecture on Physics by Feynman, pages 13-6 to 13-11; Addison-Wesley Publishing Co., New York.

Primary Examiner—D. X. Slippy

Attorney—OK'ham & Oldham

- [54] ALL-ELECTRIC MOTIONAL ELECTRIC FIELD GENERATOR
5 Claims, 8 Drawing Figs.

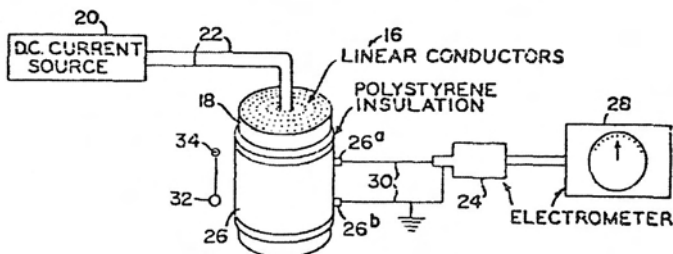
- [52] U.S. Cl. 310/10
[51] Int. Cl. H02n 11/00
[50] Field of Search. 310/10, 11;
324/109; 336/181, 225; 338/284, 297

- [56] References Cited

UNITED STATES PATENTS

- 2,553,875 5/1951 Shaw 335/284 X

ABSTRACT: This invention relates to an all-electric generator yielding a motional electric field in the space surrounding the device, but requiring no mechanical movements of its parts in generating this field. The theory underlying the production of such a field postulates that each moving electron constituting the current in a linear conductor carries with it a loop of magnetic field energy about it.



ALL-ELECTRIC MOTIONAL ELECTRIC FIELD GENERATOR

This application is an extension of the teachings presented in my earlier filed pending applications, Ser. Nos. 722,587, filed Apr. 19, 1963 and 803,187, filed Feb. 28, 1969.

PRIOR HISTORY

The detection of a magnetic flux about a current-carrying conductor was first made in 1820 by Hans Christian Oersted. This discovery unified the then separate sciences of electricity and magnetism. My experimental discovery that this magnetic flux actually moves along the conductor electric charges the electric charges constituting the current has great promise of now unifying the three known fields of electricity, magnetism and gravitation.

For a better understanding of the invention, reference should be had to the accompanying drawings wherein:

FIG. 1 is a schematic illustration of a wire containing flowing electrical current indicating the magnetic field generated with respect thereto;

FIG. 2 is a perspective block diagram schematic of a preferred embodiment of the invention;

FIGS. 3 and 4 illustrate modifications of the generator of FIG. 2 adapted to techniques for studying and utilizing gravitational and antigravitational phenomena;

FIG. 5 illustrates the winding of the wire in the device of FIG. 2;

FIG. 6 illustrates the winding of the wire in the device of FIG. 4;

FIG. 7 illustrates the incorporation of a plurality of the devices of the invention into a spacecraft where they might be appropriately utilized; and

FIG. 8 illustrates a coil wound embodiment useful for producing the separation of oppositely charged ions in gases or liquids.

BACKGROUND INFORMATION

The law of Biot and Savart yields the magnetic flux density B (webers/m.²) at a point distant r meters from the conductor carrying a current of I amperes and is given by

$$B = \mu_0 I / 2\pi r \quad (1)$$

where $\mu_0 = 4\pi \times 10^{-7}$ webers/amp. meter. With reference to FIG. 1 of the drawings, this flux consists of circular magnetic loops directed counterclockwise, as shown by arrow 10, for current directed in a linear conductor wire 12 at right angles to this paper and outwardly toward the reader.

Electrons producing this flux will be moving perpendicularly into the paper, carrying the flux B with them, at a velocity V meters/sec. Thus, at any point P , distant r_1 from the long linear conductor 12, there will be existent a motional electric field of intensity $E = B \times V$ volts/meter directed radially inward toward the wire in the plane of the paper, as indicated by vector arrow 14, where $B \times V$ is the vector cross product of B and V .

PREFERRED EMBODIMENT

The preferred embodiment of the invention is illustrated in FIG. 2 and consists in part of many insulated linear conductors indicated generally by numeral 16, all parallel, packed and held in close proximity, and connected in series, so as to form a solid package 18 preferably cylindrical in shape. When a constant direct current from a source 20 is caused to flow through wires 22 this device with its axis in the vertical direction, half of the linear conductors 16 will have current flowing upward and half downward. It will be a non-inductive device, since surrounding it the magnetic flux due to the upward currents will be superimposed on the flux due to the downward currents, so that no magnetic flux can be measured. On the well recognized "Principle of Superposition of Fields," each one exists however, and acts as though the other was absent.

When the package 18 of linear conductors has a circular cross section there will exist two systems of circularly directed magnetic flux, one directed clockwise and the other counterclockwise as seen from above, no one set moving upward and the other set moving downward. What is of capital interest however is that each of these two systems give rise to equal radially and inwardly directed $B \times V$ motional electric fields distributed laterally in horizontal planes in the space about the cylindrical device. Here we have a field which is not magnetic, is not electrostatic, and which I have shown experimentally to be immune to electrostatic shielding. No such spatially distributed field is known to Physics today except that of gravity. I have shown theoretically that this field should act attractively on electrically neutral matter. I have shown experimentally that the intensity of this field can be measured with the aid of an electrometer system 24, 28 driven by the potential difference induced electromagnetically in the conductors 30 connecting the electrometer to the capacitor plates 26a and 26b of the capacitor 26. The electrometer read 24 actuates a visual dial indicator 28.

At cryogenic temperatures the drift velocity of the electrons in the linear conductors will be greatly enhanced. Theoretical calculations indicate that this velocity in copper at 20° C. is of the order of 3.6×10^{12} cm./sec. in a current density of 480 amp./cm.². The random velocity of free electrons in conductors is theoretically estimated at 10^6 cm./sec. At superconducting temperatures when the electrical resistance approaches zero, it is generally believed that the drift velocity of electrons approaches the value of 10^8 cm./sec. This velocity is 10^{18} times greater than the velocity at 20° C. (See "Physics," Halliday and Resnick, pages 681 and 691, J. Wiley, 1962). This indicates that the intensity of the $B \times V$ field about the device, herein described, might possibly be enhanced 10^{18} times at or near the absolute zero of temperature. Hence, the invention contemplates that each of the devices described hereinafter will preferably be operated at or below the critical temperature at which the conductor used becomes superconducting. As the state of the art advances new conducting materials will undoubtedly become available with critical temperatures very considerably above the absolute zero.

Not only does the device that has been described in FIG. 2 afford apparatus hitherto unavailable for the generation of a spatial distribution of the motion electric field, but it affords means for investigating the properties of this field in connection with its relation to gravity and antigravitational phenomena. In addition, it affords for the first time, a direct experimental method for determining the electron drift velocities and mobilities in linear conductors made of different materials.

When the cylindrical capacitor 26 is charged by the $B \times V$ field and its potential difference (P.D.) measured, it is determined by the equation

$$P.D. \text{ (volts)} = B \times V / I \quad (2)$$

where I is the distance between the thin capacitor plates. The direct measurement of V meters/sec. can then be made

$$V = P.D. \text{ (volts)} / B / I \text{ m./sec.} \quad (3)$$

where B is in webers/m.².

This device will exhibit an attractive force on electrically neutral matter, better defined as a differential force; i.e. the difference between a pull and push, in which the pull is greater. (See reference to general theorem, page 125, The Mathematical Theory of Electricity and Magnetism, by Sir James H. Jeans) The $B \times V$ field is an electrical field acting on all the elementary charges comprising the atoms of matter, electrons, protons and even neutrons, as I believe neutrons also consist of electrons and protons in close bond. The $B \times V$ force being relatively weak does not ionize the atoms of matter, but being immune to shielding, electrically polarizes them. This causes a slight elongation of some of the electrons orbits within the atoms in the direction of the field. The positive charges move slightly into the more intense region of the converging, radially directed field while the negative charges move slightly further away from the device into the weaker portion.

tion of the field. Thus the differential force between the pull and the push upon the component parts of an atom results in the polarization of the atoms and a resultant attractive force, equivalent, I believe, to that of gravity.

A small, electrically neutral, simple pendulum 32 suspended close to one side of my device of FIG. 2, about pin 34, should thus undergo a slight measurable deflection under a fairly strong $B \times V$ motional electric field. At cryogenic temperatures this attractive force should be greatly enhanced. When the device is lying horizontally, a gravity meter placed centrally over it should give a measurable reading in milligals.

Modifications of my generator such as are shown in FIGS. 3 and 4 show diverse methods for studying gravitational and antigravitational phenomena which the invention makes possible. FIG. 3 illustrates a rectangular coil 40 made up of a single wire passed many times in the coil configuration so as to provide a large leg A preferably having a circular cross section. However, any cross-sectional configuration would meet the objects of the invention as long as the wires are parallel to each other and closely packed. About one leg of the coil, a cylindrical shell 42, made of electrically neutral, conductive or nonconductive material, is suspended by a carrier frame 44 from one end of a sensitive beam balance 46. The beam pivots about a support bar 48 and carries a load 50 to normally counterbalance the weight of the shell 42. When a fairly strong DC current I is fed through lines 52 and is built up in the coil, the flux density B is generated in the region of the cylindrical weight whose walls are at a distance from the central axis of the coil and n is the number of linear conductors in the coil.

$$B = \mu_0 n I / 2\pi r \text{ (webers/meter}^2\text{)} \quad (4)$$

If the current I is suddenly cut off the flux B will rapidly collapse. This flux in the act of collapsing should cross the walls of the suspended cylinder with a considerable inwardly directed horizontal velocity of V meters/sec. This should yield a very considerable vertical $B \times V$ in the walls of the cylinder directed either up or down, depending on the direction of the current in the coil.

In this device the motional electric field $B \times V$ is not convergent, but is uniformly vertical, hence the pull and push exerted on the electric components of the atoms in the cylinder will be equal. In other words the action of this field will either enhance or decrease the state of polarization already existing within the cylinder and produced by the gravitational field of the earth. If the polarization is increased, then the gravitational pull of the earth's field should be greater. If the polarization is decreased then the weight of the cylinder should be less. It is conceivable that the polarization could be reduced to zero. In this case, the object should be weightless. If the intensity of the depolarizing $B \times V$ field is still further increased, then polarization in the opposite direction to that produced by the earth's field should be achieved. In this event the earth's gravitational field would act repulsively on the cylinder. This would be antigravity in its truest sense.

The apparatus I have just been describing acts only momentarily (during the time interval in which the flux is collapsing) to change the weight of the cylinder shell 42 (shown in FIG. 3).

It is desirable to have an apparatus with which to experimentally study gravitational and antigravitational phenomena under steady continuous conditions. In FIG. 4 of the drawings is shown another modification of the device shown in FIG. 2. Here I utilize a noninductive coil wound in the form of a solid, low, thick walled, hollow, right circular cylinder, and inserted generally by numeral 60. DC current is supplied through lines 62 to the coil 60. In the region directly beneath this coil disk 60 I place a similarly shaped nonferrous disk 64, suspended by a carrier 66 to the end of a beam 68. The beam 68 is pivotal about a fulcrum 70 and is counterbalanced by a load 72. For positions of disk 64 below coil 60, the $B \times V$ field can only be directed vertically upward when a continuous DC current is flowing in the wires composing the disk 60. It should be noted that this field is practically uniform and parallel close to the disk, hence it is not attractive in its action on neutral

matter. Its action on such matter can only change the state of electrical polarization in this matter. Any change thus effected in the state of polarization should cause the earth's gravitational field to act less intensely, on any object placed close to the under surface of the device, causing it to weigh less, become weightless, or to actually be accelerated upward by the antigravitational action of the earth's field.

FIG. 5 of the drawings illustrates the manner in which the noninductive device in FIG. 2 is wound with wire 22, by turning the linear conductors back on themselves through a 180° turn. FIG. 6 illustrates the way the noninductive windings of the device illustrated in FIG. 4 is achieved. One very long insulated wire is simply turned back on itself at its midpoint and wound double into a solid coil held together in the shape illustrated.

FIG. 8 illustrates a modified embodiment of the invention which comprises a wire coil 80 either simply wound, or noninductively wound, around a hollow tube 82. Electrical current is passed to the coil 80 through wires 84, and at low temperature this coil will produce a radially, outwardly directed, internal $B \times V$ field from the axis 86 of the cylinder to the internal circumference 88a of the coil 80. The electrical wire making up coil 80 is preferably a ribbonlike conductor which is coated with any appropriate electrical insulation. A minimum space between adjacent turns with concentricity between adjacent turns is the preferred winding embodiment for coil 80. As many courses of turns as deemed appropriate to generate field strength desired will meet the objects of the invention. The tube 82 is preferably made of material having little or no magnetic permeability. Both the coil 80 and tube 82 are stationary.

An apparatus of the type illustrated in FIG. 8 might be utilized to effect separation and concentration of fluids. For example, in the desalination of water, a $B \times V$ electric field generated by the passage of the current through the coil 80, acts upon the disassociated ions of the sodium chloride in solution. Hence, by introducing a flow saline water at end 82a of tube 82, and providing a concentric separating tube 90 at end 82b of tube 82, increments of fluid which are concentrated with chlorine and depleted of sodium may be drawn off through the stationary tube 90, while the increments of fluid which are concentrated with sodium and depleted of chlorine may be drawn off through the space between the exterior walls of tube 90 and the interior walls of tube 82.

FUTURE APPLICATIONS

This country's space projects have become expensive beyond the ability of the average man to comprehend. Achieving lift by means of costly propellants will some day soon be seen as akin to primitive man's use of awkward clubs as a means of exerting force. In a very short interval of time an intense $B \times V$ field should effect the reversal of the gravitational polarization of an object. Once achieved, only a very small expenditure of energy would be required to hold the polarization. Energy from the atoms of the earth would supply the lift and propulsion through the medium of the earth's gravity field. The most formidable problem would appear to be the problem of holding the $B \times V$ generator at cryogenic temperatures. In view of the overall possibilities of this invention, this problem does not appear to be incapable of a solution. A breakthrough in finding superconducting materials or even near superconducting at slightly elevated temperatures from those presently required would greatly aid in the solution of this problem.

FIG. 7 of the drawings illustrates in outline, the future possible application of this device, obtaining regulated lift by an operator 71 adjusting the current into the coils 72 and 74 which incorporate the structural features of the devices of FIG. 4. The antigravity gravity control features of the coils 73 and 74 thus control the lift and movement of vehicle 76. Suitable cryogenic generators 73a and 74a are associated with each of the coils 73 and 74 to provide the cooling thereof as per

absolute zero as possible to give the enhanced current passage characteristics necessary to the objects of the invention.

While I have demonstrated that AC current can be used in my device, it appears at present that DC current is much to be preferred.

This invention could be uniquely adapted to a communication system from one side of a solid barrier to the other side whether this barrier be solid concrete or battleship armor, by pulsing the $B \times V$ generator coil with signals, Morse Code or even voice modulated signals to be picked up by a capacitor-electrometer circuit on the other side of the barrier. Secret communications could be carried on and with the electrometer circuit as shown in FIG. 2 connected to a relay radio broadcasting unit, so that one might conceivably broadcast by radio from the interior of a solid metallic enclosure.

It is conceivable that the invention might be useful in the highly specialized art of concealed detonation devices. A detonating circuit connected to the capacitor electrometer receiving circuit of my device such as shown in FIG. 2 could be actuated through a solid barrier by our $B \times V$ generating coil placed on the other side of such a barrier.

It is conceivable that for some specialized purposes, it might be highly desirable to transmit electrical power from one side of a fixed solid barrier, concrete or armor plate, etc. by pulsing, DC or AC, in our $B \times V$ coil on one side of such a barrier. A resonant LC circuit could pick up these $B \times V$ pulsations and supply a source of electrical power on the other side of the barrier, in a manner somewhat analogous to my electrical receiving methods outlined in U.S. Pat. Application, Ser. No. 803,187, identified above.

In accordance with the patent statutes, only the best known

embodiments of the invention have been illustrated and described in detail, but it is to be understood that the invention is not limited thereto or thereby, but that the scope of the invention is defined in the appended claims.

What is claimed is:

1. Apparatus for demonstrating an electrical phenomenon comprising,

a coil made from an electrically conductive material having a very large plurality of sections compacted in close proximity arranged in substantially complementary relation around a common central axis, where the coil forms a solid cylindrical shape with the sections parallel to the axis thereof, and

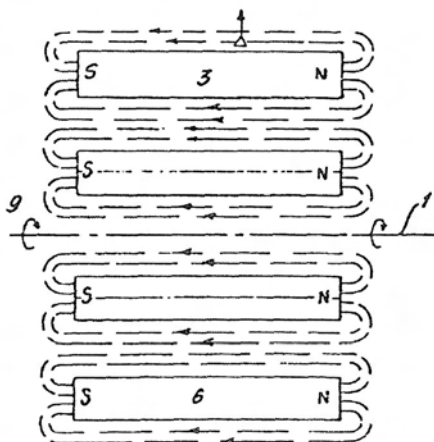
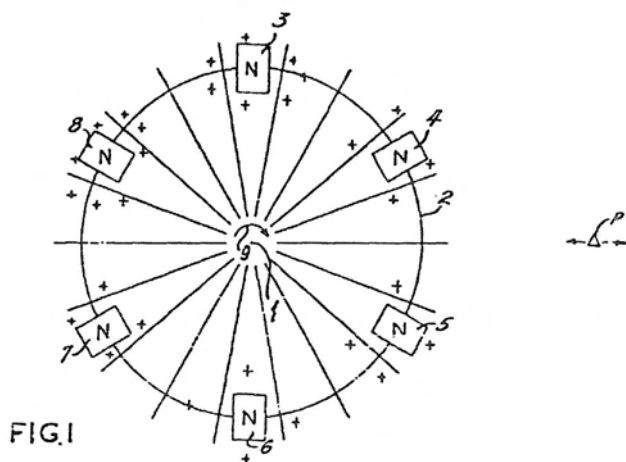
means to pass current through the coil so that about half the sections will pass current in a direction opposite to the other sections to cancel magnetic flux.

2. Apparatus according to claim 1 where adjacent sections are electrically insulated from each other, and the coil comprises a single wire bent back on itself to make the sections.

3. Apparatus according to claim 1 which includes means to increase the passage of electrical current through the conductor.

4. Apparatus according to claim 3 where the means to enhance is a cryogenic generator which reduces the temperature of the conductor to or below its critical temperature at which it becomes superconductive.

5. Apparatus according to claim 1 which includes an elongated hollow tube having an axis, the conductor formed around the tube.



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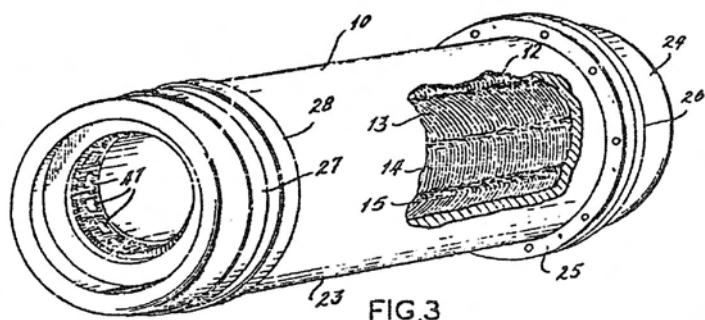


FIG. 3

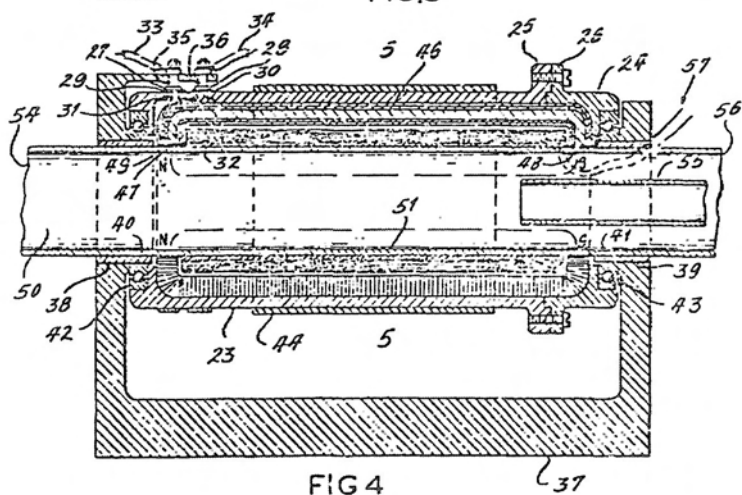


FIG. 4

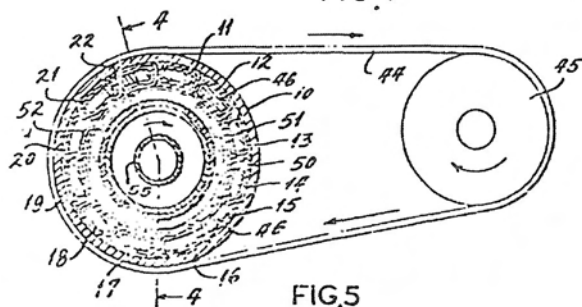


FIG. 5

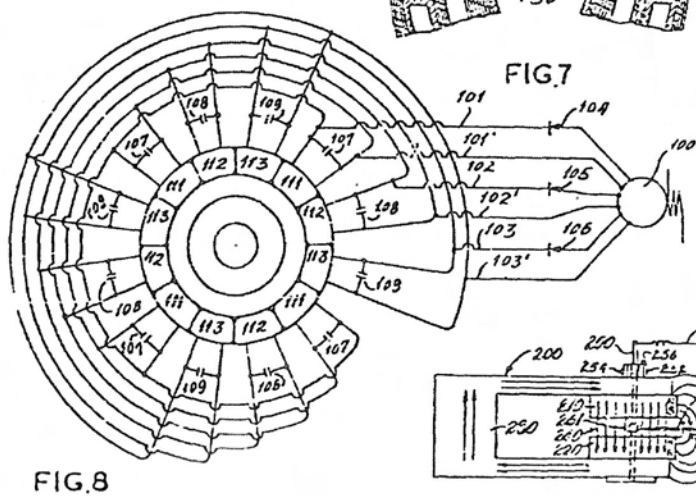
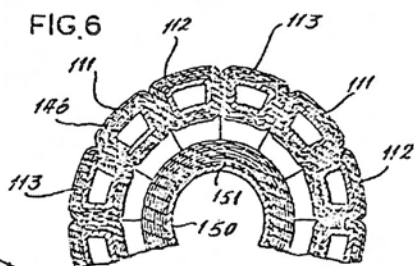
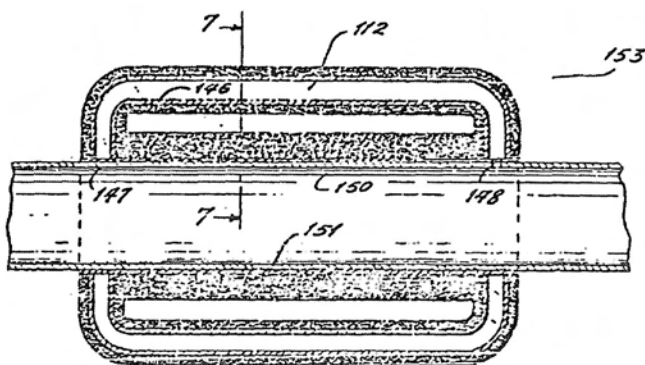
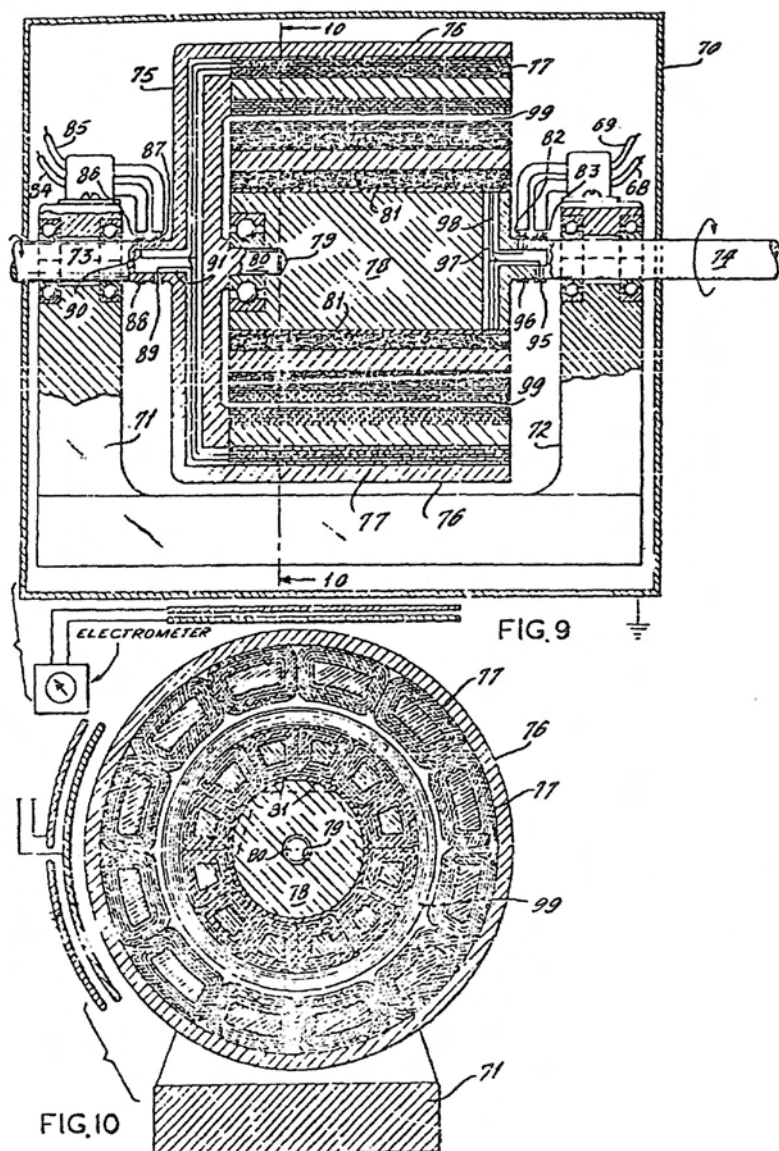


FIG. 11



United States Patent

Hooper

[15] 3,656,013

[45] Apr. 11, 1972

[54] APPARATUS FOR GENERATING MOTIONAL ELECTRIC FIELD

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 [22] Filed: Apr. 19, 1968
 [21] Appl. No.: 722,587

- [52] U.S. Cl. 310/10
 [51] Int. Cl. H02L 1/00
 [58] Field of Search 310/10, 11, 178, 177, 156, 310/42, 268, 211, 169, 216, 269, 259; 105/1; 55/2, 14, 101, 123, 127, 120; 73/194 EM; 328/233-238

[56] References Cited

UNITED STATES PATENTS

- | | | | |
|-----------|---------|-------------|---------|
| 3,285,179 | 11/1966 | Resler, Jr. | 103/1 |
| 3,336,489 | 8/1967 | Volger | 310/40 |
| 3,431,441 | 3/1969 | Shair | 310/11 |
| 399,800 | 3/1889 | Thomson | 310/115 |
| 460,087 | 9/1891 | Hewett | 310/46 |
| 2,066,343 | 1/1937 | Gillen | 310/46 |
| 2,558,540 | 6/1951 | Clos | 310/46 |

- | | | | |
|-----------|---------|-------------|---------|
| 2,705,762 | 4/1955 | File | 310/104 |
| 3,277,631 | 10/1966 | Sunnen | 55/3 |
| 3,385,983 | 5/1968 | Bohn et al. | 310/11 |

OTHER PUBLICATIONS

Bock-Theory and Calculation of Electrical Apparatus by C. P. Steinmetz, N.Y.-1917.
 Text Book- The Electromagnetic Field in its Engineering Aspects G. W. Carter- 2nd edition- 1967 pages 168 to 171 incl., 328, 329, 334, 335 and 336
 The Feynman Lecture on Physics by Feynman, Leighton and Sands Addison-Wesley- Publishing Co., New York; pages 17-1 and 17-2

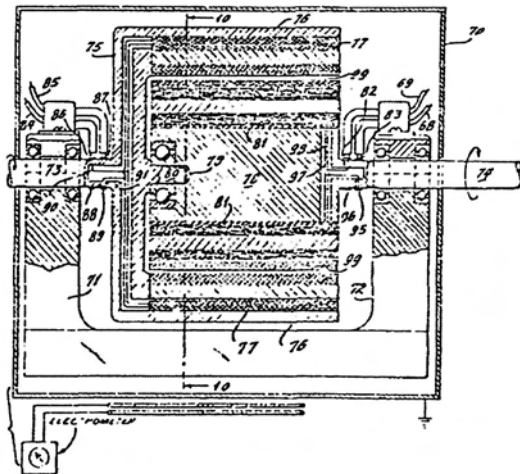
Primary Examiner-D. X. Sliney
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[57]

ABSTRACT

Apparatus for producing and demonstrating properties of motional electric fields by means of rotating magnetic flux produced by a plurality of magnets extending parallel with the axis of rotation, said flux of these magnets being put into rotation about a common axis by mechanical or by electro magnetic means.

6 Claims, 11 Drawing Figures



APPARATUS FOR GENERATING MOTIONAL ELECTRIC FIELD

This invention relates to the generation of motionally induced electric fields as distinct from electrostatic fields, and as distinct from the electric field (illustrated by transformer action) which is induced by the time rate of change of magnetic induction. Hence, all reference herein to a motional electric field means the electric field that is generated by the movement of magnetic flux.

The motional electric field generated by rotational motion of magnetic flux is non-uniform in both direction and radial intensity. Particles (large or small) of matter (solid, liquid or gaseous) which are within the ambit of this motional electric field are acted upon with a force which tends to accelerate them. It is well known that a particle carrying a charge Q (coulombs) in an electric field of intensity E (Newtons/coulomb) will be acted upon by a force F (Newton) given by the equation $F = EQ$. The electric intensity E of a motional electric field is given by the vector equation $E = B \times V$, where B is the magnetic flux density at a point in space, expressed in webers per square meter, and V is the velocity of the moving magnetic flux at that point in space, expressed in meters per second. What is not so well known, however, is the fact that a non-uniform electric field exerts a force upon electrically neutral matter. In his celebrated text, "The Mathematical Theory of Electricity and Magnetism," Sir James H. Jeans describes, in the case of a non-uniform electrostatic field, how a "slab of dielectric will be sucked in between the plates of the condenser" thus demonstrating the mechanical force produced by such a field. He states (p. 125), "This, as will be seen later, is a particular case of a general theorem that any piece of dielectric is acted on by forces which tend to drag it from the weaker to the stronger parts of an electric field of force." According to Clerk Maxwell in "Electricity and Magnetism" (Vol. II, p. 181), Faraday discovered that the electric field due to electromagnetic induction penetrated within and throughout all materials. The motional electric field is just such a field. Apparatus for demonstrating the "general theorem", stated by Jeans, has, in the case of the non-uniform motional electric field, not heretofore been provided.

Accordingly, it is one of the objects of the present invention to provide a device for generating a non-uniform motional electric field whose force is of magnitude such that it can be sensed.

Since the motional electric field acts within and throughout all matter, such a non-uniform field will exert a physical force on any kind of electrically neutral matter, in a manner quite analogous to that of the electrostatic field with respect to dielectric material.

Another object of the invention is to provide apparatus for obtaining useful work from a non-uniform motional electric field.

The several objectives of the invention may be accomplished by rotating an elongate magnetic field about an axis which is concentric with the field and parallel with the field's elongation. For example, an array of magnets may be mounted on a rotor so that all magnets are parallel with the axis of the rotor, and all have the same polar orientation relative to the rotor. A solenoidal electro magnet, or another array of magnets, with magnetic axis concentric with the rotational axis may also be employed to enhance the flux density of the array of rotating magnets by flux linking with them. When such an array of magnets is rotated about the axis of the rotor, the magnetic field of each is rotated with it. As another example, an elongate magnetic field can be rotated about its axis, without mechanical movement, by the provision of stationary solenoidal electro magnets arrayed like the staves of a barrel and connected to a source of multi-phase alternating current (half wave rectified to prevent reversal of sign) in a manner comparable to the stator winding of a three-phase motor to produce a "revolving field." While the composite magnetic field is thus in rotary motion, every charged, or uncharged particle of matter (solid, liquid, or gaseous) within the non-uniform motional electric field thus generated in the neighborhood of

the rotor, will be acted upon by a force due to the electric intensity E . Positively charged particles will be forced in the direction of the vector E , negatively charged particles will be forced in the opposite direction, and electrically neutral matter will be pulled from the weaker regions of field intensity to the stronger regions. This latter mechanical force is called a differential force due to the action of the field on the internal electrical polarization of the neutral matter.

The three vectors E , B , and V are always (with a possible exception) mutually at right angles to each other. If the thumb of the right hand is pointed in the direction of the magnetic flux density vector B , and then rotated like a right-handed screw so that it points in the direction of the velocity V of the moving magnetic flux, then the forefinger of the right hand will point in the direction of the electric vector E . The rotation of the composite magnetic flux about its axis produces a motional electric field which will, except at the axial ends of the magnetic field, be quite generally directed radially with respect to the axis of rotation. The possible exception is the case of a magnet having a homogeneous electrically conductive core of perfectly circular cross-section, in which case the force of the electric field may be somewhat off radial.

With a given polar orientation of magnets relative to the axis of rotation, rotation of the magnetic field in a clockwise direction will generate a motionally induced electric field of sign (positive or negative) opposite that which is generated when the rotation is counterclockwise. For any given sense of rotation, reversing the polar orientation of the magnets relative to the axis of rotation likewise reverses the sign (positive or negative) of the motionally induced electric field. Reversing both the direction of rotation and the polar orientation of the magnets (a situation exemplified by viewing the apparatus first from one axial end, and secondly from the opposite axial end) produces no change in the sign (positive or negative) of the motionally induced electric field.

In the accompanying drawings, three embodiments of the invention are exemplified. Also, there are two model schematics to illustrate in its simplest form the principle of the invention, in which a plurality of commonplace permanent magnets are mounted upon a rotor.

The first embodiment is one in which an array of electro magnets is mounted on a rotor having a hollow center, through which particles of matter can be moved and their response to the motional electric field perceptibly demonstrated.

Second, there is an embodiment in which electro magnets are arrayed as in the first embodiment, but are stationary and their composite magnetic field is rotated electromagnetically by phase displacement.

Third, there is an embodiment in which a pair of oppositely rotating rotors, nested one within the other, are each provided, on its circumference, with an array of electro magnets oriented as aforesaid on each rotor, but oppositely oriented on the respective rotors, and wherein the effect of the motionally induced electric fields can be perceptibly demonstrated by the behavior of particles of matter externally of the rotor.

In the accompanying drawings:

FIG. 1 is a diagrammatic view illustrating the effect of rotating an array of spaced permanent magnets about an axis which is parallel with each of the magnets when all magnets have corresponding polar orientation;

FIG. 2 is a diagrammatic view representing a side elevation of the arrangement shown in FIG. 1, and illustrating the external magnetic flux paths of the several permanent magnets;

FIG. 3 is a perspective view of a rotor for generating a radially directed motional electric field in accordance with one embodiment of the invention, wherein electro magnets are arrayed within a hollow rotor with axes parallel to that of the rotor;

FIG. 4 is a sectional view taken along a diametric plane of the rotor shown in FIG. 3, together with its cooperating parts;

FIG. 5 is a sectional view along line 5-5 of FIG. 4, and showing, in addition, driving means for the rotor;

FIG. 6 is a sectional view taken along a diametric plane of a stationary form of apparatus similar to that shown in FIGS. 3, 4, and 5, but wherein the magnetic flux field is rotated electro-magnetically by phase displacement;

FIG. 7 is a sectional view taken along line 7-7 of FIG. 6;

FIG. 8 is a wiring diagram for the apparatus shown in FIGS. 6 and 7;

FIG. 9 is a longitudinal sectional view of an apparatus having a plurality of rotors for generating a $B \times V$ electric field;

FIG. 10 is a sectional view taken along line 10-10 of FIG. 9; and

FIG. 11 is a diagrammatic illustration of an apparatus for exhibiting moving field phenomena.

In FIGS. 1 and 2, the principle of the invention is diagrammatically illustrated with the utmost simplicity, wherein a catena of magnetic flux fields, all with the same polar orientation, is produced by arranging an array of rod-type permanent magnets parallel with each other, and parallel with the axis about which they are to be rotated. In FIG. 1, the axis of rotation is designated 1, and may be considered as the center of a shaft of a rotor, preferably composed of material having low, if any, magnetic permeability, and low, if any, electrical conductivity. The periphery of such a rotor is designated by the circle 2. In the form shown, a series of permanent magnets 3, 4, 5, 6, 7, and 8 is appropriately secured to the periphery of the rotor with the respective magnets in equi-spaced relationship, and all with their north poles addressed in the same direction which, as shown in FIG. 1, is in the direction of the reader or, as shown in FIG. 2, to the reader's right. The external flux fields from the respective permanent magnets 3, 4, 5, and 6 are illustrated in FIG. 2, where it will be observed that the external flux path of all magnets is from right to left, a relationship designated by the plus (+) marks in FIG. 1. With such an arrangement, the flux fields of all magnets may be concurrently rotated about axis 1. Considering the rotation to be in the direction of arrows 9 and the polar orientation of the several permanent magnets to be as illustrated, a $B \times V$ motional electric field will be generated both externally and internally of rotor periphery 2 upon rotation of the rotor. The thus generated motional electric field will exert a radially directed force upon every particle of matter, neutral or charged, such as particle P, which is within the ambit of the catena of magnetic flux fields. The magnitude of the so impressed electric field intensity will depend upon the magnetic flux concentration at the particle P and the relative velocity between the flux field and particle P. While, if particle P is in motion, its velocity must be considered in arriving at the relative velocity V (in the formula $E = B \times V$) the disclosure will be simplified if the particle P be considered as stationary, and in such event V will be $2R$ times S , where R is the radial displacement of particle P from axis 1, and where S is the revolutions per unit of time made by the rotor. Hence, with the particle P stationary, the magnitude of the force impressed upon it is increased when the speed of rotation of the rotor is increased at a given flux density; and is increased by an increase in the flux density at a given speed of rotation. The direction in which the force of the motionally induced electric field acts upon particle P is always perpendicular to the magnetic flux field B and to its velocity V . The sign of the electric force field may be either positive (acting radially outward from the axis of rotation) or negative (acting radially inward toward the axis of rotation), which, for any given polar orientation of the permanent magnets, may be reversed by reversing the direction of rotation of the rotor. With the polar orientation shown in FIGS. 1 and 2, and the direction of rotation indicated by arrow 9, if particle P is a proton or a positively charged molecule, the force of the $B \times V$ electric field will be radially inward as indicated by the solid line arrow attached to particle P, but if particle P is an electron or a negatively charged molecule, the particle will tend to move radially outward as shown by the broken line arrow, and if the particle P is electrically neutral, it will tend to move in the direction of increasing electrical intensity E . Increase of E requires either that both B and V be increasing or

that one be increasing at a sufficiently greater rate than the other is decreasing so that the product ($B \times V$) increases. In the relationship of field and particle shown in FIG. 1, the product ($B \times V$) increases radially inward.

For practical purposes, however, commonplace permanent magnets produce insufficient flux density in their external flux paths to impress upon a particle of charged matter such as P, an electric force of sufficient magnitude that the force of the electric field can be measured with ease, at least at speeds of rotation within practical limits. Consequently, the practical embodiments of the invention, later to be described, make use of electro magnets of a form capable of producing external flux fields of vastly greater flux density B , as well as higher velocities V .

The term "unipolar induction" has been used to indicate the induction of an electric field in the vicinity of an axially symmetrical magnetic system rotating about its axis of symmetry. There has been disagreement about whether as the magnetic system is rotated the lines of magnetic induction are carried with it or remain stationary while the magnetic system rotates through them. For example, when a bar magnet is rotated about its magnetic axis, it is believed by many that the magnetic field is stationary. I have demonstrated that under certain conditions, at least, the magnetic lines can be made to move, and I have devised certain methods and apparatus for utilizing this phenomena as in the production of localized and high intensity electric fields.

Turning now to FIG. 11 of the drawings, an apparatus for demonstrating certain magnetic phenomena is illustrated in diagrammatic form. A magnetic system, indicated generally by numeral 200, includes a pair of permanent magnets 210 and 220 which are axially magnetized and mounted in axial alignment between the ends of a U-shaped yoke 230 of highly permeable magnetic material. The adjacent surfaces of magnets 210 and 220 being of opposed polarity are spaced apart, providing an air gap 240 therebetween. The lines of magnetic flux are shown in the drawing and indicated generally by numeral 262. A brass rod 250 extends axially through magnets 210 and 220. The magnetic system 200 is rotatable about rod 250. A stiff conductor 260 is electrically connected by a collar 261 at one end in rotatable or fixed relation as selectively desired, with the brass rod 250 at a point in the gap 240 between magnets 210 and 220. The other end of conductor 260 extends substantially perpendicularly from rod 250 to a distance in space away from the magnets and yoke where the magnetic field falls to approximately zero intensity. In order to complete an electrical circuit through galvanometer 270 and conductor 280 to the brass rod 250 and conductor 260, a flexible and extensible electrical wire 264 connects the end of conductor 260 to the galvanometer 270. A gear 252 locked alternatively by set screw 254 to rod 250 or by set screw 256 to yoke 230 can serve to provide driving motion to either the rod 250 or YOKÉ 230 as selectively desired. Normally, for the purposes of the experiment, the driving motion will be reciprocal because of the connection of wires 280 and 264.

With this apparatus, if the magnetic system 200 is held fixed and a given angular displacement imparted to conductor 260 by rotating it horizontally about or with rod 250 through the air gap at a given angular speed, a voltage is induced which provides a deflection of galvanometer 270. Furthermore, when the conductor 260 is held fixed and the magnetic system 200 rotated through the same angular displacement about rod 250, at the same given angular speed, a similar voltage of exactly the same magnitude but opposite direction is induced in the galvanometer circuit. The same deflection is obtained whether or not the magnets 210 and 220 rotate with the yoke 230 or are held stationary while the yoke alone is rotated. This indicates clearly that the lines of magnetic induction in the quantity rotate about the axis of rotation 250 as if they were rigidly attached to the magnetic system 200.

A most important aspect of the operation of the apparatus of FIG. 11 is noted when the magnets 210 and 220 are held fixed in relation to the conductor 260 and rod 250 and the

yoke 230 is rotated about the rod 250. This action causes induction of current in the galvanometer circuit exactly as occurs when the entire magnetic structure or the conductor itself are moved. However, if the magnetic yoke 230 and conductor 260 are held fixed and magnets 210 and 220 rotated, there is no deflection of the galvanometer. Thus, it appears that the yoke structure plays an important part in controlling movement of the magnetic flux. Furthermore, it should be noted that the magnetic flux does not link the galvanometer circuit in the usual sense that this term is used, but that a current is induced in the galvanometer circuit through the action of the conductor 260 in merely cutting across the field extending between adjacent faces of magnets 210 and 220.

It has also been found that the permanent magnets 210 and 220 may be replaced by an electromagnet and the results described above duplicated. Furthermore, it can be demonstrated that the magnetic flux within the air core of a solenoid may be rotated about its magnetic axis. A brass tube formed in the shape of a toroidal C has a winding applied to its entire length with holes drilled in the tubing to receive a brass rod, as 250 in the structure shown in FIG. 11. With the winding energized, the above-described procedures produce similar galvanometer deflections.

This application is concerned with certain methods and apparatus which make use of the phenomena described above.

Referring now to FIGS. 3, 4, and 5 for an illustration of the second embodiment, a tubular rotor 10 is provided on its inner periphery with 12 keystone cross-sectional electro magnets 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, and 22 of the solenoid type. As seen in the cross-section of FIG. 5, the several electro magnets are arranged as sectors of a cylindrical annulus. While in the form shown, the several electro magnets 11-22 are shown in circumferentially wedged relationship, whereby to minimize the likelihood of relative movement radially inward as at standstill, as well as in the interest of achieving substantial uniformity of external flux density throughout the inside circular area of the rotor, it will be understood that when and if desired, the several electro magnets can be circumferentially spaced one from the other, and, if desired, a spacer of relatively low, if any, magnetic permeability interposed between them. Any suitable means may be employed for securing the several electro magnets to the shell of the rotor.

In order to facilitate the assembly of the several keystone-shaped electro magnets on the interior of the rotor as shown, the shell thereof is made of at least two pieces 23 and 24. In the form shown in FIGS. 3-5, the two pieces 23 and 24 are cup-shaped, and are respectively provided with outwardly extending flanges 25 and 26. Once the several solenoids have been positioned within the longer shell piece 23, the shorter shell piece 24 may be applied as a cap so that flanges 25 and 26 abut, and may be appropriately secured together as by riveting, bolting, welding, or cementing.

The shell pieces 23 and 24, as well as their interconnecting means, may be formed of material having little or no magnetic permeability, or in cases where it is desired to shield the exterior from the escape of magnetic flux, they may be formed of material having a high magnetic permeability. Instead of dividing the rotor shell in twin axially, it may be divided radially, in which event the two halves will have axially extending joints when assembled, and may be held in such assembled position by banding or other appropriate means capable of sustaining the centrifugal force to which the rotor will be subject in use.

At the end of shell piece 23, remote from flange 25, there is provided a pair of slip rings 27 and 28 which, in the event the shell piece is formed of electrically conductive material, may be separated from the shell piece by sub-rings 29 and 30, of appropriate insulating material. The slip ring 27 is connected through a conductor 31 to the free end on the inner course of the solenoid winding for each of the electro magnets 11-22. The slip ring 28 is connected through a conductor 32 to the free end of the outer course of winding in each of the solenoids

11-22. All 12 solenoids are connected so that the direction of electric current flow is the same in all solenoids. The energizing current is supplied from an external source through conductors 33 and 34 and brushes 35 and 26, in a manner well understood in the art.

The rotor is mounted upon an appropriate frame 37, having opposite stationary stub axes in the form of ferrules 38 and 39 which project toward each other. On the projecting portion of each of ferrules 38 and 39, there is provided an inner race 40 and 41 for each of two ball bearing sets whose outer races 42 and 43 are appropriately mounted to the respective ends of the rotor 10, so that the rotor 10 is free-running, with respect to the frame 37, about an axis concentric with the rotor 10.

In the embodiment shown, the exterior cylindrical surface of rotor 10 serves as a pulley for a drive belt 44 which connects the rotor to a source of power 45, but any other suitable means of driving the rotor in rotation may be utilized.

In the form shown in FIGS. 3-5, the apparatus is intended to concentrate the magnetic flux of the several solenoids radially inward, and to facilitate this each of the solenoids is provided with a core 46 of material having high magnetic permeability. As shown in FIG. 4, the several cores 46 are of squat U-shape, and extend, for the most part, parallel to the axis of the rotor, but at each end the cores are curved so as to provide faces 47 and 48 addressed radially inward. To minimize the radially outward escape of magnetic flux from the several solenoids, they are preferably wound of ribbon-like conductor which is coated with any appropriate electrical insulation. The first course of winding begins at 49, and proceeds in helically wound fashion with the minimum of space between adjacent turns about core 46, to the opposite end thereof, whereupon, without interrupting the continuity of the conductor, the second course is wound helically over the first course, with the pitch of the helix reversed from that in the first course. In this way, any gaps between successive turns in the first course are overlapped by turns in the second course. While the drawings show only two courses of conductor about each core 46, it will be understood that, in practice, there may be many more courses.

With the several solenoids connected through the slip rings to a source of direct current as above-described, it will be understood that all the solenoids 11-22 have the same polar orientation with respect to the axis of rotation of the rotor. For example, all core ends 47 are North poles, and all core ends 48 are South poles.

A tube 50 of circular cross-section is mounted in fixed relationship within the respective ferrules 38 and 39. The tube 50 is preferably made of material having little or no magnetic permeability. The tube 50 is stationary, but the rotor 10 rotates about the axis of the tube 50.

A stationary solenoid 51 is fixedly mounted on the exterior of tube 50 in a position such as to fit, with clearance, into the bight of the squat U-shaped solenoids 11-22. Solenoid 51 may be wound directly on tube 50, but in the form shown, it is wound on a cylindrical core 52 of material having little or no magnetic permeability, and the core 52 is telescoped on tube 50. The stationary solenoid 51 is energized through appropriate leads (not shown) from conductors 33 and 34 or other source of direct current, and is so connected that its magnetic polarity is opposite that of solenoids 11-22, that is to say that when, as aforesaid, the core ends 47 are North poles, the adjacent end of solenoid 51 will be its South pole. Thus, magnetic flux of solenoids 11-22 has an external path, through tube 50, which is coincident with, and in the same direction as, the internal path of magnetic flux in solenoid 51.

Thus, the magnetic field generated by each of the solenoids 11 through 22, as well as that generated by solenoid 51, penetrates the interior of tube 50, and when the rotor is driven in rotation, the magnetic fields rotate collectively about the axis of tube 50. During such rotation, particles of matter within the tube 50 are within the motional electric field generated by the rotating magnetic flux. Such an apparatus has a demonstrable effect in the separation and concentration

of fluids. For example, in the de-salinization of water, the $B \times V$ electric field generated by the rotating magnetic fields, acts upon the dissociated ions of the sodium chloride in solution. This is explained by the fact that if the rotor 10 be rotated in the direction shown by the arrows in FIG. 5, the $B \times V$ field tends to drive the positively charged sodium cations toward the center, and tends to drive the negatively charged chlorine anions away from the center of tube 50. Hence, by introducing a flow of saline water at end 54 of tube 50, and by providing a concentric separating tube 55 at end 56 of tube 50, increments of fluid which are concentrated with sodium and depleted of chlorine may be drawn off through the stationary tube 55, while the increments of fluid which are concentrated with chlorine and depleted of sodium may be drawn off through the space between the exterior walls of tube 55 and the interior walls of tube 50.

Another utility of the apparatus shown is that of transmitting hydrogen into helium, in which event tube 55 is omitted and electrodes are provided at opposite ends 54 and 56 of tube 50, so that an electric arc may be established between them. Heretofore, difficulty has been encountered in maintaining the plasma of the arc in a relatively straight path between the electrodes as it tends to wiggle and extinguish itself when it makes contact with one of the confining walls. However, by impressing a $B \times V$ electric field upon such an arc, its path may be confined within controllable limits. The $B \times V$ electric field has the further effect of driving hydrogen protons toward the center of the tube, and driving electrons away from the center of the tube. Add one neutron to a hydrogen atom nucleus, and there is produced the isotope known as Deuterium; add one more neutron to the Deuterium nucleus, and it becomes Tritium; add one more proton to the Tritium nucleus, and it becomes Helium.

A third embodiment of the apparatus is shown in FIGS. 6, 7, and 8. With the significant exception that the embodiment of FIGS. 6, 7, and 8 has no moving mechanical parts, its organization is, in general, quite similar to that shown in FIGS. 4 and 5, and hence the last two digits of the reference characters utilized in the previous embodiment. As shown in FIG. 6, a cylindrical tube 150 has a solenoid 151 wound on the exterior thereof, and is energized with direct current from a suitable source through leads 153. A plurality of squat U-shaped solenoids 111, 112, and 113, of keystone-shaped cross-section, of which there are four each or any multiple of four, are wound as described in connection with the previous embodiment, and securely mounted in any suitable way with their pole faces 147 and 148 contiguous with, and addressed toward the axis of, tube 150. In this embodiment, however, the several squat U-shaped solenoids 111, 112, and 113, have cores which are made of material having little or not magnetic permeability, such as tubes 146 of paperboard wound to a cystene shape with hollow interior. As in the previous embodiment, the magnetic polarity of solenoid 151 is opposite that of the solenoids 111, 112, and 113, which is to say that if ends 147 of the solenoids 111-113 are the North poles thereof, the adjacent end of solenoid 151 is its South pole, so that the external magnetic flux path from solenoids 111-113 is coincident with, and in the same direction as, the internal flux path of solenoid 151.

In the embodiment shown in FIGS. 6-8, the several squat U-shaped solenoids 111, 112, and 113 are energized with non-interconnected three-phase alternating current, each phase of which has been half-wave rectified to produce direct current pulsating at alternate half cycles. One phase of the alternating current is connected to all solenoids 111; another phase of the alternating current is connected to all solenoids 112; and the third phase of the alternating current is connected to all solenoids 113, as shown in the wiring diagram of FIG. 8, where a three-phase alternator 100 is provided with six leads arranged in three pairs, to wit: leads 101 and 101' for the first phase, leads 102 and 102' for the second phase, and leads 103 and 103' for the third phase. The respective phases are not electrically interconnected. In each of leads 101, 102, and 103, there is a rectifier 104, 105, and 106, respectively. Leads 101 and

101' serve all four of solenoids 111; leads 102 and 102' serve all four of solenoids 112; and leads 103 and 103' serve all four of solenoids 113. Across leads 101 and 101', between the rectifier 104 and the respective solenoids 111, there is provided a capacitor 107. Such capacitor is to coordinate the capacity and inductance of input, and to neutralize the effect of induction in solenoids 111 by adjacent solenoids during the off half-cycle of energization. Likewise, a capacitor 108 is connected between leads 102 and 102', and a capacitor 109 is connected between leads 103 and 103'. It will be apparent to those skilled in the art that since the four solenoids of like phase are arranged in quadrature with each other, and since solenoids 111 will reach their peak of magnetic flux 120' ahead of solenoids 112 reaching their peak flux, and the latter 120' ahead of solenoids 113 reaching their peak flux, a revolving magnetic field is created. Due to the rectification of the alternating current, and the consequent utilization of the half cycles which all flow in the same direction, there will be no reversal of the direction of magnetic flux generated by any of solenoids 111, 112, and 113, and hence, as in the case of the previous embodiment, the external path of all magnetic flux generated in the solenoids 111, 112, and 113 is coincident with, and in the same direction as, the internal flux generated by direct current energization of solenoid 151. When such an arrangement is supplied with alternating current at high frequency, such as a thousand cycles per second, the same results are achievable with this embodiment as with the previous embodiment but without movement of any mechanical parts.

For the purpose of illustrating the effect of the $B \times V$ electric field, and segregating that effect from the effect of stray magnetic or electrostatic forces, reference may be had to FIGS. 9 and 10. The device there shown is intended to be enclosed in an electrically grounded box 70 of material which has a high magnetic permeability, and which also has the property of electrical conductivity for shielding electrostatic fields.

Within the box 70, there is a compound rotor machine, wherein the respective rotors are driven in opposite directions. In a suitable frame having spaced pedestals 71 and 72, there is mounted a shaft 73 and an independent shaft 74. Both shafts 73 and 74 may be driven from a single source of power, and are preferably driven at the same rotational speed, but in opposite senses. A yoke 75 is fixedly mounted to shaft 73 for rotation with it. The yoke is cup-shaped with cylindrical skirt 76. About the inner periphery of the skirt 76, a plurality of solenoidal electro magnets 77 are fixedly mounted thereto. The several electro magnets extend parallel with the common axis of rotation of shafts 73 and 74, and are of the same polar orientation with respect to those shafts. The several electro magnets 77 have identical solenoids wound, in the manner previously described, about identical cores of material having high magnetic permeability. The solenoids of the several electro magnets 77 are energized from a suitable source of direct current through conductors 84 and 85, brushes 86 and 87, slip rings 88 and 89, and conductors 90 and 91. The respective solenoids 76 are preferably connected in parallel circuit relationship, but, if desired, may be in series so long as uniform polar orientation is maintained.

Shaft 74 is provided with a hub 78 having a coaxial bore 79, into which is rotatably fitted a pilot 80 projecting concentrically from shaft 73. On the outer periphery of hub 78, there is fixedly mounted a plurality of electro magnets 81, each of which is an identical solenoid, and each of which has an identical core of material having high magnetic permeability. As in the previous case, the several solenoids 81 are all energized so as to have the same polar orientation with respect to their axis of rotation. Each of the solenoids is energized from a suitable source of direct current through conductors 82 and 83, brushes 84 and 85, slip rings 86 and 87, and conductors 88 and 89. All of the solenoids 81 are preferably connected in series circuit relationship, but, if desired, may be in parallel.

If desired, and as shown, the several solenoids 81 may be surrounded by a simple solenoid 99 wound helically

thereabout and electrically connected in parallel or series relationship with solenoids 81 and to conductors 97-98 so that the current flow through solenoid 99 is in the same direction as through solenoids 81. Thus the winding 99 serves the dual purpose of boosting the magnetic fields generated by solenoids 81 and of mechanically binding the latter to the surface of hub 78.

When, as contemplated, the shafts 73 and 74 are driven in rotation simultaneously, but in opposite directions, the solenoids 77 which rotate with shaft 73 have opposite magnetic polar orientation to those (81) which rotate with shaft 74. The several solenoids 77 are preferably designed to create external magnetic flux fields of flux density approximately equal and opposite to those created by electro magnets 81 and 99, but by the principle of superposition ("Elec. & Mag.", by Ralph W. Winch, 1963 Ed., p. 202), each flux field acts as if the other were not present. Despite the fact that the flux fields created by the responsive series of electro magnets 77 and 81 and 89 are oppositely directed, since their rotation is in opposite senses, their resultant effect, insofar as concerns the generation of a $B \times V$ electric field, is cumulative. Accordingly, the external $B \times V$ electric field is intensified at the exterior of the device, and its effect on the outside of shielding box 70 is demonstrable, even though the resultant magnetic flux density there is approximately zero. Such demonstration might be through a capacitor and electrometer as shown in FIG. 9, for example.

In order to achieve the maximum flux density and hence the maximum $B \times V$ electric field intensity, it is desirable to take measures which keep the apparatus cool. This may involve resort to such means as: winding the several solenoids with so-called "super-conductors" such as that known commercially as "Supercon"; or refrigerating the apparatus as by immersing it in a bath of liquid helium which is capable of maintaining a temperature of approximately 4° Absolute.

While several illustrative embodiments of the invention have been disclosed in detail, it is not to be understood that the invention is limited to those embodiments. On the contrary, the principles of the invention are susceptible of application in a vast variety of forms without departing from the spirit of the invention or the scope of the appended claims. The apparatus defined in the following claims is believed by the applicant to demonstrate his unique theory disclosed above.

What is claimed is:

1. Apparatus for generating an electric field, comprising:
 - a frame;
 - a cylindrical rotor;
 - a shaft journaled on the frame and supporting the rotor for rotation about its longitudinal axis;
 - a plurality of electro magnets, each of which is an identical solenoid having a core formed of a material having a high magnetic permeability, the electro magnets being fixedly mounted on the rotor with each electromagnet extending parallel to the axis of rotation thereof,

means to energize the solenoids of the electro magnets from a direct current source, the solenoids being energized so as to maintain a uniform polar orientation; and an enclosure surrounding the frame and the rotor, the enclosure being formed of an electrically conductive material the enclosure being grounded.

2. Apparatus according to claim 1 wherein the rotor is a hollow cylindrical rotor, the electromagnets being affixed to the inner cylindrical surface of the rotor.

3. Apparatus according to claim 1 wherein the solenoids are connected in parallel circuit relationship.

4. Apparatus for demonstrating magnetic phenomena comprising:

- a frame;
- a cylindrical rotor;
- a shaft journaled on the frame and supporting the rotor for rotation about its longitudinal axis;
- a plurality of electro magnets, each of which is an identical solenoid having a core formed of a material having a high magnetic permeability, the electro magnets being fixedly mounted on the rotor with each electro magnet extending parallel to the axis of rotation thereof,
- means to energize the solenoids of the electro magnets from a direct current source, the solenoids being energized so as to maintain a uniform polar orientation;
- an enclosure surrounding the frame and the rotor, the enclosure being formed of an electrically conductive material, the enclosure being grounded; and
- means surrounding at least a portion of the enclosure to detect and measure the electric field generated during rotation of the energized rotor.

5. Apparatus for demonstrating magnetic phenomena, comprising:

- a U-shaped yoke of highly permeable magnetic material;
- a pair of permanent magnets mounted in axial alignment between the ends of the yoke, one magnet being mounted to each leg of the yoke;
- an electrically conductive non-magnetic rod extending axially through the magnets;
- a stiff conductor mounted at one end to the rod for rotation relative to the yoke in a plane perpendicular to the rod and intermediate the magnets, the conductor extending a sufficient distance beyond the magnets so that its other end is located at a point where the magnetic field from the magnets falls to approximately zero intensity;
- a galvanometer; and
- circuit means connecting the ends of the conductor to the galvanometer to measure current flow through the conductor.

6. Apparatus according to claim 5 wherein the magnets are rotatably mounted to the yoke for rotation about the axis of the rod, and where the magnets are axially magnetized and adjacent faces are of opposite polarity.

* * * * *

APPENDIX III

A CONDITIONAL CRITERION FOR IDENTITY, LEADING TO A FOURTH LAW OF LOGIC

Summary

If logic is regarded as a set of perceptual operations, then logic has a chronotopology (time structure). Identity or nonidentity then results as a decision from an algorithm — a set of perceptual operations and comparisons — in which case the nature of a particular identity is conditional upon the nature of the set of perceptual operations comprising the algorithm.

Ordinary logic does not account for the temporal aspects of perception, merely accounting for the spatial aspects.

In other words, Aristotlean logic is a synthesis of primitive observation, fitted to the partial (spatial) reality emerging from spacetime after the imposition of the monocular (one-at-a-time) photon interaction with matter.

In quantum mechanics, time is a parameter, not an observable. Hence measurement/detection (of observables) deals with primitive observation and Aristotlean logic (topology).

Total reality includes nonprimitive observation — hence, non-Aristotlean logic (chronotopology) — as shown in Young's two-slit experiment.

By applying temporal accounting to each perceptual operation, Aristotle's three laws can be shown to be self-contradictory and incomplete as written. That is, they are topological, not chronotopological.

A simple derivation of a fourth law is shown and an application rule given which itself may be regarded as a fifth law of logic.

A proof of the fourth law by demonstration is given.

The resulting four law logic is chronotopological. The applica-

tion rule states that either Aristotle's three laws apply explicitly and the fourth law is implicit, or the fourth law applies explicitly and Aristotle's three laws are implicit.

The four-law chronotopological logic is theoretically capable of resolving every present three-law paradox.

Aristotle's Laws and the Paradox of Change

Aristotle's three laws of logic, on which foundation rests all mathematical, physical, and rational thinking, can ordinarily be stated as shown in Table 1.

Table 1. Aristotle's three laws of logical thought

1. $A \equiv A$
2. $A \neq \bar{A}$
3. $A \vee \bar{A}$

A variety of arguments can easily be produced to show that these laws are incomplete; i.e., they do not specify all reality, for parts of reality can be shown to contradict one or more of Aristotle's laws.

Indeed, all "observed" reality can be shown to violate all three-laws.

E.g., the most direct violation is posed by the problem of change, a problem originally propounded by Heraclitus about 500 B.C., and unsolved to this day. Heraclitus pointed out that, for a thing to change, it must turn into something else, and then asked how a thing could be something other than itself?

We may think of a thing — say, α — some feature A of which is said to change. If A changes, it turns into \bar{A} , thus violating logic laws one and two. Further, we are considering A as the "changed thing. \bar{A} ," i.e., something which is somehow both A and \bar{A} , so logic law three is violated as well.

Thus, if Aristotle's laws are taken to be all the fundamental laws of logic, then logically there can be no change whatsoever, because change negates all three laws. I.e., either change does not exist or it is totally illogical.

Since all measurements, detections, thoughts, and perceptions are simply changes, then it follows that these operations logically cannot exist. Or, if we assume the "operations" to exist, their outputs cannot exist. If the operations do not exist, then again their outputs do not exist.

So if the products or outputs cannot exist, then by this reasoning no perceived, detected, measured, conceived thing exists. If we then insist that such things do indeed exist, then all is paradoxical and illogical. This is essentially the nature of the paradox posed by Heraclitus.

Heraclitus's change paradox has not been satisfactorily resolved to this day, and rigorously all the rational science of the Western world, being based on paradoxical change (detection, perception, observation) is itself totally illogical by its own logical standards.

Resolving the Paradox of Change

However, the conditions necessary to resolve the problem of change can be stated simply by inspection of the problem as follows: (1) Aristotle's three laws must specify or apply to only that which is not changing, since change violates or negates all three laws; (2) If change is to logically exist, there must exist at least a fourth law of logic, one which applies to change; (3) This fourth law must contain the negations of each of the first three laws, since change negates them; (4) To be consistent, in any particular logical case, either the three laws explicitly apply or the fourth law explicitly applies (i.e., either change explicitly exists in that particular case or it does not); (5) Since all four laws must apply at all times, then when the three laws apply explicitly, the fourth law must be implicit—and when the fourth law applies explicitly, the three laws must be implicit.

With the five stated conditions, a fourth axiom of logic can be written simply by writing down the negations of Aristotle's three

laws, and synthesizing these negations into a single fourth law, as shown in Table 2.

Table 2. Negations to Aristotle's laws.

Aristotle's law	Negation	of negation*
$A \equiv A$	$A \not\equiv A$	$A \equiv \bar{A}$
$A \not\equiv \bar{A}$	$A \equiv \bar{A}$	$A \equiv \bar{A}$
$A \vee \bar{A}$	$A \wedge \bar{A}$	$A \equiv \bar{A} \text{ or } [A, \bar{A}]$

However, even though we can synthesize the negation into a single law — the old "identity of opposites" idea — we still have the problem of understanding such a law. Though at first glance the negations and the synthesized fourth law seem bewildering, we can readily comprehend them if we carefully consider the temporal nature of the process that occurs in logical thinking.

The Importance of Time

Specifically, a finite interval of time is required to perceive, think, detect, or observe an entity — regardless of whether we refer to "physical" or "mental" detection, because both physical and mental processes are temporal. Indeed, we flatly state without further discussion that ultimately the identifying or mapping of physical and mental operations onto each other is what time is a *priori*.

At any rate, we now carefully account for each individual time interval required to think, conceive, detect, perceive, or observe any entity — whether that entity is physical or mental — and we also account for the finite time interval required to perform a logical operation. So we rewrite Aristotle's three laws as shown in Table 3, with subscripted numbers indicating the separate time intervals in each law.

*These negations mean that A and \bar{A} are totally undifferentiated.

Table 3. Temporally accounted laws and negations.

Aristotle's law	Negation
1. $A_1 \equiv_3 A_2$	$A_1 \equiv_3 \bar{A}_2$ or $A_1 \neq_3 A_2$
2. $A_1 \neq_3 \bar{A}_2$	$A_1 \equiv_3 \bar{A}_2$
3. $A_1 \vee_3 \bar{A}_2$	$A_1 \wedge_3 \bar{A}_2$ or $[A_1, \bar{A}_2]_3$

The resolution to the entire mystery so long inherent in these axioms of logic now stands simply revealed: Whether one of Aristotle's laws holds or its negation holds is determined solely by the nature of the logical operation in time interval three.¹

I.e., the operation in interval three may be regarded as an *algorithm* comprised of subsidiary (assumed) operations in separate time subintervals that, taken together, comprise the overall operation implied by the logic symbol.

Thus in the first law, if temporal tags (time snapshots) are not accounted (i.e., if they do not apply), then Aristotle's laws hold, for the snapshot 1 of A is not differentiated in algorithm 3 from snapshot 2 of A. This then rigorously holds for spatial (L^3) entities, but not for spacetime entities. The snapshots in this case for Aristotle's first law (and the others as well) are *spatial* snapshots. On the other hand, if snapshots 1 and 2 of A are themselves temporally differentiated in algorithm 3, then the negation of Aristotle's law applies, because the *spacetime* snapshots A_1 and A_2 are different. This is immediately apparent, e.g., in a Minkowski geometry representation, where the second snapshot of A will have a time coordinate different from the time coordinate of snapshot 1. This is represented as shown in figure 1, where "A" is taken as a simple magnitude, in this case 5.

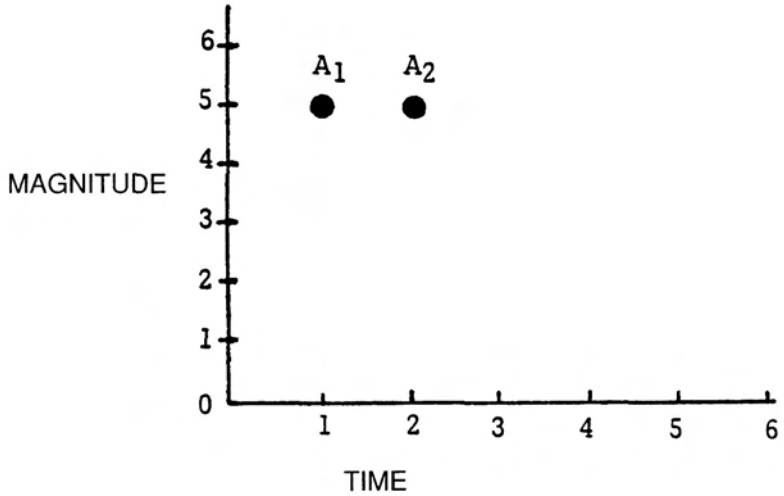


Figure 1. Spatial snapshots of spatiotemporal A differ.

As can be seen from figure 1, 5_1 is not identical to 5_2 *unless we imply the operator $\partial/\partial t$ in the time interval three algorithm.*

The negation of the second law may also be simply understood if we use temporal accounting. E.g., suppose we take $A_1 = +1$, $\bar{A}_2 = -1$ and then pose the absolute value operator \parallel for potential use in algorithm 3. If \parallel is not used, then

$$(+1)_1 \not\equiv_3 (-1)_2$$

and Aristotle's second law holds. If \parallel is used, then

$$\left| (+1)_1 \right|_3 \equiv_3 \left| (-1)_2 \right|_3$$

and in that case

$$A_1 \equiv_3 \bar{A}_2$$

Note we are taking the view that there is nothing "absolute" or "inherent" about identity or non-identity; instead, each is a conditional result that can only be established by some logical, compar

tive set of operations. If the suboperations comprising the decision algorithm for the identity/non-identity determination are changed, the finding of the algorithm (the decision) may often change. Specifically, one can have the cases

$$\equiv_1 \neq_3 \equiv_2$$

$$\neq_1 \neq_3 \neq_2$$

Thus we advance a *conditional identity criterion* to be incorporated into formal logic: "Identity" or "non-identity" is defined by a decision made as a result of applying an operational algorithm; changing the internal operator components assumed inherent in the algorithm can change the decision. We are stating a fundamental principle that "identity" and "non-identity" are conditional and only conditional; they are never absolute.

Primitive Observation and "Reality"

With these points made, we now turn to the third law. From Table 2, on examination it can be seen that the third law actually is a statement for *monocular* perception, detection, observation, thought, or conception. Indeed, this law says that only a single thing at a time can be perceived, detected, observed, thought, or conceived.

As we pointed out in a previous paper², there is a very good reason for this "law." Primitive man lived almost exclusively in a reality detected by light, by the photon interaction. Even in the absence of visible light, all bodies have temperature, and man is immersed in a "sea" of continual electromagnetic photon with interactions. The photon interaction is monocular - - only one at a time interacts with a particle of mass. Further, photon interaction constitutes the operator $\partial/\partial T$ invoked upon L^3T spacetime. Photon emission carries away time (the photon is made of $(\Delta E \ \Delta T)$, leaving behind an L^3 *spatial* reality, as we have previously pointed out.³

So all our primitive concepts, ideas, and notions about reality have come from over four million years of hominid and human experience in the photon-detected partial reality ("physical," "objective," or "spatial" reality) that remains when the time "dimension" (fundamental **variable**) is destroyed from L^3T spacetime, leaving

only L^3 space behind. Specifically, our observed macroscopic reality consists of large temporal (mental) aggregates of such spatial results, where we cannot distinguish the tiny temporal separations of the pieces. Thus all our observed/perceived entities are spatial, and further, each perception/observation snapshot results in a frozen, unchanging spatial entity (resulting — in physical detection — from the so-called "collapse of the wave function." The loss of a wave function is simply the loss of time.) We vaguely sense "time" and "change" as the relation between these snapshots — i.e., by causality, or the ordering of the spatial changes — much as we see "movement" in movie frames rapidly projected onto a screen one-at-a-time.

Thus our primitive observations, from which have painfully been formed our relational concepts and ideas, are monocular, unchanging, and spatial. Aristotle's three laws of logic — which indeed may be taken to be only a simple synthesis of our primitive observation and corresponding relational concepts — then exhibit the same characteristics; they are monocular, unchanging, 3-dimensional, spatial, non-temporal relational statements. Any statement that is temporal, changing, or 4-dimensional will thus appear as a logical paradox to this logical shorthand.

But from Young's two-slit experiment, we already know that reality and relationships between its parts are quite different if the photon interaction is not invoked — i.e., if $\partial/\partial T$ is not invoked. Classical reality (as prescribed by Aristotle's laws) is directly violated by an electron in the two-slit experiment, e.g., if and only if photon interaction with the electron is not invoked. Again, this has been simply explained by the present author⁴, and Charles Muses as early as 1957 pointed out the absence of any mystery in Young's experiment if the chronotopological aspects were considered.⁵

The Conscious Mind is Fitted to the Photon Interaction

However, what is normally referred to as the "conscious, thinking mind" is simply a functioning temporal (rigorously, chronotopological) mechanism that is painfully built up in the individual's awareness (his mind in the greater sense of both thought and awareness, whether monocular or multiocular) by training, conditioning and experience. Its functioning is largely conditioned by one's 90% or so attention to visual stimuli (to the partial reality remaining after

photon interaction has been invoked, and to the memory-collated ordering of vast numbers of such photon interactions) and by one's cultural conditioning — which itself has been almost exclusively conditioned and shaped by the monocular photon interaction at base root.

Thus, since the beginning of man, his conscious, rational mind has been trained and constructed to function almost exclusively in basic correspondence with the photon interaction, and his experiential reality consists of the partial reality stripped from fundamental reality by photon interaction.

All "perceived differences," e.g., are created by this deep mind-set. As has been previously pointed out,⁶ the solitary human problem responsible for all man's inhumanity to his fellow man is directly dependent upon man's almost exclusive detection, observation, perception, and conception of "difference" between humans, these "differences" being due exclusively and totally to the fitting of men's conscious minds to the photon interaction's monocular separation of spatial reality from nonspatial reality, i.e., to

$$\partial/\partial T (L^3T) \Rightarrow L^3$$

Such well-nigh total devotion to, and enslavement by, photon interaction also is responsible for the scientist's well-nigh total devotion to, and enslavement by, the present imperfect and incomplete three laws of logic, as presented by Aristotle. The depth of that devotion and enslavement is evidenced by the fact that the resolution of such paradoxes as Heraclitus's problem of change have eluded the best minds of humanity for several thousands of years. Indeed, these paradoxes cannot be resolved by the conscious, rational mind in its present state, for it has been most firmly constructed and fitted to function in accordance with the photon interaction.⁷ One cannot hope to resolve any logical paradox by using only those same logical methods that found the situation to be paradoxical in the first place!

Dimensionality

That we need not be constrained by such universal delusion is already shown by binocular vision. Specifically, in viewing a three-dimensional **object**, **each** eye **never** detects a "third dimension," but detects only **an L² 2-dimensional** picture. By taking two slightly

different 2-dimension snapshots and superposing them, the third dimension is gained. One then essentially sees the resultant superposed pictures as "almost the same but not quite." I.e., the Aristotlean identity algorithm, if satisfied, yields "no difference, hence one object," and if not satisfied, yields "difference, hence multiple (extended) object(s)." So if the two snapshots are almost Aristotlean-identical but not quite, we get an extended-two-dimensional (three-dimensional) object. Otherwise we see two separate, two-dimensional snapshots blurred together (the reader is urged to try this and see).

The point is, "dimensionality" and the identity algorithm are directly related, and geometrically one follows from the other.

Awareness of Time

In very similar manner, we can only gain cognizance of awareness of "time" (as a fourth dimension) by the superposing of two slightly differing (Aristotlean-wise) 3-dimensional snapshots. As is well known, e.g., time is not an "observable" in quantum mechanics; it is a "parameter." Rigorously, the only place such snapshots — each of which is "past" (spatially separated by the annihilation of time in the collapse of the wave function) — can multiply exist is in the "mind" in its most general sense. In a rigorous sense, mind and time can be taken as identical, and the "flow of time" can be taken as the "flow of mind connections or superpositions" of its spatial components. I.e., measured/detected/observed "physical phenomena" are a priori 3-dimensional and spatial, while a mind is four-dimensional and hyperspatial.⁸ Spacetime exists mentally but not observably. Time is logically implicit, not explicit.

Temporal Aspects of Logic

Now we return to the temporal aspects of logic. Each perceptual part of each Aristotlean law is fitted to the photon interaction, hence monocular. The logic operation, inherent in the logic symbol in each statement, involves temporal superposition or comparison of spatial perceptual objects. Hence the logic operation is hyperdimensionally a function of mind and injects mind/time into the statement. Yet these laws, being fitted to or synthesizing photon interaction, attempt to prescribe the absence of time, even though writing down the logic operation rigorously invokes time. They are thus totally contradictory, since as written they implicitly violate themselves.

Table 4 summarizes the operations now to be permitted in the time-three algorithm, in developing a new four-law logic:

Table 4. Conditional identity rules.

$$1. \boxed{S_1, S_2}_3 = (\text{zero})_3 \Rightarrow (\text{identity})_3$$

$$2. \boxed{S_1, S_2}_3 = (\text{nonzero})_3 \Rightarrow (\text{non-identity})_3$$

$$3. \boxed{S}_3 = \left| \boxed{S}_1, \boxed{S}_2 \right|_3 \Rightarrow \text{monocular separation, differentiation internally}$$

$$4. \boxed{\boxed{S}}_3 = \boxed{\boxed{S}}_3 \Rightarrow \text{nonseparation, no differentiation internally}$$

Rules one and two simply state that, when snapshots 1 and 2 are superimposed (subtracted) in time interval 3, the resultant snapshot 3 may be zero or nonzero. If zero, snapshots 1 and 2 are said to be identical, and if snapshot 1 is to be labeled A, then snapshot 2 is to be labeled A. If snapshot 3 is nonzero, snapshots 1 and 2 are said to be nonidentical; if snapshot 1 is labeled A, then snapshot 2 is labeled \bar{A} .

Rule 3 says that snapshot 3 is a "memory" snapshot, and it may be particularly examined to monocularly separate snapshots 1 and 2.

Rule 4 states that snapshot 3 is not a "memory snapshot" and may not be further separated.

Note that in logic we repeatedly apply these rules in combination, serially or compositely. Note further that Rule 1 must serially apply both rules 3 and 4, as must rule 2 also.

Fourth Law of Logic

If we take $4 \left|_3$ to mean "rule 4 applied conditional to rule 3 also being applied," and $4 \left|_{\overline{3}}$ to mean "rule 4 applied conditional to rule 3 not also being applied," we may write Table 5:

Table 5. Conditional identity, non-identity, and oneness.

$$4 \left|_{\overline{3}} \wedge 1 = \text{identity } (S_1, S_2)$$

$$4 \left|_{\overline{3}} \wedge 2 = \text{non-identity } (S_1, S_2)$$

$4 \left|_{\overline{3}} = \text{oneness without separate-ones; oneness, extraordinary and unperceivable; thing-in-itself}$

$4 \left|_3 = \text{"ordinary" one, perceivable separation, "thing-as-separate-from-others"}$

As can be seen, this type of reasoning also sheds a great deal of light on the long-standing problem of the "thing-in-itself," but that is beyond the scope of this paper.

The Fourth Law of Logic

Now we write the fourth law of logic as follows:

$$4. (A_1, \overline{A_2})_3 \Rightarrow A_1 \equiv_3 \overline{A_2}$$

where all we have said is that, by rule 4, in snapshot 3 no memory process is allowed, and no separation/differentiation whatsoever of A_1 and A_2 is permitted. Under these operational conditions for identity, what had previously been called A_1 in snapshot 1 and what had been called $\overline{A_2}$ in snapshot 2 are indistinguishable, hence identical.

Figure 2 shows this concretely, and may be taken as a proof of the fourth law by demonstration.

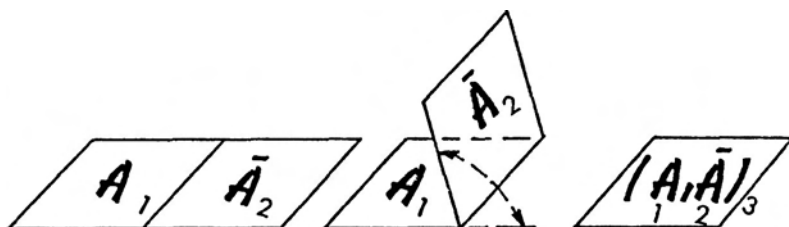


Figure 2. Proof that two opposites can be identified. What was separately perceived as A_1 in time snapshot 1 and what was separately perceived as \bar{A}_2 in time snapshot 2, cannot be distinguished in time snapshot 3.

Thus the age-old philosophical dilemma posed by the illogical identity of opposites has a simple resolution if one considers temporal aspects, and introduces temporal conditions for identity or non-identity decisions.

We now write the new four law conditional identity logic as shown in Table 6:

1. $A_1 \equiv_3 A_2$
2. $A \neq_3 \bar{A}_2$
3. $A_1 \vee_3 \bar{A}_2$
4. $A_1 \equiv_3 \bar{A}_2$

Further, we point out that all four laws now apply. Laws 1,2, and 3 are the laws of explicit monocular perception, with implicit binocular perception. Law four is the law of explicit binocular perception, with implicit monocular perception. Both monocular and binocular perceptions must be and are used in each law. So in any situation, either the triad applies explicitly and the fourth law applies implicitly, or the fourth law applies explicitly and the triad applies implicitly.

Indeed, one can **even take the** view that we have prescribed a five-law logic, **the fifth law being taken** as shown in Table 7:

Table 7. A possible fifth law of logic.

5. $[1,2,3, \wedge (4)] \vee [4 \wedge (1,2,3,)]$ where $() \Rightarrow$ implicit

In a previous paper⁹, the author has already presented methods to apply this new logic to resolve present paradoxes. At least hypothetically, every present paradox should be simply a statement of the explicit fourth law, and it should be resolvable by explicit application of that law¹⁰.

NOTES AND REFERENCES

1. Specifically, by whether or not exclusivity applies. I.e., we may read Law 1 as "In snapshot (time interval) 3, what was A in snapshot 1 is exclusively identical to (unseparated from) what was A in snapshot 2." Law 2 may be read as "In snapshot 3, what was A in snapshot 1 is exclusively not identical to (is exclusively separated from) what was not-A in snapshot 2." Law 3 reads, "In snapshot 3, what was A in snapshot 1 and what was not-A in snapshot two are exclusively separated." Thus it can be seen that the three laws simply are statements involving whether or not two former perceptions are to be separated in a third perception. These three statements presently prescribe the total separation of the two previous perceptions and prohibit any admixture of the two — the so-called "excluded middle." Thus the three laws prescribe monocular, one-at-a-time perception.

What we call a "wave" exists in time and is considered to contain an admixture of timeless, static spatial states (such as "wavelengths.") The prohibiting of admixtures thus represents the "collapse of the wave function" and corresponding loss of time. This defines "observation" and explains why all "measurement" and "detection" and "observation" — requiring a collapse of said wave function — are spatial and not spatiotemporal. That is why time is a parameter in quantum mechanics, not an observable.

Relativity, being constrained by such logic, obviously can find nothing "physical" (observed, spatial, timeless thing frozen by

the collapse of the wave function as engendered by or fitted to the photon interaction) that is traveling faster than light — i.e., that violates the conditions implied by the "observing/detecting agent."

That reality need not at all be so constrained is clearly shown by Young's two-slit experiment, the heart of all quantum mechanics. In this experiment, "classical" reality is violated if and only if the photon interaction is not invoked. Classical reality is obeyed if the photon interaction is invoked.

With appropriate change to logic to fit "reality that has not been interacted with by photons" and therefore is spatiotemporal, a new physics becomes possible.

2. Thomas E. Bearden, "Solution of the Fundamental Problem of Quantum Mechanics," January 3, 1977, Defense Documentation Center.
3. Bearden, "Photon Quenching of the Paranormal (Time) Channel: A Brief Note," 20 April 1977, Defense Documentation Center.
4. Bearden, "Virtual State Engineering and Its Implications," 1979, Defense Documentation Center.
5. With the possible exception of Kozyrev — whose more technical works on time remain undisclosed to open science — no other person known to this author seems to have grasped the implications of a dynamic structure of time as penetratingly as has Charles Muses. The importance of the time interaction explaining the two-slit experiment (i.e., in explaining wave-particle duality) was noted as early as 1957 by Muses. See, e.g., Muses' introduction to Jerome Rothstein's **Communication, Organization, and Science**, The Falcon's Wing Press, Indian Hills, Colorado, 1958, p. lxii, where Muses pointed out that the celebrated wave-particle paradox remains a paradox only so long as the chronotopological (his word) phases of the phenomena are left unrealized in the analysis. The entire foreword by Muses is a remarkable document which analyzes the structure of time itself. With his hypernumbers Muses can describe the nested structure of time, which is what is actually

being carried by the photon. Further, he can theoretically predict mechanisms by means of which these structures can be orthorotated. It would appear that practical devices should be constructable on the principles elucidated by Muses, and it is little short of astonishing that fundamental work of such importance and application has been thus far little used by theorists, though it is already recognized in the standard literature; e.g., the profound summary paper "Hypernumbers II" in the January 1978 issue of the journal **Applied Mathematics and Computation**, published by Elsevier.

6. Bearden, "The One Human Problem Its Solution, and Its Relation to UFO Phenomena," Defense Documentation Center, January 3, 1977.
7. Which is why a Zen master often gives the student a koan to confound and overwhelm this automatic, robotic mindset and functioning that has been constructed as the student's "conscious mind."
8. Specifically, consciousness/life involves a seven dimensional body/being in an infinite-dimensional universe. See Thomas E. Bearden, "A Mind/Brain/Matter Model Consistent with Quantum Physics and UFO Phenomena," prepared for the 1979 MUFON Annual Symposium, available in the **Proceedings**, MUFON, 103 Oldtown Road, Sequin, Texas 78155.
9. Bearden, "The Fourth Law of Logic," **Specula**, Journal of the American Association of Meta-Science, P.O. Box 1182, Huntsville, Alabama 35807, Vol. 2, No.1, January-March 1979, pp. 30-40; also in publication in Defense Documentation Center. (The journal **Specula** is no longer pulished).
10. No consideration of the foundations of logic and mathematics is complete until one has read Morris Kline, **Mathematics: The Loss of Certainty**, Oxford University Press, New York, 1980.

APPENDIX IV

LIST OF SELECTED INCIDENTS

Author's note: In 1985-1987 a series of anomalous missile and space failures swept the U.S. and the West. These incidents were not unique, as many think, but were actually only a portion of thousands of related incidents showing the Soviet testing of advanced weapons throughout the world. This listing will show the types of incidents referred to.

The listing is not intended to be complete at all, but only representative. Hundreds of incidents of weather engineering, giant cloud radials and grids, suspicious light incidents, etc. could easily be added, were there time and room. No attempt has been made to exhaustively map the "aerial booms" that have blanketed the U.S., Europe, and other parts of the world. The light and "maybe it's UFO's" reports alone would add thousands of incidents to the list.

Our message is succinct: The Soviet Union has developed a new science and weaponized it, since at least the latter 1940's. It has utilized that science — energetics — to develop superweapons and supervehicles. Because of the danger from accidental initiation of nuclear weapons and materials, it is exceedingly difficult and dangerous for the Soviets to make extensive use of these weapons. Accordingly, a biological warfare strike — AIDS — has been utilized to deliver what is to be the knockout blow to the West.

DATE, INCIDENT, LOCATION, REMARKS

Early spring 1966 - Malstrom AFB Montana.

UFO sighting coincident with simultaneous problems in 10 strategic missiles in launch site associated with Malstrom AFB, Montana.

*Similar event in Mar 1967 also. (Source: **Clear Intent.**)*

20 Mar 67 - Malstrom AFB Montana.

Flight of 10 strategic missiles in launch site associated with Malstrom AFB, Montana experienced problems with guidance and control system. UFO in area and confirmed on radar. Jet fighters scrambled, results unknown. *Similar event one year earlier.*

(Source: **Clear Intent.**)

1972 - Prague.

At a secret meeting of European communist leaders in Prague, Brezhnev lays out firm statement of Soviet intent to be able to dominate the world by 1985. Stated would control the oceans, 90% of the land, and the air and space above. *Notice he said control, not invade and conquer.*

Aug 73 - Over ocean.

USAF Minuteman ICBM is launched from Vandenberg AFB, aimed for Kwajalein missile range. Unidentified object appears and is tracked next to the ICBM's nose cone. Crossed the RV's trajectory. Object about 10 ft long. Seen by 2 separate radars. Three other identical objects were seen in the vicinity. *Probable Soviet advanced flying vehicles. Also a deliberate stimulus to see if U.S. knows of the technology, and how the U.S. reacts. (Source: **Clear Intent.**)*

18 Oct 73 - Near Mansfield, Ohio.

U.S. Army helicopter is intercepted by glowing red object that converged on it with terrific speed. Object placed some sort of "tractor beam" on helicopter. Object was gray metallic structure, 50-60 ft long. Helicopter was stopped in mid air. Radio blacked out. Official report filed by pilot. *Probable advanced Soviet flying vehicle. Also a deliberate stimulus to see if U.S. knows of the technology, and how the U.S. reacts.*

21 Oct 73 - Near St. Joe, Indiana.

20 or 30 lights sighted circling in the sky near St. Joe, Indiana near a woods fire, by firemen. *Probable Soviet holographic tests to stimulate UFO reports.*

1973 to date - Bennett Island.

Bennett Is. exhaust plumes detected by U.S. weather satellites. *Well over 100. spotted so far. Weirdly, 5 islands and part of the continental Alaskan area are in process of being secretly given to the USSR; Bennett Island is one of them.*

May 1974 - Lake Michigan.

Blue-green glowing ball of light seen to fall into Lake Michigan. *Soviet scalar EM testing.*

8 July 74 - Lake Okeechobee, Florida and Atlantic Ocean.

Orange red ball of light lights up sky over south Florida. Crashes in area of Lake Okeechobee. Was accompanied by a large boom. Several other booms 5-7 min. after "object crashed." Pilots also saw object plummeting in from over Atlantic. *Probable Soviet scalar EM weapons testing and calibration.*

Nov. 74 - Saryshagan. USSR.

Construction of Tora facility begins at Soviets' Saryshagan test facility. Believed to be directed energy facility. *Probably connected with Soviet scalar EM weapons systems development.*

Oct? 74 - Antarctic.

Ozone hole over Antarctic first detected. Did not appear in measurements from 1957-1973. Note did not appear until exhaust plumes noted from and around Bennett Island, with substantial activity. *Looms over the continent every Oct. Diminishes through Mar. More severe each year since 1974.*

1975 - USSR.

Soviet article in **International Life** speaks of weather war, changing the nature of lightning, increasing the power of lightning, and directing electric charges of tremendous power against specified targets. "Atmospheric electricity" can be used to suppress mental activity of large groups of people. *Tip of the iceberg. Unclassified reference to Soviet's scalar EM (energetics) weapon program. Note involvement of "lightning" in destruction of U.S. missiles a decade later.*

16 Feb 75 - Caribbean.

R.M.S. Carmania (UK) observes bright white circular light appear and rise to 20 degrees, leaving comet-like trail, circle and disappear. Repeated four more times at exact hourly intervals. *Soviet scalar EM weapons tests. May have been a shipborne device.*

13 June 75 - Kremlin.

Brezhnev calls for ban on frightful weapons of mass destruction. *Major speech. Repeated proposals to U.S. Senators.*

Selected Incidents

2 Jul 75 - Kremlin.

Brezhnev repeats his proposed ban on development of frightful new weapons, to a group of U.S. Senators. *To visiting U.S. Senators. No one knew what he was talking about.*

Aug. 1975 - Kremlin.

Ponomarev calls for ban on frightful new weapons of mass destruction. *To visiting Congressmen.*

23 Sep 1975 - United Nations.

Gromyko presents draft agreement to UN General assembly, for banning development of frightful new weapons. *30th session of UN Gen. Assy. No one knew what the Soviets meant.*

Oct - Dec 75 - Satellite, over the Indian Ocean.

U.S. satellites illuminated or "blinded" over the Indian ocean. *Source 10-1,000 times as strong as natural sources. 5 incidents. One 4 hrs. long. Soviets wasted no time after Sep. fiasco.*

28 Oct to 11 Nov 75 - Mid-U.S. and Canada.

Series of "UFO's" seen at Malstrom AFB, Montana; Loring AFB, Maine; Minot AFB, North Dakota; Wurtsmith AFB, Michigan and Canadian Forces Station, Falconbridge, Ontario, Canada by reliable military personnel. Reported to NORAD. Some objects seemed like helicopters. Radar tracked objects. One object at 72,000 ft. was 100-ft sphere, with seeming "craters" around it.

*Malstrom F-106's scrambled on one object but could not close on it in darkness and low altitude. Efforts by Air Guard helicopters, SAC helicopters and NORAD F-106's were fruitless. Probable Soviet activity in and around the SAC bases and Canadian radar site. (Source: **Clear Intent.**)*

30 Oct 75 - Wurtsmith AFB, Michigan.

UFO's and "unidentified helicopters" sighted (multiple incidents) at or near Wurtsmith Air Force Base, Michigan. Helicopter hovered over the weapons storage area. Radar reported low-flying objects. Returning KC-135 tanker a/c diverted to intercept one UFO. Observed two objects, unable to close. Visual and radar contacts. Low on fuel, KC-135 returned to base to land, again seeing lights over the weapons storage area. (Source: **Clear Intent.**) *Soviet Activity.*

7 Nov 75 - Near Lewiston, Montana.

Giant glowing disc, football field sized, hovered over Minuteman missile launch site K-7, just south of Lewiston, Montana. When it rose to 1,000 ft., NORAD radar picked it up. Two F-106's were scrambled. UFO rose to 200,000 ft. and disappeared from NORAD radars. *Probable advanced Soviet flying vehicle, using antigravity propulsion system.* (Source: **Clear Intent.**)

Nov 75 - Semipalatinsk, USSR.

Large amounts of gaseous hydrogen with traces of tritium begin to be detected by USAF/TRW early warning satellites.

Nuclear debris apparently related to nuclear facility at Semipalatinsk labelled PNUTS (possible nuclear underground test site.) Probable large scalar EM development and test site.

Jan 76 - Cannon AFB, New Mexico.

Two UFO's reported near flight line at Cannon AFB, New Mexico. 25 yards in dia., gold or silver in color with blue light on top, hole in the middle and red light on bottom. Observed and reported by security police. (Source: **Clear Intent.**) *Probable Soviet activity.*

31 Jan 76 - Eglin AFB, Florida.

MG Lane, CG, Armament and Development Test Center, Eglin AFB, Florida reported a UFO sighting near an Air Force Radar site from 0430 to 0600 Eastern Standard Time. Photographs were taken. Later press release called it "building lights." (Source: **Clear Intent.**) *Probable Soviet Scalar EM activity.*

1976 - U.S. Embassy, Moscow.

State Dept. declares U.S. Embassy in Moscow an unhealthful post. Installs Aluminum window screens against Soviet microwave radiation, which has been underway since 1950's.

Provided 20% pay extra differential. Embassy radiated with weak microwave radiation since 1950's. Two U.S. Ambassadors died, Stoessel ill with strange leukemia-like malady. Soviet stimulus to see if we knew about scalar electromagnetics, phase conjugate waves, and EM disease induction. (Stoessel died recently of cancer).

1976 - U.S.

Soviet nuclear scientist named Rudakov visits U.S., proposes cooperative effort in some **areas of** fusion research. Showed work he **had**

been doing and results obtained. U.S. officials reacted drastically, classified his talk as top secret, even ripped off blackboard and carried it away. *Very strange incident. Soviet open, public scientific work considered Top Secret by the U.S. One wonders why.*

30 Mar 76 - Netherlands.

Huge atmospheric boom occurs over northern part of Netherlands. *Through 1983, in 10 years 7 events took place.*

22 Jun 1976 - North Atlantic.

Expanding white sphere of light developed for about 10 min. then faded. Other associated light phenomena observed. *Seen and logged by passing ship.*

4 Jul 76 - Soviet Union.

Giant Soviet Woodpecker transmitters activated. *3-30 MHz band. Worldwide interference with communications.*

30 Jul 76 - Fort Ritchie, Maryland.

Several UFO's sighted in and around Ft. Ritchie, Maryland. One hovered over the ammunition storage area. Reported. *Temperature inversion at the time provided a convenient pseudoexplanation. Could not have caused the incidents. (Source: Clear Intent.)*

10 Sep 76 - Lithuania.

European Airways flight 831, Moscow to London, at 31,000 ft over Lithuania sees blinding single ball source of light at constant altitude about 5-6,000 ft. below them and above a lower cloud. *Pilot contacted Soviet authorities. Received negative response and suggestions he should not ask questions. Probable deliberate stimulus offflight so, from reports to British authorities, could ascertain whether Britain knew anything about scalar EM weaponry.*

19 Sep 76 - Near Teheran, Iran.

In early morning hours, UFOs were spotted north of Teheran, Iran. Two F-4's attempted to intercept. The first lost all communications and instrumentation at 25 miles distance. When the F-4 turned away, equipment was restored to functioning. Second F-4 acquired radar lock at 27 nm. and attempted to close. Object moved to stay at 25 nm distance. Second object came out of it, headed straight for the F-4. F-4 attempted to fire AIM-9 missile and at that instant weapons

control panel and communications went off. F-4 took evasive action. A third object was seen to emerge from first. The F-4 returned to base. Each time it passed through 150 degrees magnetic bearing, it lost communications and INS fluttered 30 to 50 degrees. A civilian airliner also experienced loss of communications in the vicinity.
Signatures of scalar electromagnetic weapons and antigravity.

1976 - Soviet Union, Sweden.

Swedish national authorities detect anomalous radionuclides — similar to those from nuclear explosions — over Sweden. No accompanying seismic activity. Correlated with known Soviet activity at Semipalatinsk. *In other words, nuclear explosions were occurring, but they did not shake the earth. Total anomaly. Indicates transformation of the explosive energy. Positive signature.*

1976 - Philadelphia.

Legionnaires Disease precipitously strikes Legionnaires attending convention in downtown Philadelphia. Kills 34, makes 187 others seriously ill. Similar malady struck Odd Fellows convention at same hotel in 1974. *Odd person with apparent transmitter and antenna was expelled. Informed members: "It's too late! You are all dead!" Probable scalar EM conditioning of convention with an immune suppression pattern for the disease.*

21 Jan 77 - Columbia.

Columbia A/L Avianca night flight. Instruments went haywire. Saw enormous, zigzagging glowing light, traveled at fantastic speed back and forth. Blinked landing lights, UFO responded. Sped away at incredible speed. *Probable Soviet advanced performance antigravity flying vehicle. Such have been widely sighted over South America.*

3 Mar 77 - Columbia.

Columbia A/L Avianca night flight. Pilot abruptly changed course to circle a huge, glowing UFO. Object had cigar-shaped fuselage and was twice as big as the aircraft. Blinked lights, UFO responded. Sped away. Air traffic control radar tracked object at ten times the speed of normal aircraft.
Probable Soviet advanced performance antigravity flying vehicle. Such have been widely sighted in South America.

24 Mar 77 - Off coast of Spanish Sahara, Africa.

M.V. Kinpurnie Castle, off coast of Spanish Sahara, Africa, observes complex, dynamic light phenomena. Third phenomenon was the formation of a semi-circular area of moderate luminosity, a hemisphere of light. Took 3 min to form about a previous luminous patch. Then another luminous patch formed over the hemisphere. After about 7 min., phenomena dispersed. *Soviet test of Tesla shield and globes.*

11 Jun 77 - Moscow, USSR.

Soviet biophysicist hands Robert Toth, Los Angeles Times journalist, a report containing proof that certain particles existed in cells, carried information, and were radiated. Both seized by KGB and charged with possessing Soviet state secrets. Interrogated, released. *Neither knew what they actually had. Soviet Academician I.M. Mikhailov pronounced secret such phrases as "micro-organism self-radiation... by means of vacuum particles in space." Use of such particles was discussed, and was secret. Paper contained basis of Soviet energetics use in biology. Positive connection of Soviet classification to mitogenetic radiation and scalar EM waves ("vacuum particles" indicate virtual flux structuring).*

13 July 77 - New York.

Massive electrical blackout strikes New York City. Affects 8 million persons. Staggering series of "natural" electrical shocks, mechanical failures, and human errors occurred. Anomalous "lightning strokes" supposedly initiated the collapse of the power grid. *Probable Soviet test.*

1977 - Ocean off Yugoslavia.

M.V. Dolphin, between Yugoslavia and Israel, observed extensive light balls and repeated phenomena, appearing and disappearing. Men were disoriented. Compass was disrupted. Okay after the phenomena dispersed. *Probable Soviet test. Stimulus to see if Britain recognized the weaponry and knew anything about it.*

13-14 Dec 1977 - Leitchville, Australia.

Large aerial light plus 3 smaller ones observed for four hours by multiple persons. Lights simulated activity of a "mother ship" and smaller craft assigned. Changed colors. Then a shower of orange

lights occurred. *Probable Soviet test. Part of deception plan, to create "UFO" phenomena to hide weapons testing. TR wave holography.*

Dec 77 to Jan 78 - Off East U.S. Coast.

Mysterious atmospheric explosions occur off U.S. Atlantic Coast. *Some accompanied by light phenomena. Soviet tests and calibration (registering the long-range artillery, so to speak.)*

13-14 Dec 77 - Leitchville, Australia.

Large arrays of light phenomena sighted by multiple witnesses. *Probable Soviet creation. Reported as "UFO" phenomena. Holographic creation of "UFO" phenomena as part of deception plan to disguise tests of the weapons worldwide. TR wave holography.*

1977-78 - North Pacific Ocean.

Two huge hot spots in North Pacific ocean, 2,000 mi by 1,200 mi. *May have caused El Nino and one of most severe winters on record. May have been caused by Soviets as a weather experiment.*

27 Jan 78 - U.S. East Coast.

Boeing 727 off east U.S. coast experiences engines failing, 1 at a time, in all three engines. A/c plunges 8,000 feet; engines restart one at a time. *First time ever that all three engines on a 727 had failed. Probable Soviet test.*

Feb 78 - Rocky Mtns. NW of Las Vegas.

Four aircraft crash in a 6-day period in the rugged Rockies, NW of Las Vegas. *Connected with a crashed military a/c from Nellis AF Base. Should be further investigated.*

Feb 78 - Texas coast. Nova Scotia. Charleston, SC.

Atmospheric booms occur. *Multiple booms in Charleston. Soviet tests. Scalar EM weapons.*

2 Apr 78 - Bell Island, Nova Scotia.

Mysterious fireball, explosion accompanied by anomalous electrical effects. *Small bldgs blown apart, trees scorched, fireballs seen. Probable Soviet test. Apparently even registered on U.S. satellite.*

10 May 78 -Off Florida.

Women pilots in race experience anomalous "time loss" on their watches from Fort Myers to Freeport (Bahamas). *39pilots. Watches synchronized. Up to 3 min. lost. Definitely not normal EM effect. Probably due to sporadic natural scalar interferometry and time-reversed waves generated in area from time to time. "Bermuda Triangle" mechanism?*

May 78 - Florida.

Unexplained lighted objects sighted in sky over remote sector of Florida. Tracked on radar at a Navy EW center. Naval personnel also observed them through binoculars. *Probable Soviet advanced flying vehicles, or tests of intense holograms with energy sufficient to ionize air and reflect radar.*

18 May 78 - England.

Several atmospheric explosions shake houses over a wide area in Hull, Scunthorpe, Holderness coast, and Brough and Grimsby. *Probable Soviet weapon testing and calibration.*

Jun 78 - Indiana.

Large ball of light streaks across sky, stops, hovers, then explodes with a large boom. *Possible test. Standard Soviet incident to generate deception.*

7 Sep 78 - Netherlands.

Large acoustical event (boom) occurs over the Netherlands. *Soviet scalar EM weapons testing and calibration.*

Sep 78 - Tabas, Iran.

Anomalous Richter 7.4 earthquake strikes Tabas, Iran, killing 25,000. No aftershocks. Anomalous depth. Soviets needed to relieve pressure in rocks at nearby Askhabad on the Soviet/Iran border, else lose the city to a large earthquake. *36 hrs. earlier, Soviets exploded monstrous 10 Megaton underground nuclear explosion, to disguise what caused the earthquake. Almost definitely a Soviet- induced earthquake.*

Oct. 78 - USSR.

U.S. DOD weather satellite purportedly photographs a semi-rectangular object climbing out of atmosphere at 4,000 to 4,500 **mph**.

Object was over the Soviet Union. *Probable Soviet advanced flying vehicle, using antigravity propulsion system, if photograph is real.*

31 Oct 78 - Fairbanks, Alaska & Lake Ontario.

Red and yellow flash seen descending through sky S. of Fairbanks, Alaska by multiple observers. One minute later, U. of Alaska seismograph registered a tremor 1.5-2.0 on Richter scale. Ten days prior, a similar phenomenon was observed over Lake Ontario and a photo taken of the light. *Probable Soviet scalar EM wpns testing calibration.*

Nov 78 - Kuwait.

Large flying vehicle lands at Umm. Alaish oil pumping sta., Kuwait. Disrupts elect, comm, and pumping activities. Leaves after 7 min. *Probable antigravity propulsion system. Soviet vehicle. One of a series of "UFO" sightings in oil fields of Kuwait. Positive scalar electromagnetics and time-reversed wave signatures.*

Nov - Dec 1978 - Kuwait.

Series of "UFO" incidents over Kuwaiti oil fields occur. Kuwait Gov't. investigates, makes official report. *U.S. Pentagon noted incidents. Probable Soviet-induced incidents.*

1979 - British Columbia & Caspian Sea.

Ariel 6 satellite experiences anomalous turnoff of two power supplies. *Over British Columbia and Caspian Sea, when sun is shining. Probable Soviet stimulus.*

Jun 79 - Vienna.

Pres. Carter signs SALT II agreement in Vienna. After that, his acts and speech are erratic and he seems to be in a depressed state. *Suggestive of exposure to EM behavior modification. Soviets had possessed the LIDA technology for 29 years.*

Sep 1979 - USSR.

Strange giant semicircular light phenomena observed in USSR, toward Saryshagan. Observed several times. Source: London **Times**. *Observed from Afghanistan by British cameraman Nick Downie. Definitely Soviet tests of a Tesla globe and/or shield.*

22 Sep 79 - South Atlantic.

U.S. Vela satellites detect anomalous flash over South Atlantic, as if from a nuclear event. *U.S. Govt Agencies still disagree as to whether this was a nuclear event or not. May have been a Soviet test, or a test of a scalar EM weapon by another nonhostile country.*

25 Dec 79 - Afghanistan.

Soviets invade Afghanistan. *This is the Soviet "Spanish Civil War," where wpns, training, and the state of their ready reserves are tested. It is not primarily the regulars who are fighting there. Some scalar weapons — e.g. Smirch death ray — are tested also.*

1980 - Afghanistan.

Soviets kill 225 women and children in a village in the province of Maiden, near Kabul, Afghanistan. A month and a half later, bodies still undecayed. Bodies were also shot, to try to deceive Mujaheddin as to cause of death. *Bodies perfectly preserved. No smell, no bugs, no scavengers had eaten them. Probable Soviet test of a "death ray." Definitely scalar electromagnetic weapon signature.*

Feb 1980 - Duncanville, Texas.

About 100 startlings suddenly start falling from flight, instantly dead. *One of several such anomalous bird falls. Connected with very high frequency components added to Woodpecker signals for sharp localization. Birds entering such an area are killed.*

May 1980 - Seminole, Florida.

Start of mysterious plague of assorted illnesses striking healthy persons in a 20-block section of Seminole, Florida. Animals affected also. Lack friendly bacteria in their intestines. *Signatures of EM induction of disease and kill of intestinal bacteria. The lack of friendly bacteria is important. May indicate one direction of biological warfare planned by Soviets.*

June 1980 - USSR.

Huge, luminous hemisphere of light seen within Soviet Union, from Kuwait. Probably over Caucasus region of USSR. Source: personal communication from observer. *Tesla shield. A definite test, un equivocal.*

July 1980 - U.S. and Canada.

Richter 5.1 quake centered in northern Kentucky rumbles through 14 states and into Canada. *No known fault. Was predicted two wks in advanced by an associate.*

7 Nov 80 - Applegate Valley, Oregon.

Mysterious explosion, earth rumbling, brilliant light turns night into day in Southern Oregon. *Associated with subsequent earthquake next day?*

8 Nov 80 - California.

Richter 7.5 earthquake off coast of Southern California. Shakes CA and Southern Oregon. *Note anomalous phenomena in S. Oregon the preceding day.*

Dec 1980 - South Atlantic.

U.S. Vela satellites detect another anomalous nuclear-like flash over the South Atlantic. *In infrared only. Obviously not a normal nuclear wpn.*

28 Dec 80 - South Atlantic.

Great bluish-white flash over the South Atlantic. Clear sky except 2 or 3 small cumulus clouds, one about 600 ft. above ship. *Possibly connected with the second Vela flash detection, or generated by the same system. One of many such incidents.*

1 Jan 81 - Somerset, Pennsylvania.

Pilots of two a/c report the descent of a bright, shiny object with fiery tail over Pennsylvania. Large boom rumbles across most of Western PA. *Possible Soviet scalar EM testing. Part of deception plan.*

Jan 81 - Minnesota, Wisconsin, South Dakota.

Great skyflashes and rumbling noises occur around Morris, Minnesota and Wisconsin and South Dakota. *Possible Soviet scalar EM testing. Part of deception plan.*

Feb 81 - San Jose California.

Two pilots menaced by 10 ft. dia. light which flew directly at aircraft over San Jose, CA airport. Plane climbed, light followed, then sped away. *Totally consistent with exercise of the Soviet Launch Phase*

Anti-bomber system's real-time holography aspects of the Woodpecker OTH radars.

6 May 81 - Fredericksburg, Maryland.

EC-135 a/c crashed near Fredericksburg, MD. Severe nose-down from 29,000 ft. Apparent loss of all power. At 5,000 ft., either fire or minor explosion occurred. At 1,500 large explosion destroyed the aircraft. *Possible Soviet test of OTH radar anti-bomber weapon system?*

Mid-81 - Afghanistan.

Soviet helicopters use mysterious, highly lethal agent in Afghanistan. Causes death so quickly victims do not have time to make the slightest move. Rpt by Jane's Defense weekly. Referred to as Smirch gas or Smert gas. *Probable test of a Soviet scalar EM "death ray."*

20-23 Jan., 1982 - Gander, Newfoundland.

"Object with red, green and yellow lights sighted in the Gander, Newfoundland area more than 36 times. Alternately hovered and darted in a complex "flight" pattern. *Possible real-time holographic phenomena produced by Soviet scalar EM weapons as part of the worldwide deception plan. Gander is a major "registration point."*

3 Feb 82 - Newfoundland.

Red and green flashing lights travelling across the horizon at 2,000 mph reported by 3 Armed Forces officers at Gander, Newfoundland. *Possible real-time holographic phenomena produced by Soviet scalar EM weapons as part of the worldwide deception plan. Possible major "registration point."*

Feb 82 - Ankarasaray, Turkey.

Cluster of high, multiple lights pass over Turkish town of Ankarasaray, 200 km. from Ankara. Dogs were disturbed also. *Possible real time holographic phenomena produced by Soviet scalar EM weapons as part of the worldwide deception of plan. Gander is a major "registration point."*

Sep 82 - Ankara, Turkey.

Cluster of 10-14 high, multiple lights pass over Ankara, Turkey in clear night sky. Dogs were also disturbed. *Possible real-time holographic phenomena produced by Soviet scalar EM weapons as part of the worldwide deception plan.*

Early 82 - St. Petersburg, Florida.

Extended series of booms occur off coast of Florida, near St. Petersburg. *Continued lengthy period of time. Years of Soviet scalar EM interference grid adjustments have been registered in Florida and off St. Petersburg. Booms are so numerous that meetings of civil defense, federal, and state officials have been held.*

June 82 - Washington/Canada border and off-shore.

Extended series of booms occur over Pacific Ocean, centered about Port Angeles and Sequim near Washington state/Canadian border. *Persisted for several weeks. As many as 10 blasts per day. Fireballs and lights also seen. Soviet extended scalar EM tests.*

18 June 82 - Northern Pacific Ocean.

Two JAL flight crews observe large, yellowish-white globe of light over the North Pacific Ocean 700 mi. east of Hokkaido, Japan. Covered one fourth of the sky. Light gradually dimmed and disappeared. *Tesla globe. Definitely a Soviet weapons test.*

June 1982 - Red China.

Several Red Chinese giant light hemisphere and globe incidents. In one instance, a/c electrical power systems began to fail in several Red Chinese fighter a/c when encountering a huge hemisphere of glowing light. *Tesla globes. Tesla shields. Balls of light. Definitely Soviet weapons tests.*

24 Sep 82 - Maryland, New Jersey.

Anomalous airquakes off the coast of Cape May and Northern Maryland, and Atlantic City, New Jersey. *Adjustment of Woodpecker grid. Soviet tests. 3 weeks later also.*

14 Oct 82 - Maryland, New Jersey.

Anomalous airquakes off the coast of Cape May and Northern Maryland, and Atlantic City, New Jersey. *Adjustment of Woodpecker grid. Soviet tests. 3 weeks earlier also.*

16 Nov 82 - Delaware, New Jersey.

Five mysterious booms rock Sussex county, Delaware and southern New Jersey. *Adjustment of Woodpecker grid. Soviet tests.*

1983 - Loma Linda, California.

Photos and information about the Soviet LIDA machine released. 40 MHz carrier, complex waveforms. Induces catatonic state in humans and animals. *Shows consciousness can be affected by EM means. Was used on U.S. prisoners of war in Korea. Suggests similar capabilities are possible for Woodpecker. U.S. scientific community had said impossible. President Carter affected in Jun. 79?*

Early 1983 - Bennett Island.

Large exhaust plume detected coming from Bennett Island and vicinity, one on-shore and two offshore. Plume was 6 mi. wide, 155 mi. long and reached 23,000 ft in height. *U.S. weather satellites detected it. Nearly horiz. jet, 155 mi. long. Definitely not natural. At angle of perhaps 1.5 degree above horizontal.*

27 Sep 83 - England.

British RAF/Panavia Tornado aircraft loses all electrical power and crashes. *Possible Test? Tornado system is triplexed.*

22 Oct 83 - Off Okinawa.

Two a/c operating off U.S.S. Midway apparently lost w/o trace, about 127 mi. E. of Okinawa, under anomalous conditions. *Causes unknown. Additional data needed.*

8 Nov 83 - Western Europe.

Anomalous earthquake occurs in Western Europe. All foreshocks and aftershocks were missing. Called the "Leige" earthquake. Definite symptoms of manmade (Soviet) origin. *Large boom occurred over Netherlands the next day over 35,000 sq. km. area. Soviet scalar EM weapon testing.*

9 Nov 83 - Netherlands.

Large acoustic event occurs over Netherlands. Detected over 35,000 sq. km. First mistaken as a Dutch quake. *One day after the anomalous Leige quake. Soviet wpn testing.*

Dec 83 - Alma Ata.

Stored munitions exploded at Dolon (Soviet) airfield. 150 km south of Alma Ata. One of six that mysteriously exploded in 7 months. *May be evidence that another nation also has Scalar EM wpns, and*

is checking the Soviets. Ifso, probably was warning that Soviets also would suffer if they moved.

1984 - Novaya Zemlya.

First mysterious plume detected from Novaya Zemlya by U.S. weather satellites. Sometimes plumes are 200 mi. long. *Novaya Zemlya contains Soviet atomic facilities including weapon facilities.*

1984

Senior Soviet physicist G. Yu. Bogoslovsky publishes paper, "Generalization of Einstein's Relativity theory for the anisotropic space-time." Such Russian research published regularly. Would be impossible in U.S., where similar attempts meet discredit, humiliation, and rejection by leading U.S. physics journals and departments. *The West has decreed that general relativity must not be local, and above all must not be lab-bench experimental. Open Soviet publication indicative of experimental development of local space-time curvature technology.*

1982 - 84 - Florida (& elsewhere).

Airquakes, booms (hundreds). *16 counties, near coast.*

28 Jan 84 - Pennsylvania, New Jersey.

Bright orange light streaks across sky from Pa. to N.J.'s Cape May. Similar "fireball" explodes in Clementon. Two other sky explosions observed. *Possible Soviet activity. TR wave holography and pulses. Part of Soviet deception plan.*

Feb 84 - in space.

All three payloads of the Challenger flight fail. *2 commication satillites, 1 balloon.*

10 Feb 84 - Netherlands.

Large atmospheric boom occurs over Netherlands. *7 others thru 1983.*

29 Mar 84 - Bennett Island.

Bennett Island exhaust plume detected by U.S. weather satellite. *Over 100 such anomalous exhaust plumes detected there.*

9 Apr. 84 - S. of Kurils toward USSR.

Giant rapid cloud tower rose, then faded. Small semicir. halo of light replaced it. Halo expanded to full circle of light. Expanded to giant globe then faded. *Cloud 60,000 ft in 2 min. Light globe expanded to about 380 mi. dia. and center over 200 mi. high. Source: Science Journal. Definitely a Soviet test of multiple weapon modes.*

26 Apr. 84 - Bennett Island.

Bennett Island exhaust plume detected by U.S. weather satellite. *Over 100 such anomalous exhaust plumes detected there.*

May 84 - S.E. U.S.

Series of devastating storms breaks out over S.E. U.S. in early May. Tornadoes, large hail, downbursts. Some loss of life. Persisted through night into early morning hours. Several instances of rapid thunderstorm top warming were observed in satellite photography. Occurred near downbursts. Very heavy plume activity at Bennett Is. noted in Apr. and May, 1984. *Warming of tops of thunderstorms can produce downbursts. In literature. Note that Soviet scalar EM wpns can perform such top-warming of thunderstorm anvils, and induce downbursts on command.*

13 May 84 - Severomorsk, USSR.

Soviet missile storage facility at Severomorsk Naval Base on the Kola Peninsula 1450 km north of Moscow blows up in a series of vast explosions. Over 200 wounded. Soviet North Fleet lost about 1/3 of its missiles. Speculation of an "electromagnetic cause, possibly by reflection of radio waves from ionosphere." Detected by satellites; first thought to be nuclear explosion. *One of six such explosions of Soviet ammunition storage sites in a period of seven months. Definitely not accidental. Probably use of scalar EM weapons by another nation, not hostile to U.S., to warn the Soviets that they also will suffer if they move.*

15 May 84 - Bobrwjk Airfield.

Major blast occurs at Bobrwjk Airfield, 138 km SE of Minsk and the base of a Badger-equipped air-to-surface missile regiment of the Smolensk Air Army. 10 of the 11 ammo storage bldgs blow up and admin, and access control bldgs. are destroyed. Note that fires and explosions were still raging at Severomorsk, from 13 May event. *Same note as above.*

25 Jun 84 - Schuerin, East Germany.

Explosion occurs at an ammunition depot at Schuerin, south of Wismar in East Germany. Windows blown out within 10 mi. radius of depot. *Same note as above.*

27 Jul 84 - Kuril Islands.

Slowly expanding ball of light seen by Boeing 747 crew near the Kuril Islands. Expanded for 10 min. Shell was sharply defined. Light semi-transparent and nearly perfect half-circle. *Tesla globe. Bennett Is. exhaust plumes detected by U.S. weather satellite. Definitely a Soviet test. Related to 9 Apr. 84 incidents S. of Kurils.*

29 Aug 84 - Edwards AFB, California.

B-1 bomber prototype crashes in flight test about 10 mi. NE of Edwards AF Base.

1983-84 - Ireland.

For two years, freak lightning terrorizes villages of West Donegal, Ireland. Roofs stripped off, windows smashed, pipelines wrecked, telephones and TVs blown up. *No known cause for the anomalous lightning. Shows natural potential in area is disrupted.*

25 Dec 84 - Ireland.

Freak lightning continues in West Donegal, Ireland. Causes 3-day power blackout. *Extensive plume activity at Bennett Island.*

1985 - Worldwide.

After years of a superb safety record, airline industry suffers a series of disastrous crashes. 20 major air crashes occur worldwide, with more than 2,150 lives lost.

Early 85 - Worldwide.

KGB begins a worldwide campaign to blame the U.S. for starting the AIDS epidemic. *Effort continues. Disinformation; is believed in 3rd world.*

Jan 85 - San Diego, California.

U.S. Navy chaff caught by wind, blown in over San Diego. Power knocked out to 60,000 homes. *Symptoms of presence of Soviet scalar EM grid in San Diego area.*

7 Jan 85 - Cantrell, Alaska.

Cantrell, Alaska. Blinding white light passes in sky overhead, lights up sky and mountain range for 30-40 seconds for 16 mi. Est. 3-mi. altitude. *Probable Soviet test. Note that plume activity at Bennett Is. is heavy in Jan. 85.*

Feb 85 - Zimbabwe.

Zimbabwe suffering worst electrical storm season in history. Death toll up to 116. 21 persons killed by a single bolt in one case. *Anomalous lightning. Shows natural potential in area disrupted.*

17 & 18 Feb 1985 - Anchorage, Eklutna Flats, Northway, Alaska. Several anomalous lights and sky booms incidents in Alaska. Skyflashes, balls of light, booms, etc. Seen both from ground and by pilots of aircraft. *Probable Soviet realtime holography tests as part of worldwide deception plan.*

19 Feb 85 - Out from San Francisco, California.

China Airlines Flight 006 Boeing 747 enroute to Los Angeles. Engines fail. A/c falls 32,000 ft. in 2 min. Restarts engines, lands at San Francisco. *Note previous incidents over Alaska on 17 & 18 Feb. Probable Soviet test of launch phase anti-bomber system capability of woodpecker transmitters.*

10 Mar 85 - Tblisi & Tallin, USSR.

Soviet Academy of Sciences announces an Aeroflot a/c had been followed by a UFO for 800 mi. *Soviets occasionally produce light phenomena in their own territory and near Soviet a/c as part of their deception plan. They do not wish to appear different.*

1 May 85 - Near Nashville (monitoring station).

In and around May Day 1985, the Soviet Union held a giant exercise of all its strategic scalar EM weapons. 27 "power taps" into the earth — each two frequencies 12 KHz apart — were activated. The earth was thus in forced gravitational resonance beneath our feet on 54 frequencies. Each tap estimated to power up to six of the giant weapons; thus over 100 major strategic scalar EM weapon transmitters were activated. Frequency bands were filled with scalar EM transmissions, command and control, including to subs on station underwater. *Frank Golden monitored this startling giant exercise, which was probably held for Gorbachev, and this author observed it by courtesy of Golden's special detection equipment. Thus the Soviets*

met the 1985 timetable established by Brezhnev in 1972 at a secret meeting in Prague of European Communist leaders. Western nations do not appear to have the equipment to monitor scalar EM emissions, and so Western intelligence agencies are believed to have totally missed this giant exercise and its significance. At conclusion, two power taps (four frequencies) were left in the earth to power "ready firing batteries," so to speak.

11 Jun 85 - Lanzhou, China.

China B747 crew encounters a huge, expanding yellowish glow of light, with very intense spot at center. *Probable Soviet test.*

11 Jun 85 - Mongolia.

Chinese jumbo jet, Peking to Paris flight, encounters giant "UFO" light form over Mongolia. 10 km. wide. Lit sky for 50 km. Extremely bright spot at center. Paced aircraft for 2 minutes. *Probable Soviet test. Soviet operator tracked a/c exhaust with long range antibomber system. Added giant light form for deception, and to create UFO reports, which are largely ignored.*

23 Jun 85 - Iowa, Nebraska, Kansas, Illinois, Kentucky.

Thunderstorms over Iowa, Nebraska and Kansas organized into single circular pattern rainstorm 200,000 sq. km. in area. Declined until dawn, then rejuvenated to unleash severe weather over Illinois and Kentucky. *Such organization never before had been seen. Now called "mesoscale convective complex." Shows unique new weather pattern involving giant organization.*

2 Aug 85 - Dallas/Ft. Worth, Texas.

Delta Airlines flight 191, a Lockheed L-1011, encounters microburst while approaching runway at Dallas/Ft. Worth International Airport. Crashes and kills 134 of the 163 persons on board. *While such microbursts occur in nature, this was during a period of intense Soviet scalar EM activity. Note that warming the tops of thunderstorm anvil causes a downburst. May have been just accident. May have been test.*

23 Aug 85 - Italy, Adriatic Coast.

More than 28 "UFO" sightings reported along Italy's Adriatic coast soon after **midnight**. Light phenomena. *Probable Soviet test. Part of deception plan. Scalar KM holography (real-time).*

28 AUG 85 - Vandenberg AFB, California.

Titan B fails after launch at Vandenberg AFB, California. Believed to have carried sensitive U.S. satellite. *Suspicious.*

Sep 85 - Kourou.

Ariane rocket explodes at Kourou. 3rd stage engine failed to ignite properly, forcing loss of power. Destruct then ordered. *French officials suspect Soviet sabotage. Probable Soviet test.*

Sep/Oct 85 - Cape Canaveral, Florida.

Anomalies observed on two U.S. shuttle launches by NASA. *No action taken; NASA does not recognize scalar EM weapons capabilities nor testing over its Cape Canaveral launch site. Nor does it connect the mysterious "booms" that have rocked the Florida coast for several years with the Soviets or with the anomalies noted on its two shuttle launches, such as giant booms.*

2 Sep 85 - Mexico City, Mexico.

Worst hailstorm in 50 yrs. strikes Mexico City, leaving some streets more than a foot deep in ice. 1-hr pelting. 25 bldgs collapsed. 4,000 roofs heavily damaged. 1 killed, 185 injured. Power blacked out. *May have been due to extensive Soviet long range weather engineering. 17 days prior to suspicious giant Mexican earthquake.*

5 Sep 85 - Australia.

Premier Wran, Australia, along with Minister of Agriculture Hallam, observe a bright spherical "UFO" from their government jet. It was photographed. Radar contact showed object at 100,000 ft. *Probably Soviet advanced performance antigravity flying vehicle.*

18 Sep 85 7:15 pan. - Catalina Is. Channel Is.

Cookman observes giant cloud radial, awesome to behold, between Catalina and Channel Islands, off California coast.

18 "funnel" strobes, dynamically boiling. Activity indicates great energy poured into earth and atmosphere. Mexican quake the next morning. Indicator of Soviet scalar EM connected to quake.

19 Sep 85 7:18 a.m. - Mexico City, Mexico.

Large earthquake strikes Mexico City, causing great damage. Largest of several. *Preceded wks earlier by giant anomalous hailstorm. Evening before, giant radials showed extensive Soviet power*

transmission activity. Positive indications of Soviet test.

8-9 Nov 85 - Ventura County, California.

Highly anomalous power blackout in Carlisle Canyon, Ventura County, Calif. Accompanied by severe electrical anomalies totally beyond normal electromagnetics. *Investigated and reported by engineer Ron Cole, who lives in the area. TV, light, phone, electrical anomalies plus intermittent 29 Hz signals.*

Nov- Dec 85 - California.

Mysterious hum continues to baffle people at Pacific Heights, Calif, and Marina district on San Francisco Bay. Previously had had same hum. Note such hum in England persisting over long period. Note 8-9 Nov 29 Hz. anomalous elec. signal at Carlisle Canyon, Ventura County, CA. *Possible indications of Soviet scalar EM activity. Area appears to be one of Soviet register / test points.*

26 Nov 85 - Cape Canaveral, Florida.

Launch of space shuttle Atlantis from Cape Canaveral, Florida is accompanied with high anomalies. (1) Seconds before launch, Bob Gladwin inadvertently photographs nearby strike of what appears to be an electromagnetic missile, probably of Soviet origin. (2) Anomalous light is hanging in the sky, near the launch site: a marker beacon, placed there by the Soviet scalar EM weapon system being tested. Seen by hundreds of persons, and photographed by George Suchary. Printed in Fort Pierce **Tribune**. (3) 12 minutes after shuttle is launched, when it is well down range, a tremendous rumbling atmospheric boom occurs, heard 600 mi. up and down the East Coast. Marker beacon then slewed away by distant Soviet operator at high speed. *With offset EM missile strike, Soviets tested the weapon to be used on the Arrow DC-8 two weeks later at Gander AFB, Nfld. Marker beacon used in precise registration. Note it was evidenced again above the explosion of the Titan on 18 Apr. 86 at Vandenberg AFB. Boom is from energy induced over a large area; which can catch multiple missiles being launched, a large Naval task force at sea, or a whole flight of airborne bombers, fighters, or helicopters. Also can catch an entire organization on the ground, or an installation - - wiping out all electronics, exploding explosives and ordnance, stunning or killing personnel, etc.*

*Again hundreds of NASA engineers and scientists did not recognize what was **happening** at the **site** and over their own heads.*

12 Dec 1985 - Gander, Newfoundland.

Arrow DC-8 crashes immediately after takeoff at Gander AFB, Newfoundland. Lost power just after takeoff; engines "rumbling" abnormally rather than roaring, according to eyewitness whom the a/c flew directly over, 100 ft up. Aircraft seen by three eyewitnesses to have an orange glow on it. Symptoms of negative energy introduced into engines, cancelling some of heat energy of the engines and seriously interfering with combustion process, causing loss of power. Glow may have been steady, small electromagnetic ball of energy against the aircraft, causing it to electrically charge and exhibit corona. Anomalous hole in right fuselage, just ahead of engines, as if from internal explosion; however, no explosive residue (it was tested). One other anomalous hole found. Wild swings of some instruments recording just at/after liftoff — ignored by investigation. *Note previous 36 light incidents in and around Gander, Jan. 1982. Gander Airport is major stopover for Soviets, and a major "registration point" for scalar EM weapons. Note anomalies in shuttle launch 2 wks earlier, and apparent actual test of the small EM missile then, offset so as not to destroy that shuttle.*

Aircraft crew one of Arrow's best. Aircraft should have flown okay, if not interfered with. Serious indications that the DC-8, with over 250 U.S. soldiers and air crew, was deliberately destroyed by test of a Soviet launch-phase antibomber system.

Note metal-softening Soviet signal detected on 1 Jan 86 by Frank Golden may actually have been on the Woodpecker transmissions on Dec 12, 1985. This metal-softening signal probably played a part in the destruction of the Challenger on 28 Jan 86.

1 Jan 86 - Near Nashville, Tennessee.

Frank Golden discovers a metal-softening signal on the Soviet Woodpecker interference grid. Performs experiments to verify the metal-softening ability of the signal. *Signal is of such a nature that only Golden's instrumentation could have detected it. He then scalarly cancelled the signal to totally prove it.*

24 Jan 86 - Ventura, California.

Engineer Ron Cole observes and sketches a giant grid cloud pattern over Ventura, Calif, at 11:45 p.m. PST. Giant cloud fingers, separated from each other, formed the crossed-grid pattern. *Shows Woodpecker scalar EM power very high and active.*

26 Jan 86 - Northern California.

Strong quake hits Northern Calif. 5.5 on Richter scale. Hollister area, about 120 mi. south of San Francisco. Several power outages in southern Bay area, where quake knocked out transformers, downed 21,000 V. power line, and set off burglar alarms. *May have been induced by Soviet scalar EM transmitters.*

26 Jan 86 - Los Angeles, California.

In greater Los Angeles area, Margaret Wilson observes 3 classic giant radial clouds form at 10 min. intervals: 1:15, 1:25, and 1:35 p.m. Appeared one after the other, till all three were there. Last one lasted about two hours, gradually distorting. *Shows a great amount of structuring to capture and turn the Jetstream, to direct cold weather to the Florida Panhandle and catch the Challenger before its impending launch, exposing it to drastic cold conditions. Definitely Soviet engineered.*

27 Jan 86 - Santa Monica, California.

On evening prior to the Challenger disaster, Al Matthews photographs a strange bar-grid cloud formation, absolutely rectangular bars, from the Los Angeles freeway. Pattern approx. over Santa Monica Bay, due north of Catalina Island. Edges and ends very straight, as if drawn in sky by a giant draftsman. *Shows severe high frequency content, and fine-point localization of Soviet scalar EM transmitters, in preparation for forthcoming launch of the ill-fated Challenger.*

27 Jan 86 - Florida Panhandle.

Avalanche of freezing air temperatures to record lows across the Southeast. Low temperature records set all across the South. Jetstream bent far south, across Florida Panhandle. *Definitely caused by Soviet weather engineering. Preceded by giant radial cloud signatures in "hinge" areas of Los Angeles and Huntsville, Alabama, showing steering of Jetstream.*

28 Jan 86 - Cape Canaveral, Florida.

Low temperature records shattered all across the South. Into 30's in Florida and into teens elsewhere. *Definitely result of Soviet weather engineering, and definitely directed against the Challenger rocket on the launch pad.*

28 Jan 86 - Off Florida Coast.

About 4 hr. before the launch of the Challenger, all Soviet ships off-coast, which normally monitor shuttle launches, suddenly depart at high speed. *Soviets do not want any suggestion that the ships' radars and transmitters may have interfered with the Challenger launch. Total anomaly. Unprecedented event.*

28 Jan 86 - Cape Canaveral, Florida.

National radio and TV newsmen comment on the highly unusual fact that no birds are flying in the launch area. *Reason: For severe localization, high frequency content of the scalar EM signals had been drastically increased. A bird's brain will detect and resonate to this energy, if the wavelength approaches the diameter of its brain. This resonance will cause great pain and/ or death of the bird. Thus the birds flee the area when this begins to occur — or they die. When birds accidentally fly into such a high frequency scalar EM signal, their nervous systems are instantly jammed. They die and fall from the sky.*

28 Jan 86 - Cape Canaveral, Florida.

Space shuttle Challenger, launched from Cape Canaveral after exposure to cold weather conditions, disastrously explodes. Booster seal problem. Encounters air turbulence during launch, at most critical altitude. *Soviet metal-softening signal has been added to grid. Extreme localization in area because of high frequency content added; shown by birds having vacated the area. Anomalous departure of Soviet ships offshore, 4 hrs. earlier. Three previous tests of the weaponry in that exact launch area, against the three previous shuttle launches. Kill of the Arrow DC-8 about 6-112 weeks earlier. Actual celebration by the KGB of perfect success of their active measures against the Challenger! U.S. space program crippled and set back severely.*

29 Jan 86 - Moscow.

At KGB headquarters in Moscow, the KGB holds a jubilant party to celebrate the perfect success of their active measures against the Challenger. *Note that Soviet scalar EM weapons — development, deployment, and use — are under the control of the KGB rather than the regular Soviet armed forces.*

31 Jan 86 - Mid-U.S.

Richter 5.0, Earthquake rattles 9 states and Great Lakes. *Possible test of weapon that killed the Challenger, in the earth transmission / earthquake induction mode.*

2-4 Feb 86 - Birmingham, Alabama.

In Birmingham, Alabama dead birds plummet from the air to the ground for three days. Blackbirds, cardinals, sparrows, bluebirds, etc. No trace of poison in carcasses. *Only a few days after kill of the Challenger. To divert the Jetstream further south and hit Florida, the Soviets had moved the normal "hinge pin"—where scalar EM energy, either positive or negative, is focussed—from Huntsville to Birmingham. Hinge pin area was still activated. The high frequencies used for extreme localization against the Challenger were lethal to birds. Therefore birds that inadvertently flew into this zone were instantly killed and dropped from the sky.*

10 Feb. 86 - Europe.

Super Frelon (French) helicopter crashes, with 11 killed. Aeronautique Navale aircraft. Part of a spate of crashes of French military aircraft in four months (through June 86). *Defense Minister Andre Giraud launched a special investigation.*

23 Feb 1986 - Irish Sea.

Over the Irish Sea in an airplane, England's Prince Charles sights a brilliantly glowing, red object hovering near them. His pilot reports the object to air traffic control. Four other aircraft traveling through that area radioed similar reports. *Probably either a Soviet craft or a Soviet holographic scalar EM demonstration as part of the overall deception plan, and/or a stimulus to a member of the Royal Family to observe what action is taken by British Ministry of Defense. By actions, could ascertain whether or not Britain knew what was going on.*

30 Mar 86 - Ventura, California.

Engineer Ron Cole in Ventura CA observes significant cloud patterns, positively correlated with his measurements of the Soviet woodpecker transmissions. *Cloud pattern changes were directly correlated to signal changes on the Woodpecker. Shows cloud signatures can be indications of specific Woodpecker activity.*

31 **Mar** 86 - San Francisco, California.

Strong earthquake, Richter 5.3, rocks San Francisco Bay area. Third in region in 3 days. Three aftershocks within minutes. *Note correlation of Woodpecker activity previous day.*

31 **Mar** 86 - San Francisco, California.

Crew error on Delta flight accidentally shuts down engines after normal takeoff from San Francisco. Engines restarted. *Definitely a crew error. Possible human effects from earthquake energy in area. Same type incident on Jun. 30, 1987.*

3 **Apr.** 86 - Florida.

Loud boom shakes houses and rattles windows over Brevard County, Florida. One of a whole series over the years. Not far from Kennedy Space Center. *Soviet adjustment of scalar EM grid.*

Apr 86 - France.

French Armee de L'Air has lost two Jaguars and two Alphajets in April 86. Part of a spate of losses in 4 months, leading Defense Minister Giraud to launch a special investigation.

7 **Apr** 86 - Sacramento, California.

Charlotte King of Sacramento calls UPI and predicts a major earthquake will strike in Canada, Alaska, Aleutians, or Japan. She had predicted eruption of Mt. St. Helens in 1980. On Apr. 27th, she predicted quake that shook Mexico three days later.

Note that human brain is a scalar EM interferometer, capable of transmitting and receiving scalar EM waves. Unfortunately, not conscious — output of system is in deep unconscious. Some persons are more sensitive than others, and can detect the scalar activity from the increasing stress in rocks that is leading toward an earthquake. Charlotte King is such a person, having over an 80% accuracy of prediction of quakes. She will be able to detect the increasing stress in rocks, whether naturally or artificially induced.

9 **Apr.** 86 - Aleutian Islands.

Three quakes rock the Aleutian Islands. Predicted by Charlotte King on Apr. 7. *Documented prediction.*

18 **Apr.** 86 - Huntsville, Alabama; Thousand Oaks, California.

T.E. Bearden sees and photographs remnants of a giant radial cloud

in Huntsville, Alabama. Extensive Soviet woodpecker grid activity noted over Thousand Oaks, California by Engineer Ron Cole. *Both show increased scalar EM activity in the interference grid.*

18 Apr 86 - Vandenberg AFB, California.

USAF Titan 34-D rocket explodes nine seconds after launch from Vandenberg AFB, California. Video captured the Soviet marker beacon (**Aviation Week & Space Technology**). Engineer Ron Cole and team study video of the explosion frame by frame and verify the anomalous beacon light is present, is separate from the explosion, and moves away separately after the explosion. *Sensitive satellite believed on board the rocket. U.S. Space surveillance program crippled. Probable Soviet kill. TR wave adjunct with Woodpecker.*

25 Apr 86 - New Mexico.

NASA research rocket misfires over the New Mexico desert. No public announcement made at the time. Was first failure in 25 consecutive missions of the Nike-Orion rocket. Said NASA spokesman Kukowski: "It looks like we're snakebit."
Possible Soviet test kill.

25 Apr 86 - California; Chernobyl, USSR.

Bill Bise detects the sudden loss of the East-West Soviet woodpecker transmitter he is monitoring in the field, leaving the North-South transmitter. The failed transmitter was about 20-30 km. from Chernobyl. *The Soviet transmitter sites safety circuits go-in full, trying desperately to hold back the giant scalar EM standing-wave potential that has been built up, and slowly and safely drain it away into the earth. In alarm, Soviets shut down nearby reactors at Chernobyl. Any "flash discharge" escape as a flash-over pulse of the scalar EM potential will produce a giant EGP pulse into the earth. When this EGP pulse reaches the four reactors, they will violently explode, full-up nuclear, like giant hydrogen bombs — perhaps 1200 megatons equivalent. Later the Soviets will claim that the operators shut the plant down to do some "unauthorized experiments."*

26 Apr 86 - Chernobyl, USSR.

With the giant scalar EM standing wave almost all drained away, the safety circuits finally fail, dumping a small EGP into the earth. The nearest reactor at Chernobyl gets it, and the uranium fuel roils

suddenly go half-decayed, instantly heating and blowing out the reactor, destroying it. Nuclear radiation fallout spreads over much of Europe.

3 May 86 - Florida.

Delta 178-rocket destroyed by range safety officer at T + 91 after two anomalous power surges occurred in the rocket, causing premature shutdown of 1st stage Rocketdyne RS-27 engine 71 sec. into the flight, and rocket to go aerodynamically unstable. Previous 43 launches had been successful. Since 1960, 177 launches 94% successful. One of most reliable rockets ever built. *Soviet weapons test. One of a series. TR wave adjunct with Woodpecker.*

7 May 86 - Aleutian Islands.

Great earthquake measuring 7.7 Richter strikes Aleutian Islands. Centered about 100 miles SE of the island of Adak. Tsunami alert issued for the North Pacific, but no major waves ever materialize. Thousands evacuate coastal areas. *A U.S. researcher known to this author used a powerful scalar interferometer to block the tsunami. The researcher must remain unnamed.*

9 May 86 - Redstone Arsenal, Alabama.

All power on Redstone Arsenal, Alabama suddenly and mysteriously fails all at once. *Similar related incident on May 12. No explanation.*

12 May 86 - Huntsville, Alabama.

In Huntsville, Alabama — adjacent to Redstone Arsenal — on local radio program Feedback, public radio discussed the mysterious failure of all power on Redstone Arsenal on Fri., May 9, 1986 and requested that, if anyone knew why all circuits would go off at once, to please get in touch. *Immediately the station's radio transmitter went off the air! (Almost as if "Big Brother's listening to you!")*

18 May 86 - Djibouti.

French Breuguet Atlantic aircraft crashes in Djibouti, killing 19. *Part of spate of crashes of French military aircraft in 4 months that leads French Defense Minister to open special investigation.*

19 May 86 - Brazil.

Brazilian fighter jets are sent to chase multi-colored "ping-pong ball sized" UFO's in skies over Brazil. 4 jets, two Mirages and 2 F-5's

chased them at speeds of 840 mph. Tracked on radars. Chase lasted 3 hrs. Planes could not catch them; ran low on fuel and returned. Discussed on TV by Brazil's Air Force Minister Brig. Gen. Otavio Moreira Lima. *Soviet scalar EM holographic production; distant Soviet operators having fun and games as part of the deception plan, generating UFO incidents and reports?*

22 May 86 - California.

High-speed orange "X" object with lights seen above Sonoma CA before dawn. At one time the object slowed and hovered.

29 May 86 - Huntsville, Alabama.

Huntsville and Madison County, Alabama electrical power dipped momentarily and mysteriously, causing a seconds-long outage in businesses and homes, playing havoc with traffic signals and computer centers throughout the area. Some traffic signals continued to malfunction for 30-45 min. after power was restored, then mysteriously resumed normal functioning. Some phones also went out inexplicably, and many battery-powered radios went off, and were away for seconds or minutes before recovering. *Obviously this was not caused by any kind of ordinary electromagnetics. Shows anomalous and high activity (pulsed) in the Soviet scalar EM grid (Huntsville Ah. is a pivot point).*

30 May 86 - French Guinea.

Ariane 2 rocket fails because of a faulty ignition system for the third stage engine. Rocket destroyed by ground command 4-1/2 min. after launch from Kourou, French Guinea. The third stage has failed 3 times since start of Ariane's operations in 1979.

Possible Soviet test.

Tad Szulc, Washington journalist, implies that French Defense Minister Andre Giraud may have discussed the possibility of Soviet sabotage of the rocket with Washington.

May? 1986 - Straits of Gibraltar.

USS Atlanta nuclear sub runs aground in Straits of Gibraltar and suffers "serious damage," according to reports in Madrid. A hole was made in one ballast tank and the sonar wrecked.

Another U.S. nuclear sub ran aground within a month or so (earlier?) of this incident. Could something have interfered with their navigation systems underwater? Continued Soviet Scalar EM tests?

11-12 July - California.

Secret USAF crashes approx. 14 mi. NE of Bakersfield, CA along the Kern River. Site secured. Possible Stealth fighter. Crippled aircraft in trouble seen and photographed by Andy Hoyt, who turned photos over to USAF (properly so). Aircraft not on fire when came down. Did not explode in the air. *No information as to whether any Soviet scalar EM hanky-panky involved or not. Suspicious because follows a series of anomalous missile failures. Woodpeckers definitely have good anti-stealth capability.*

11 July 86 - Tennessee and Georgia.

Moderate quake with sonic boom shakes SE Tennessee and Northern Georgia. 3.7 on Richter scale. Centered just east of Chattanooga Tennessee on the TN/GA line.

12 July 86 - Michigan, Ohio, and Kentucky.

Mild quake in Michigan, Ohio, and Kentucky. 4.0 on Richter scale.

18 July 86 - Los Angeles, California.

Sharp aerial boom rattles Los Angeles Basin at about 0930 hrs. FAA and USAF unable to identify a potential source from an aircraft.

Aug 86 - Soviet Union.

Two huge new Soviet "radars" discovered on Western Soviet border by U.S. intelligence. One near Skrunda, on Lithuanian border. Other near Mukachevo, on the Czech border. *With phase conjugate adjuncts, represent significant strategic weapon system deployments.*

2 Sep 86 - Baltic Sea.

Finnish ferry Scandinavia in Baltic Sea observes a strong light rise from the sea near the Finnish Coast. After 3 to 4 seconds, a giant mushroom reached 500 feet into the sky and covered the moon. *Probable Soviet test.*

12 Sep 86 - Dallas, Texas.

Mysterious, powerful "explosion" rocks South Dallas. No source found or explained. No supersonic jets in area.

Selected Incidents

15 Sep 86 - Australia.

Katherine, Australia. Object with flaming orange **tail** moved **from** sky toward ground at 45 degree angle. Katherine's electrical **power** suddenly cut off and phone lines in the town disrupted. ***Probable Soviet scalar EM generated.***

Oct-Nov 86 - Los Angeles, California.

Giant radial clouds observed in Los Angeles area.

Oct 86 - Reykjavik, Iceland.

Gorbachev and Reagan meet at Reykjavik, Iceland. Gorbachev proposes "zero option." *Seeks to get nuclear missiles removed, since they constitute "dead man fuzing" because of nuclear warheads, and severely limit pulse use of Soviet scalar EM weapons. Adamantly insists on bottling up SDI — because if space laser is converted to scalar EM laser, its power (effective) goes up about 10^{20} times, and single shot could devastate Russia.*

10 Oct 86 - Vandenberg AFB, California.

U.S. forced to scrub another missile launch when a USAF Scout satellite malfunctions during final countdown at Vandenberg AFB, Calif. *The booster's gyro system failed a checkout sequence at about T-5 hr. Scalar EM can inertially interfere also.*

13 Oct 86 - ABC News.

On Peter Jennings' ABC News show, Gennadi Gerasimov, Soviet spokesman, indicated that SDI as presently designed was of no concern to Soviets. Real concern is that U.S. will make a "great technical breakthrough" and deploy new, modified devices, presenting an unacceptable threat to the Soviet Union. *Here he is thinking of changing the laser to a scalar EM laser.*

6 Nov 86 - Albuquerque and Phoenix.

Power failures at Albuquerque air traffic control tower and a radar station near Phoenix, Arizona occur. Radar controlling high altitude air traffic from Texas Panhandle to southern California was knocked out for 40 min. First such incident in Albuquerque center. The Arizona radar was out for 59 hrs. *Note similar incident at Montreal on Nov. 11, 1986.*

10 Nov 86 - Huntsville, Alabama.

Three giant radial cloud formations in Huntsville, Alabama photographed by T.E. Bearden. One is a twin giant radial. *Shows heavy activity in scalar EM interference grid.*

10 Nov 86 - SE U.S.

Red glowing light with tail flares across sky in Southeast about sunset. Seen over parts of TN, AL, GA, MS. Ground searches conducted in several areas for possible crash. *Probable Soviet scalar EM activity. Note heightened activity in grid same day.*

10 Nov 86 - Near Nashville, Alabama: Hemet, California.

Frank Golden measures scalar EG field of earth — highly agitated and dynamic, about half as much as when Soviets induce earthquakes. Anomalous winter storm in progress. Cold records broken in Mid-U.S. Heat records broken in Florida. Storm penetrates very deeply southward. *Soviet weather engineering.*

11 Nov 86-Canada.

Air traffic control radar in Montreal, Canada region broken down. Backup system employed. *Note similar occurrences to Albuquerque and Phoenix on Nov. 6, 1986.*

12 Nov 86 - Atlanta, Georgia.

Stationary arc (dome) of clouds sighted over Atlanta. Well defined lower edge. Upper edge irregular. Multiple witnesses. Clouds moved into top of dome and flowed around it. Very strange sight. *Probable Soviet "gentle test" of placing a suppressive covering over a distant U.S. city. Performed at night, at minimal level (no glow) so no great notice would be taken. Dome was stable against 20 mph winds and other moving clouds that collided with it.*

13 Nov 86 - Huntsville, Alabama.

Twin giant radial cloud observed moving over Huntsville, Alabama by T.E. Bearden. West to East. At nearly noon. At dusk, single giant radial cloud was also spotted over Huntsville. *Significant scalar EM activity in grid.*

17 Nov 86 - off Alaska.

JAL Flight 1628 observes giant UFO while enroute from Reykjavik, Iceland on mid-leg of Europe to Tokyo. Crossed Beaufort Sea off

Alaska's north coast. Sighted flashing lights which moved alongside the aircraft. Pilot descended, so did light. Glimpsed craft in profile, twice as big as aircraft carrier. On board radar located it. USAF and civilian controllers reported brief radar echoes, but tapes did not show it. Approaching Fairbanks, Alaska. Pilot made 360 degree circle, object stayed with him. Finally disappeared as he was approaching Anchorage. *Probable Soviet test as part of deception plan. TR wave holography.*

27 Nov 86 - Fort Pierce, Florida.

Flash of light in sky and sonic boom occurred vicinity of Fort Pierce, Florida. *Probable Soviet EM test. Note that a classified payload was scheduled for launch in near future at Cape Canaveral nearby.*

4 Dec 86 - Huntsville, Alabama; Hemet, California.

Twin giant radials seen and photographed over Huntsville AL. Large radial cloud seen in skies over Hemet, Calif, and photo printed in **The Press Enterprise**, Hemet, CA 5 Dec 86.

4 Dec 86 - Cape Canaveral, Florida

Atlas/Centaur rocket successfully launched at Cape Canaveral, orbits a communications satellite for DOD. *The Soviets had to allow one or two of the missiles to succeed, else even the lethargic U.S. bureaucracy would have caught on. Grid activity indicates they probably just tracked it without the other goodies.*

5 Dec 86 - Vandenberg AFB, California.

MX ICBM launched from Vandenberg AFB. Two of RVs did not deploy although all impacted within the Kwajalein Missile Test Range. *Note: Soviets let one go from Vandenberg.*

21 Dec 86 - Huntsville, Alabama.

Twin giant radial photographed over Huntsville Alabama.

23 Dec 86 - Huntsville, Alabama.

Small flash in lower sky over Huntsville, Alabama observed by T.E. Bearden. Followed by faint boom. Momentary loss of power occurred in large area of Huntsville. Positive correlation between the aerial flash/boom and the loss of the power. *Soviet test.*

7 - 21 Jan 1987 - Florida.

Several giant radial clouds seen in vicinity of Fort Lauderdale, Florida. *Indicates substantial action in scalar EM grid.*

20 Jan 87 - U.S.

Highly unusual bend in Jetstream. Completely down West Coast, curving east under Texas, NE along SE USA. *Shows great action in scalar EM grid. Significant weather engineering.*

20 Jan 87 - Vandenberg, AFB, California.

Minuteman missile destroyed in launch. *Note substantial action in scalar EM grid.*

23 Jan 87 - Huntsville, Alabama.

Bearden photographs twin giant radial over Huntsville AL. Cloud fades with great and unusual rapidity. A private-type jet, similar to a Learjet, continually circled under the strange twin radial cloud, as if observing and/or photographing it. *Perhaps someone in the U.S. system wised up.*

28 Jan 87 - Vandenberg AFB, California.

Minuteman missile successfully launched from Vandenberg AFB. Note: *Anniversary of the Challenger disaster.*

7 Feb 87 - Alabama - Tennessee border.

Loud aerial boom or explosion shakes area from Tennessee, New Market, Monte Sano through Huntsville Alabama area.

10 Feb 87 - Huntsville, Alabama.

Bearden photographs twin radial cloud in Huntsville, AL. Cloud stayed fixed, although winds present and other clouds moved. Note big storm in NE - Cape Cod, etc. *Associated with weather engineering.*

11 Feb 87 - Huntsville, Alabama.

Bearden photographs another twin giant radial in Huntsville, Alabama. *Shows activity in Woodpecker grid.*

Feb 87 - Vandenberg AFB, California.

USAF Titan launched from Vandenberg AFB, Calif.

12 Feb 87 - California.

Blue Angel F-18 a/c crashed near Brawley, CA. Fourth military air crash in the Imperial Valley since October. *Note Woodpecker grid activity on previous day.*

26 Feb 87 - Cape Canaveral, Florida.

GOES-H weather satellite launched from Cape Canaveral on a DELTA rocket.

26 Mar 87 - Cape Canaveral, Florida.

Stunning failure of an Atlas/Centaur rocket launched from Cape Canaveral. May have been hit by lightning. Failed suddenly 51 sec. after liftoff. Veered out of control and destroyed. *Note: Possible Soviet scalar EM involvement. Much to do later about multiple lightning strikes; very suspicious.*

June 1987 - Vandenberg AFB, California.

Minuteman 3 missile fired from Vandenberg AFB, Calif, is aborted and destroyed in flight. *Note similar incident in July.*

12 **Jun** 87 - Cape Canaveral, Florida.

Trident III launched successfully from flat pad.

21 **Jun** 87 - Alaska.

Three strong earthquakes shake parts of remote Alaskan Peninsula.

30 **Jun** 87 - Los Angeles, California.

Delta 767 flight 810 crew inadvertently shuts down engines shortly after takeoff from Los Angeles. Starts to fall, restarts engines and recovers. *Definitely crew error. Similar incident on Mar. 31, 1986 after takeoff from San Francisco.*

12 July 87 - Over Pacific Ocean.

Minuteman missile is destroyed in flight over the Pacific Ocean because of a problem in flight. Launched from Vandenberg. *Note similar incident the previous month.*

16 **Jul** 87 - Huntsville, Alabama.

Anomalous large "boom" occurs at Huntsville, Alabama.

17 **Jul** 87 - Huntsville, Alabama.

Another anomalous, large "boom" occurs at Huntsville, Alabama. *Note that Huntsville is a pivot point on the Soviet grid. Adjustments in the grid often "spill out" energy, causing such a boom. It causes a sharp boom if pinpoint spillage occurs. It causes a more general quaking, rumbling sound of longer duration if spillage occurs over an area.*

20 **July** 87 - Cape Canaveral, Florida.

Tident III successfully launched from flat pad.

14 **Oct.** 87 - Nellis Air Force Gunnery range.

Top secret plane crashes; possible stealth fighter. *Did the Soviets kill another one?*

9 **Nov.** 87 - Vandenberg, AFB, California.

Minuteman II missile is destroyed seconds after launch. *Unnamed anomalies cited. Did the Soviets interfere?*

4 **Jan.** 88 - Madison and Huntsville, Alabama.

Giant radial sighted for several hours. Three mysterious booms rattle Huntsville. *Soviet scalar EM activity continues.*

APPENDIX V

DEAD MAN FUZING*
THE REAL MEANING OF THE REYKJAVIK SUMMIT

Soviet Foreign Minister spokesman, Gennadi Gerasimov, following failure of the Iceland Summit, said in a radio interview that SDI (U.S. Strategic Defense Initiative), as presently designed, is of no concern to the Soviet Union. The real Soviet concern, he indicated, is that the U.S. would make a great technical **breakthrough** and deploy new devices in space as a modification to SDI **presenting** an unacceptable threat to the Soviet Union.

*Peter Jennings' ABC News Show, Los Angeles, CA
13 October 1986.*

Gerasimov let the cat out of the bag!

With their deployed scalar electromagnetic weapons, the Soviets would immediately hold the winning hand-if these weapons could be unrestrainedly brought to bear.

As pointed out in **Fer-de-Lance: A Briefing On Soviet Scalar Electromagnetic Weapons**, Tesla Book, Co., 1986, the use of massive Soviet scalar EM weapons can only be gingerly applied. Activation and use of the Soviet scalar EM weapons is fraught with grave danger to the entire earth and to the whole human species because of the presence of nuclear facilities in the desired target area, and because of the "backlash" potential against the Soviet Union's own nuclear weapons and facilities.

The explosion at Chernobyl was apparently caused by the accidental failure of a nearby scalar EM transmitter, and the eventual impulsive loss of part of the electrogravitational potential built up by the transmitter before it failed. The resulting electrogravitational pulse (EGP) in the earth "pulsed" the nearest nuclear material... fuel rods in the reactor at Chernobyl.

Had the EGP not been depleted prior to its escape, all four reactors at **Chernobyl** would have exploded with the same intensity as if

*The term "Dead Man Fuzing", means that, even though your opponent kills you, a weapon or effect of your own will inevitably result which will then kill your opponent.

they had been "triggered" by a fission explosion.

In short, if unrestrainedly used, the EGPs from the Soviet scalar EM weapons would initiate most of the nuclear weapons where they are in the targeted area—in storage, in silos, in aircraft, etc. Target area nuclear reactors and nuclear wastes would also be violently initiated into nuclear explosion. The resulting vast megatonnage of nuclear explosions, much of them "in the dirt," would provide an unthinkable holocaust. The effects of these giant explosions, deadly fallout and dense clouds of smoke and dirt, would blanket the earth with nuclear effects greater than is presently expected from an all out nuclear war, in which many of the weapons are expected to be destroyed or lost without being exploded nuclearly. Deadly nuclear radiation would blanket the globe, contaminating it for thousands of years. From the covering of the earth by dense smoke and dirt clouds, a new and deeply bitter global ice age—not just a "nuclear winter"—would almost certainly be initiated. In 1960 Khrushchev appropriately characterized these fantastic weapons by stating that they could wipe out all life on earth if unrestrainedly used.

A country's nuclear weapons and facilities, then, become its inadvertent "dead man fuzing" to prevent any substantial employment of large scalar EM weapons against it. So long as nuclear "dead man fuzing" is in place in a country, its adversary can only utilize scalar EM superweapons against it with great difficulty, and then only sparingly. At present, both the U.S. and its NATO allies are "dead man fuzed" by the presence of Western nuclear weapons—and to some extent, by the presence of nuclear reactors and stored nuclear wastes.

Obviously the Soviet Union's task of world domination—and the mind-rending risks it must take in employing large scalar EM weapons—would be greatly expedited if the obstacle of "deployed U.S. and NATO nuclear weapons and facilities" could be eliminated or minimized.

Also, Gorbachev must be acutely aware that the U.S. is finally beginning to look at the possibility of scalar EM weaponry. He would assume that either the U.S. is already on the way to acquiring scalar EM weaponry of its own, or else the time is imminent when it will do so. If this happened, and the U.S. then were to deploy SDI scalar EM lasers in space, the effects of each laser would be enormously increased by the electrogravitational amplification factor. Reasonable gain increases of the yield of each laser shot might approach, for

example, on the order of 10^{20} . In that case, each laser could suddenly devastate a whole state or region with one or two shots, instead of just being able to destroy one little missile. The Soviets know that Reagan's Star Wars weapons—if modified to the "improved" kind and deployed in space—could deliver a surprise first strike in seconds, and devastate Russia before all the Star Wars space weapons could be knocked out by Soviet ground-based scalar EM beams.

The Soviets also know that it is not too difficult to modify lasers to become such powerful scalar EM lasers.

This means that Gorbachev needs to insure that the Star Wars weaponry is not actually tested in space. Testing in space requires developing at least prototype "space deployment" SDI weapons, to get them up in space to test them from there in the first place. And even such "prototype" SDI weapons would be sufficient to devastate the Soviet Union, given that the prototypes employed the technological breakthrough represented by scalar EM weapons. This is what Gerasimov was really referring to!

Thus Gorbachev simply cannot allow such space testing of SDI weapons, if he hopes to be able to safely seize the opportunity to employ his own already-deployed, massive scalar EM weapons during the "window of time" that would be provided by dismantling of U.S., NATO, and Soviet nuclear weapons.

And—given that he gets agreement and implementation of the "zero option"—Gorbachev knows he will only have a narrow "window" of time in which he can hope to achieve world domination. It can be only a short time until the U.S. produces results in scalar EM weapons, and promptly develops such weapons of its own. Faced with that eventuality, Gorbachev would then have no choice but to turn away from the Communist dream of world domination, and reach a mutually agreed accommodation with the West. Both the West and the Soviets then would have to take immediate and drastic measures to prevent the rapid development and spread of the relatively cheap scalar EM weaponry throughout other nations, particularly those motivated from fanatical beliefs and quite capable of "blowing up the earth" deliberately.

Thus, before the U.S. becomes aware of scalar EM weapons and builds its own, Gorbachev desperately needs to get rid of the "dead man fuzing" problem posed by the nuclear weapons and facilities possessed by the U.S. and its NATO allies, so that he can utilize his superweapons to dominate the world without destroying it.

And he needs to block any chance that the U.S. would be able to have space-tested high energy laser prototypes which could be quickly modified to scalar EM weapons, fired into space, and used to counter Soviet aggression or even destroy the Soviet Union in retaliation.

In short, today the paramount and almost desperate need of the Soviet Union is to reduce American dead-man fuzing and keep the SDI space laser genie bottled up in the lab on the ground.

Accordingly, in Iceland, in what appeared to be a stunning concession on nuclear arms, Gorbachev suddenly offered Reagan a complete dismantling of all nuclear weapons-Reagan's "zero option." Actually this move had been planned by Gorbachev from the beginning; it was not a spur-of-the-moment offer. The reason was simple: If the U.S. could only be persuaded to quickly get rid of its nuclear weaponry, the Soviets would hold an absolutely winning hand. Their massive, deployed, operational scalar EM weapons could then be unleashed with minimal restraint. The extremely delicate and incredibly dangerous problem of bringing the large scalar EM "continent-buster" weapons to bear, without inadvertently causing world destruction, would be vastly eased if only the ordinary U.S. nuclear facilities such as nuclear power plants and radioactive wastes had to be reckoned with.

Fortunately, Ronald Reagan fervently believes in defense .

He made the right decision, whether or not it was for the right reasons.

Indeed, he probably knew in advance that SDI was to be targeted in Iceland by the Soviets, and that sweeping concessions might be offered by them for that purpose. According to one report (" 'Blinded' Satellites," Rowland Evans and Robert Novak, **Washington Post**, Oct. 29, 1986), just before Reykjavik the CIA-sent a report to Reagan with the warning that "the sole reason for Gorbachev's wanting the Iceland summit was to offer unprecedented inducements for Reagan to drop SDI."

Fortunately, Reagan rejected Gorbachev's proposal, because he does not wish to give up what he truly regards as a potential defense against incoming Soviet missiles.

Apparently neither Reagan nor his advisors were aware of the real reason for Gorbachev's unexpected and breathtaking proposal for what would essentially be near-total nuclear disarmament.

The Soviet ground-based scalar EM lasers could sweep the

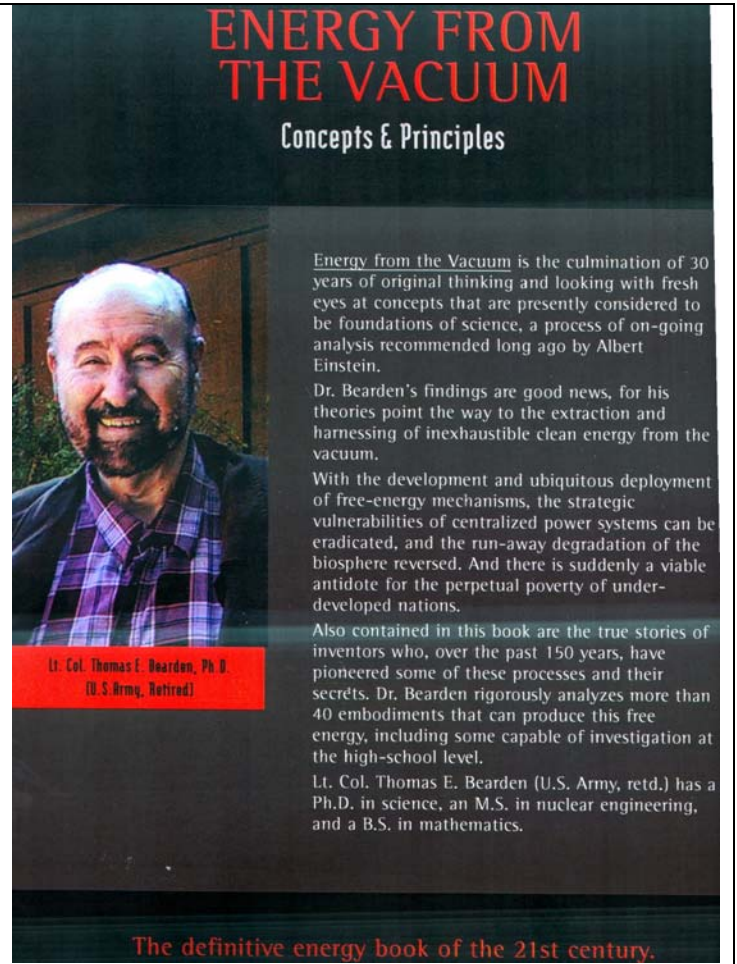
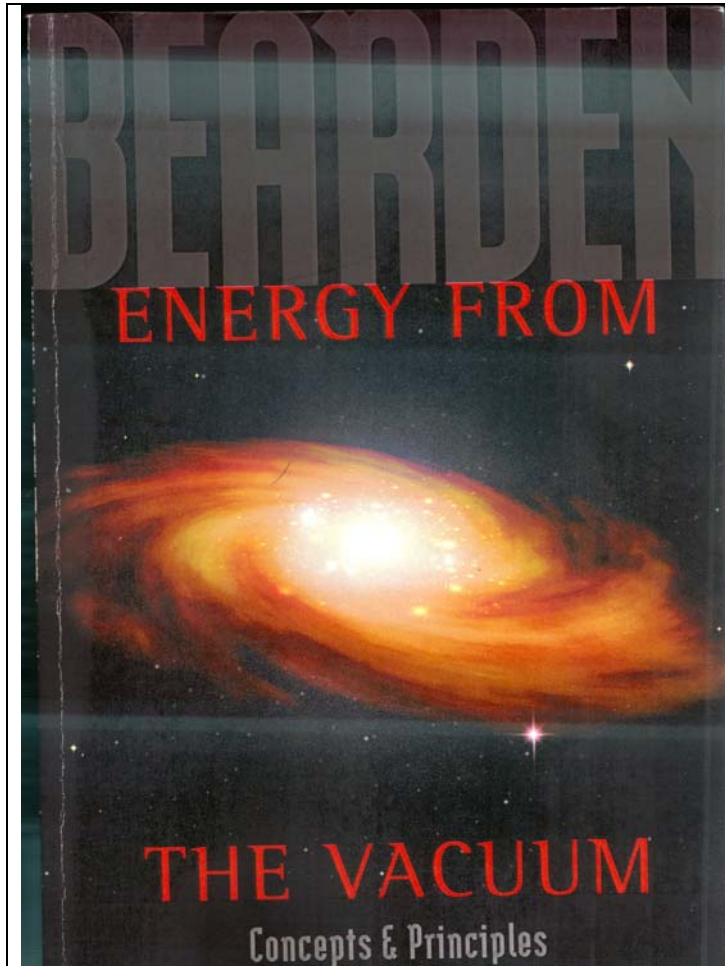
heavens of the presently conceived SDI weapons, as **Gerasimov** obliquely implied. However, this would not change the barrier represented by U.S. nuclear dead man fuzing, unless the nuclear weapons had been removed.

Meanwhile, Gorbachev's chess game to remove the dead man fuzing is certainly not over. The Soviets have mounted an intense propaganda campaign urging nuclear disarmament and cancellation or restraint of SDI. With a Democratic Senate now in, and with the approaching end of Reagan's term in office, the Soviet effort to clear the U.S. nukes-and the dead man fuzing-out of the way for Soviet deployed superweapons, while keeping the SDI genie in its laboratory bottle, can only be intensified. Already the Soviets are beating every drum to get substantial antinuclear segments of the U.S. scientific, congressional, political, and pacifist communities aroused to oppose SDI and urge a quick zero nuclear option.

The treaty for dismantling certain missiles in Europe has already been signed by the President, and its ratification by the U.S. Senate appears imminent. More is yet to come, and quickly.

In its aching desire for peace, if an unsuspecting America falls into Gorbachev's trap, shackles SDI and removes its dead-man fuzing, the Soviet Union will be free to enforce its will wherever and whenever it wishes.* If that happens, our beloved stars and stripes will be replaced with the atheistic hammer and sickle. And the noblest experiment of all—freedom for the common person—will have come to an ignoble end.

*Just as **Brezhnev** forecast for 1985, at a secret meeting in 1972 of the communist party leaders of Europe.



Sweating done by red_gonzo.

Note: sometimes formatting of the text may be a little fuzzy. It's all because the OCR process didn't go as smoothly as I expected. Also there may be some errors inside text so be vigilant. In any case share this book, send emails to people about knowledge contained in it. If you are an amateur electronic guy/girl try to make some good use of this knowledge and post your results. Try to use physics vocabulary as is presented in this book because as the author concludes, there are many good inventors around but they each use their own vocabulary and explanations of their inventions which are only understandable to them.

And please don't be naive and expect you'll be buying those devices in your local supermarket any time soon. Although some progress is being made it's still too slow, especially with the suppression factors watching over it. The knowledge has been handed to you and it's expected that at least a few of us make some use of it. Gather together and try to share your results with the rest of us.

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ongoing scientific work and drafts of the AIAS. On that site, now there are more **than** 100 AIAS papers, many **of them dealing** with EM energy from the vacuum in rigorous fashion. Many of these AIAS draft papers have been published in leading journals such as *Foundations of Physics Letters*, *Physica Scripta*, *Optik*, etc. **This** is an invaluable scientific effort that clearly establishes the importance and potential for extracting copious EM energy directly from the active vacuum. It also extends the present U(1) electrodynamics to the much more extensive O(3) group symmetry electrodynamics, in which such things as I discuss in this book can indeed be accomplished on the bench and mathematically modeled.

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Foreword

The original purely scientific purpose of this book was interrupted en route by two events: The first was a sudden heart attack and onslaught of severe hypoxia resulting from the resurgence in Spring 2001 of a 33-year old chronic mycoplasma infection, of the modified biological warfare kind produced by a combined U.S./Canadian team, which got loose in Canada and Florida in the 1950s. I contracted this "mysterious, unknown ailment" in 1968 while in the U.S. Army and stationed in Quebec, Canada as the U.S. Army Liaison Officer to the Canadian Armament Research & Development Establishment (CARDE). The second event was the sudden terrorist attack on the U.S. on September 11, 2001, which propelled this nation and others into a war against international terrorism.

For the mycoplasma, Kenn Thomas recognized and informed me exactly what the difficulty was, and I was finally tested and diagnosed correctly in December 2001 due to the efforts of a courageous family physician. Accordingly, in December 2001 we started a yearlong (or longer) regimen of antibiotics and supplementary oxygen, with additional medication to control the runaway heart fibrillation associated with this virulent form of the disorder. If we make it through this yearlong program, we will probably survive with at least some significant recovery. Now on a much-reduced regimen, this made me realize the absolute necessity of passing the "energy from the vacuum" information and baton, so to speak, to those sharp young graduate students and post doctoral scientists who are interested in this area. They simply must not have to spend 30 years of their lives getting to this point. Instead, they should start where I am now, correct any errors I have inadvertently made, and go much farther.

Accordingly, we sharply changed the intent and content of the book to comply with that new purpose. We also deeply considered the potential U.S. and World energy implications of that second shocking event of 9/11 when international terrorists struck the World Trade Center in New York Center and the Pentagon, having also targeted the White House.

In the new asymmetric form of warfare, the internal aspects of a nation - its civilian population, its vulnerable installations, its energy infrastructure, its food crops, and its transportation modes — are the targets. Terrorist teams and groups in significant numbers are already inside every targeted developed nation, and these teams have weapons of mass destruction including biological weapons and even nuclear weapons. For confirmation

of the hostile nuclear weapons already secreted in large U.S. cities, read Lunev's book¹ to see how the former Soviet Union brought them in, along with the Spetznaz teams to detonate them on call. The nuclear weapons and the Spetznaz teams are still here. Other hostile nations have inserted terrorist teams with weapons such as anthrax, smallpox (camel pox is nearly identical to smallpox, and widely available), bubonic plague, etc. At the end of the 1991 Persian Gulf War, most of Iraq's calutrons and its nuclear program escaped the weapon inspectors and were hidden. In the few calutrons we did get, weapons-grade U235 residues were found. In a formal threat study for a foreign nation, begun before the Gulf War and delivered after its end, my analysis team and I estimated that Iraq had produced sufficient U235 in 1991 for from 7 to 12 nuclear weapons, particularly of the gun assembly type. My personal estimate now would be that Iraq has made sufficient weapons grade U235 to build three dozen to six dozen nuclear weapons. If so, then some of those weapons are undoubtedly long since spirited into the United States, and planted in our large cities.

In modern asymmetric strategic war, the first phase of the war is conducted in "peacetime". The first phase is to insert the weapons of destruction into the targeted nation and hide them at the intended targets, along with the teams to detonate and unleash the weapons when desired. In that sense, the first phase of WW III has already been accomplished.

According to Vice-President Cheney,² *"The war on terrorism will not be over in our lifetime. It is different than the Gulf War was in the sense that it may never end. At least not in our lifetime. The way I think of it is, it's a new normalcy."*

With much of the cheap oil of the world in its borders, the MidEast is a powder keg ready to explode. If a clash between the U.S. and Iraq occurs, Saddam Hussein has already clearly shown that he will attack and destroy his foe's energy infrastructure and he will also use weapons of mass destruction. Simply witness the hundreds of oil wells set afire in Kuwait by Iraqi forces during the Persian Gulf War, and the use of chemical weapons on his own people. As this is being written, Pakistan and India are skirting the brink of war, and both have nuclear weapons. Either side

¹ Stanislov Lunev and Ira Winkler, *Through the Eyes of the Enemy*, Regnery, Washington, D.C., 1998, p. 26.

² Vice President Richard B. Cheney, October 21, 2001.

that decides on war **will have to make a** nuclear strike on the other. They have no antimissile defenses, hence **making the** "first knock-out" or pre-emptive strike is each **nation's only chance of survival**. Hopefully cooler heads will prevail, but **If that** war erupts, the Mid East, oil, and present energy infrastructures will never again be the same, for the entire world.

There are other very serious U.S. vulnerabilities of gas and oil pipelines, port facilities, Gulf of Mexico oil rigs, nuclear power plants, power substations, hydroelectric dams, long power transmission lines on towers, etc. that are too numerous to enumerate. With but a moment's reflection, one realizes that even normal and cheap guerrilla-type or commando-type forces with C-4 explosives and timers can destroy a very substantial portion of the energy infrastructure with minimal risk and loss of assets. For those who wonder about a nuclear power plant's vulnerability, visualize a seized Boeing 747 loaded with fuel and flown directly into the main reactor container. If meltdown occurs, the nuclear tragedy at Chernobyl in 1986 will appear tame by comparison. There are also several other electromagnetic ways (such as a portable EMP "shooter" hauled in the back of a personal SUV) to instantly destroy the electronic controls of the nuclear power plant, seriously risking runaway and core meltdown.

Consequently, increasing attention is now focused on the extreme vulnerability of the centralized energy infrastructure in the U.S. and every other developed nation. So what started for me as a purely scientific endeavor to set out the concepts and principles of permissible COP>1.0 EM systems suddenly assumed a role of potentially critical strategic significance to the U.S. and to the entire developed world. Quite simply, some 20,000 terrorists in teams already in the United States can - at this very moment—destroy large portions of the nation's energy infrastructure at will, easily and cheaply. The economy of any modern developed nation depends on the availability of cheap energy. So this kind of hostile strategic capability means that the power to readily destroy a nation's economy — and thus defeat a mighty nation itself in the ensuing economic collapse — has passed into the hands of hostile forces already in country and awaiting the order to commit their assets.

In this new asymmetrical form of warfare, it would appear that the rapid development and deployment of significant distributed power sources is now a critical element of national survival for many nations of the world. Decentralization **does little good, however, if fuel** for the decentralized generators must remain **centralized and distributed** by very large and complex systems. The **fuel and its distribution** are still extremely **vulnerable** **resenting** easy **targets** **allowing paralysis** of the decentralized

generators. Self-refueling (*self-powering*) of the electrical power systems is therefore a mandatory additional requirement.

So sober assessment dramatically reveals the need for self-powering electrical power systems, freely extracting their EM energy from the local vacuum. Thus an engineerable theory of permissible $COP > 1.0$ EM systems has become essential to the national survival of the U.S. and many other nations, so that an effective decentralized energy infrastructure — with the seething vacuum as the "localized and inexhaustible free fuel supply" — can be rapidly designed, developed, and deployed.

Sadly, the leaders of the scientific community are still in a "business as usual" mode with respect to energy, and intend to remain so. They do not even recognize what powers and *always has* powered an EM circuit and system: EM field and potential energy extracted directly from the vacuum by the broken symmetry of the source charges and dipoles. Since no scientific research on EM energy from the vacuum is going to be launched by the scientific leaders at the top, then the results of the broken symmetry discovered in 1957 are going to have to be applied in the scientific community from the bottom up. Consequently, a rather desperate need to communicate everything possible to the young graduate students and post-docs has become imperative, if the nation is to survive.

From the beginning of my effort in $COP > 1.0$ systems, and then my effort on this book and prior to the events leading to the attack on September 11, 2001, the appalling *humanitarian* need for $COP > 1.0$ electrical power systems taking their energy from the vacuum has been obvious and overwhelming. One third of the human population usually goes to bed hungry at night. One third is infested with worms and parasites of one kind or another, in addition to other diseases. Simple things such as clean water, common sanitation, medical treatment, and jobs to support one's family are difficult things in many parts of the world.

In the final analysis, the only way to get a suffering, impoverished, and undeveloped nation up and going is to provide cheap clean energy, and to do it with systems which get their "fuel" for free, such as from the vacuum itself. Once cheap clean energy and self-powering systems are widely available, then the economy and infrastructure of that nation can be slowly and steadily built up to get the society moving. Roads, bridges, hospitals, schools, teachers, industry, and jobs then follow as the economy rises. Until there is a cheap energy infrastructure available and growing, essentially fuel-free, none of that is going to happen in most impoverished nations because presently the world's fuel is monopolized, controlled, and

fought over, and it will become even more expensive as the supply vs. **demand** ratio falls, prices escalate, and additional wars - almost certainly involving weapons of mass **destruction** - are engendered. With present aid concepts, at best the politicians and warlords usually get the bulk of whatever assistance is sent in, and the warlords on the take from foreign masters will continually plunge the country into turmoil, war, and human tragedy. *Assistance is necessary*, but the eventual aim has to be to enable and empower the common citizens to be self-supporting, educated and trained, relatively free from disease, and living in a nation having a growing and developing infrastructure, jobs, and a decent economy. Availability of cheap and affordable energy — and *clean* energy if we wish to save the precious environment — is the primary key to "freeing and empowering the developing nations" as well.

Along with this omnipresent, desperate humanitarian need, the increased strategic need for decentralized energy systems freely fueled from the vacuum itself has led me to make every effort possible — particularly after the heart attack in 2001 and in continued hypoxia from severe chronic mycoplasma infection — to finish the book and at least outline the major concepts and principles that enable the construction of a sorely-needed COP>1.0 electrical power systems theory, followed by the development and rapid deployment of actual self-powering systems. The Alpha Foundation's Institute for Advanced Study (AIAS), spearheaded by Dr. Myron Evans, has also been vigorously preparing and publishing papers in leading scientific journals and other publications³ showing that EM energy from the vacuum is permissible, possible, and feasible.

In my three decades of work with multiple inventors of working prototype COP>1.0 electrical systems, I have been privileged to experience and work with several actual COP>1.0 circuits and prototype systems, study them, and slowly comprehend some of the advanced and unusual principles involved. In short, thanks to the courtesy and kindness of others, I have been able to gradually acquire at least an elementary understanding of the

³ E.g., *Modern Nonlinear Optics*, Second Edition, 3 Vols., edited by M. W. Evans, Wiley, 2001; M. W. Evans et al, "Derivation of 0(3) Electrodynamics from the Irreducible Representations of the Einstein Group," *Found. Phys. Lett.*, 15(2), Apr. 2002, p. 179-187; "Anti-Gravity Effects in the Sachs Theory of Electrodynamics," *Found. Phys. Lett.*, 14(6), Dec. 2001, p. 601-605; "Classical Electrodynamics Without the Lorentz Condition: Extracting Energy from the Vacuum," *Physica Scripta*, 61(5), May 2000. p. 513-517; "Runaway Solutions of the Lehnert Equations: The Possibility of Extracting Energy from the Vacuum," *Optik*, 111(9), 2000, p. 407-409.

mechanisms which enable $\text{COP} > 1.0$ EM power systems. With this background, one can understand why conventional EM systems and circuits do not develop $\text{COP} > 1.0$ or self-powering, even though all the energy collected and used in every electrical power system comes from the vacuum and not from the shaft energy input to the generator, chemical energy dissipated in a battery, wind energy collected by a windmill (that just "feeds" the shaft of the generator), or from the water power dissipated in a hydro turbine (the hydro turbine also only turns the shaft of the generator, which does not actually furnish the power to the external power line connected to it).

It seems appropriate that other researchers should be able to start where I am now, understand what I have learned or think I have learned, find and correct any errors, and simply go forward with alacrity — much farther than I have been able to go, and much faster. This is particularly true of the young researchers who have excellent theoretical and experimental skills and a vigorous lifetime ahead of them. When an old and tiring runner falters with the baton, it is time to pass it on to the fresh young runners who can carry it to the successful end of the race.

The purpose of this book, then, is to lay out in some little detail what I have learned in all these years of sustained effort, but in such a way that it ties directly into good physics. In some cases, the tie-in to physics is unavoidably to a somewhat esoteric area such as the geometric phase and to time as a special form of energy. $\text{COP} > 1.0$ EM systems are not simple, and they involve special phenomenology rarely encountered in conventional EM circuits and systems. $\text{COP} > 1.0$ EM systems simultaneously involve a combination of particle physics, modern active vacuum theory, advanced materials science, higher group symmetry electrodynamics, quantum mechanics, and general relativity. They also involve areas where foundations of physics are presently in error. We found it necessary to think in terms of the *supersystem*, defined as having three components, which are (i) the physical power system itself, (ii) the active local vacuum, and (iii) the active local curvatures of spacetime. All three components of the supersystem interact and exchange energy with each other continuously. Any legitimate $\text{COP} > 1.0$ power system must freely receive, collect, and use some excess energy from its active environment — in this case, the latter two components of its supersystem. By definition, this $\text{COP} > 1.0$ function requires disequilibrium between the system and its active environment, so that classical equilibrium thermodynamics does not apply. Instead, the thermodynamics of systems

far from **equilibrium** in **their** energetic exchange with an active environment applies.

However, since the "environmental energy" we are extracting is virtual photon energy from the vacuum and energy from local curved spacetime, the fundamental definitions of classical thermodynamics and classical electrodynamics have to be re-examined and altered. A closed system, e.g., can no longer be defined just as one closed to the transfer of mass across its boundary, but permitting energy to exchange across it. Since the advent of general relativity in 1915, we have known that energy and mass are the same thing. Whenever any system changes its energy, it also changes its mass by the well-known $E = mc^2$ rewritten as $dm = dE/(c^2)$. Further, in the fierce virtual particle exchange of the vacuum with every part of every system, both virtual mass and virtual energy continually cross the system boundary. Neither classical thermodynamics nor classical electrodynamics deals with the transduction of time-energy into spatial energy in a system, which is a totally different type of energy exchange accomplished by charge.

Further, certain phenomenological areas — such as strong gradients — are already well known to violate present thermodynamics. These are presently being researched under the aegis of *extended nonreversible thermodynamics*. Finally, as the present laws of classical thermodynamics are stated in the textbooks, *every charge and dipole in the universe already violates those laws, and has done so since the beginning of the universe*. Let us put it bluntly: Every charge in the universe already freely and continuously pours out EM energy in 3-space in all directions, without any observable EM energy input. That is the well-concealed *source charge problem*, known but ignored by the leaders of the scientific community for a century. *All* EM fields and potentials and their energy come from those source charges, according to electrodynamics itself. Either we must give up the conservation of energy law entirely, or else we must accept the fact that unobservable *virtual* EM mass and energy are continuously absorbed

The vacuum by the source charge, transduced into real observable EM energy, and then re-radiated in 3-space in all directions as observable EM energy, creating the associated fields and potentials reaching out across the universe. That this problem continues to be ignored by the scientific community — some 45 years after the basis for its solution has been proven and is well known in particle physics — is totally inexplicable. But it continues to be resoundingly ignored, which means that *the scientific community itself is and remains totally responsible for the energy crisis and the associated vast despoilment of the biosphere, because it adamantly*

insists on using a seriously flawed electrical energy science whose hoary basis is more than a century old.

Accordingly, we have simply extended the first law of thermodynamics appropriately, pointed out that the second law does not apply absolutely but only as an approximation when conditions are appropriate, and revised the third law and the zeroth law. In this book we simply show the results of that revision, particularly in Appendix A.

We were also able to trace the history of electrodynamics, and to find exactly how the permissible Maxwellian systems far from equilibrium with an external active environment — which are included in Maxwell's 1865 seminal theory and even in Heaviside's vector truncation later — were arbitrarily discarded by Lorentz with his symmetrical regauging of the Maxwell-Heaviside equations. The purpose of such arbitrary regauging was and is to provide simpler equations that can usually be solved analytically without resorting to numerical methods. In the name of mathematical simplicity and ease, that entire great class of Maxwellian systems far from thermodynamic equilibrium in their supersystem was just arbitrarily discarded. Those Maxwellian systems are still arbitrarily discarded in every electrical power-engineering textbook today.

So the first requirement for a $COP > 1.0$ EM system becomes *building-in a mechanism to violate the Lorentz symmetry condition, at least for a significant fraction of the time*. Further, the standard closed current loop circuit — including the entire external circuit in the same closed current loop as the source dipole inside the generator — is what already *self-enforces* the Lorentz symmetry condition. Consequently, in any legitimate $COP > 1.0$ electrical system, the operation of that closed current loop circuit must be violated for some portion of the system's operation. This of course places the system in disequilibrium with its active supersystem environment, allowing intake of extra energy from the environment and therefore permitting $COP > 1.0$. So one of the immediate requirements in $COP > 1.0$ electrical systems research is to seek out and find known or suspected mechanisms that accomplish just such violation of the Lorentz symmetry condition. In the book, I show a sampling of the various mechanisms I found other inventors using or that I uncovered myself, or that already exist in physics.

Finally, we discovered (and found the basis for it was shown in the hard literature in Heaviside's original work) that every generator and battery as an energy transducer already extracts from the vacuum and outputs from its terminals a far greater *nondiverged* energy flow than is accounted in the

Poynting diverged energy flow theory (which captures only that small **fraction that is diverged** into the circuit and captured by it). The total output energy flow from the terminals of a generator is also far greater than the mechanical energy input to the shaft of the generator. So in its *energy transduction* function, every dipolar electrical circuit ever built is already a "free energy circuit" and a $COP \gg 1.0$ system, extracting its utilized electrical energy from the vacuum and extracting additional energy also. But presently the electrical power system is unwittingly designed and constructed by engineers to deliberately destroy the source of that enormous energy flow from the vacuum faster than the system can use some of it to power its load. Wryly put, that does not seem to be the proper way to build energy systems or "run an energy railroad," even though it's always been done that way.

This led to recognition of a great scientific faux pas, perhaps the greatest in history. One must keep one's sense of humor! So with tongue in cheek, let us state it this way: *There is not now, and there never has been, a single electrical engineering department, electrical engineering professor, or electrical engineering textbook that teaches what powers an electrical circuit. Yet the basis for it has clearly been in particle physics since 1957, as certified by the award of the Nobel Prize to Lee and Yang. What powers every electrical circuit and system is the broken symmetry of the primary power system's source charges and source dipole (i. e., the broken symmetry of the opposite charges on the ends of the dipole) in its fierce energy exchange with the seething vacuum, once that dipole has been made. The modern "charge" is also a dipolarity, once its associated clustering virtual charges of opposite sign are considered. Further, any dipole will freely extract EM energy from the vacuum, convert it into real, usable, observable EM energy, and pour out real, usable EM energy continuously and indefinitely, so long as the dipole remains intact.*

The external circuit attached to a generator is not powered by the mechanical energy that is input to the generator shaft. The external circuit attached to a battery is not powered by the chemical energy expended by the battery. Astonishingly, every electrical power system and electrical circuit ever built, and every one built today, was and is powered by energy extracted and transduced directly from the active vacuum by the broken symmetry of the opposite charges on the ends of the source dipole (or a charge considered as a modern dipolarity), once that dipole is formed. A Nobel Prize was awarded to Lee and Yang in 1957 for the prediction of broken symmetry (strongly in 1956). Wu and her colleagues proved it **experimentally** in early 1957. So revolutionary a change in physics was

that startling discovery of broken symmetry, that — in a nearly unparalleled action — the Nobel Committee awarded the Nobel Prize the same year, December 1957, to Lee and Yang. *One of the broken symmetries proven was that of opposite charges such as are on the opposite ends of every dipole, or such as constitute a classical "isolated charge" when the charge and its clustering virtual charges of opposite sign are considered as in modern physics theory. Rigorously, every source dipole is continuously extracting EM energy from the vacuum and pouring it out of the "terminals" of the dipole in all directions in 3-space. And so is every charge as well.* That the leaders of the scientific community continue to ignore this solidly proven fact is astonishing. But they do.

We also came to realize that the great Gabriel Kron, who was never allowed to reveal the secret of his *open path*, had in fact discovered the precursor of that very broken symmetry of opposite charges (of dipolarity). His open path is simply the recognition that any two points in the universe, that are at differing potentials and therefore can be considered as a dipolarity of opposite charges, acts as a source dipole that already extracts virtual photon energy from the vacuum, transduces it into real, observable photon energy, and pours out that energy in all directions. In reaching that understanding, he had applied general relativity to rotating electrical machines, simulated various forms of electromagnetics equations, and dealt deeply with quantum mechanics and the Schrodinger equation.

Sadly, the electrodynamics model used in electrical power engineering still does not even model the active vacuum, *much less* a broken symmetry in the virtual photon exchange between that active vacuum and all the charges in every electrical system. The electrical engineering model does not model the *supersystem*, hence cannot be used to design and produce COP>1.0 systems. *A priori*, that seriously truncated and crippled model arbitrarily discards all permissible Maxwellian systems far from thermodynamic equilibrium (i.e., with broken symmetry) in their vacuum flux exchange. And those are precisely the systems that are permitted to perform the five magic functions of great interest to the COP>1.0 energy researcher. Such a disequilibrium system can permissibly (i) self-order, (ii) self-rotate or self-oscillate, (iii) output more energy than the operator inputs (the excess energy is freely received from the active environment), (iv) power itself and its load simultaneously (all the energy is freely received from the active environment), and (v) exhibit negentropy. *Every charge and dipole in the universe already performs all five magic functions.*

It is **the purpose** of this book to clearly show that all EM systems are already powered by vacuum energy, and always have been. We cite the references and experimental proof that this is true, and the interested reader can check the extensive references himself or herself. The intent is to show that only a part of what has been discovered and is already known in particle physics is presently included in the woefully inadequate and ancient electrical power-engineering model. And frankly, unless there is a groundswell from the bottom of the scientific community, the leadership of the scientific community has no intention whatsoever of funding or allowing significant research in extracting copious EM energy from the vacuum (very simple) and learning to use it effectively (more difficult). A single 200 million dollars of good research in EM energy from the vacuum would solve the energy crisis forever, and dramatically reduce the pollution of the biosphere. The scientific community will spend many times that amount on their favored "big science" projects, but not one cent on EM energy systems powered by energy extracted from the vacuum.

Also, we show a sampling of the present work ongoing in inertial propulsion and antigravity research. Working with Sweet, in the 1980s I designed and Sweet performed a highly successful antigravity experiment.⁴ I share with the reader the concepts and theoretical basis for that experiment, why it worked and how it worked, and the excellent results achieved. One of the tragic losses to science was the loss of the Sweet COP»1.0 vacuum triode amplifier (VTA) system with the death of Floyd Sweet. Nonetheless, we apply the mechanism we conceived so long ago to propose a mechanism generating the antigravity recently confirmed to be accelerating the expansion of the universe. We offer the long-neglected, Lorentz-discarded giant nondiverged Heaviside energy flow component accompanying every field-charge interaction as the probable generatrix of the excess gravity holding the arms of the spiral galaxies together. And we offer that same component — when connected with a flow of *negative* EM energy and with *negative energy* EM fields and potentials — as the specific generatrix of the excess antigravity that is accelerating the expansion of the universe. Both theses are testable on the laboratory bench.

Our target audience is several fold. Even though presented conceptually, the material is not oversimplified, and it is targeted at (i) the sharp young grad students and post-docs interested in extended (higher group internal

⁴ Floyd Sweet and T. E. Bearden, "Utilizing Scalar Electromagnetics to Tap Vacuum Energy," *Proc 26th Intersoc. Energy Conversion Eng. Conf. (IECEC '91)*, Boston, Massachussets, 1991, p. 370-375.

symmetry) electrodynamics and in researching and developing COP>1.0 electrical power systems, (ii) the forward-looking electrical engineering professors who will at least consider that extended electrodynamic models and the laws of nature do permit COP>1.0 electrical power systems, and (iii) the still open-minded leaders of the scientific community, such as the National Academy of Sciences, National Science Foundation, the U.S. Department of Energy, the great national laboratories, etc. In *one area* of physics much better models of electrodynamics enabling COP>1.0 power systems, antigravity, and novel propulsion systems already exist (and a few such systems *experimentally* exist in the hands of independent inventors as well), while in a *second area* of physics that part of electrodynamics dealing with permissible COP>1.0 EM systems and unified field theory has been arbitrarily excluded at great cost to society, to the environment, and a tragedy to science and technology. Additional secondary targets are (iv) governmental leaders responsible for advanced research and development planning and funding, to argue that the "energy crisis" is a direct result of an inexplicable and sustained shortfall in the scientific mindset, and not as a result of the laws of nature and the need for cheap oil, coal, and gas or nuclear power plants, (v) science writers, journalists, and entrepreneurs to sensitize them to (hopefully) a coming energy revolution of unparalleled proportion, (vi) strategic and tactical planners in our Department of Defense to make them aware that the great logistics burden of modern highly maneuverable armed forces can and will be dramatically lowered by rapidly developing and using self-powering power systems "fueled" directly by the local active vacuum, and by adapting novel new propulsion methods, (vii) theoretical and experimental physicists to make them aware that the easiest thing in the world is to extract copious EM energy freely from the vacuum; just pay *once* to make a little dipole or assemble a charge and do not let it be destroyed, (viii) the Department of Energy upper level managers to bring into their awareness the coming advent of (and terrible need for) self-powering decentralized EM power systems worldwide, and the pressing need for a major role to be played by the DoE, (ix) the struggling but serious COP>1.0 researchers and inventors, to give them a technical overview — rather than just anecdotal material — of much of what has been done, tried, and conceived, and what seems to be successful and what is still to be determined, (x) the environmentalists devoted to cleaning up the biosphere and saving this precious planet, to make them aware that the answer to the world's energy problems and saving the biosphere cannot come to them from their conventional scientific consultants, who are trained in applying the very scientific disciplines responsible for the problem in the first place,

and (xi) **the long suffering undeveloped** and impoverished nations and peoples of the earth. Our fervent message is one of hope after all, *once a change occurs in the scientific mindset*. There is a cheaper, cleaner, and better way to get their economies and national infrastructures up and running, and it is imminently doable.

The main message of this book is that there is not now and there never has been an *electrical energy availability* problem. Every large centralized power generator actually outputs enough EM energy flow, extracted directly from the seething vacuum, to power all electrical loads on earth, if all the energy pouring from its terminals were caught and utilized.

However, there is certainly an *EM energy flow interception* problem, to get more of the available energy flow from a source dipole intercepted and diverged into the circuit in a manner not complying with the Lorentz symmetrical regauging condition. Also, once the excess energy has entered the circuit and been collected, there certainly is a problem in *using the intercepted and collected energy in the circuit without destroying that part of the generator or battery — the source dipole — that is actually extracting all the energy from the vacuum*. Or at least to use the circuit's collected energy in such fashion as to destroy the source dipole in the generator *slower* than the energy is used to power the external load.

That conglomerate of the two sub problems — the "energy flow *interception, collection, and usage* problem — is the single energy problem. There is no other energy problem, and there has never been any other. One finds it very ironic that, in the conventional agencies, universities, the DoE, the National Science Foundation, the National Academy of Sciences, the national laboratories, etc., not one of them is working on the real, solitary electrical energy problem, even though they are importantly spending billions of dollars purporting to do so.

We fervently hope that the content of the book will reach a sufficiently interested audience to begin to change that century-old erroneous scientific mindset. We hope that the book, along with the important contributions of other COP>1.0 inventors and researchers having success, will spark a new creative drive in the scientific spirit that solves the problem of cheap, clean energy in three years or less. This is a doable. I firmly believe in the scientific method and what it can do once it is unleashed from the century-old dogma that COP>1.0 systems are against the laws of nature, physics, and thermodynamics. Just turn the young scientific and engineering tigers loose on the problem, give them some funding, and watch them do it.

As we stated in a formal rebuttal to a charge of perpetual motion nonsense, it only takes one white crow to prove that not all crows are black. And with respect to $COP > 1.0$ EM systems far from thermodynamic equilibrium with their active environment, every charge and dipole in the universe is already a "white crow" pouring out EM energy freely and continuously with the speed of light, and exhibiting $COP = \infty$. This is in fact reluctantly recognized in physics, but it has essentially been buried from the attention and knowledge of generations of electrical engineers and most physicists.

A $COP > 1.0$ experiment well known to nonlinear optics is the Bohren-type experiment, demonstrating the known negative resonance absorption of the medium. A typical experiment of that type outputs some 18 times as much EM energy as the experimenter inputs by standard calculations. We note that a single replicable experiment can and does negate any theoretical model that contradicts it. Hundreds of such materials experiments proving the feasibility of $COP > 1.0$ EM systems are performed every year in any major nonlinear optics laboratory without a second thought. Together with the known but avoided source charge problem and proven broken symmetry of any dipolarity, it is almost unthinkable that our electrical engineering departments still do not incorporate the active vacuum exchange — and every EM circuit's broken symmetry in it — into the classical electrodynamic model used. In short, to really understand what powers every EM circuit, just now the electrical engineer would have to go across campus to the particle physics department and investigate broken symmetry of opposite charges — as are on the ends of the source dipole, once created in the generator or the battery, or as are involved with the single "isolated charge" considered with its associated virtual charges of opposite sign.

It is high time that our electrical power engineers and scientists heed the message of all these demonstrated white crows of nature, and begin developing and deploying self-powering $COP > 1.0$ electrical power systems with alacrity.

We have a biosphere, a planet, a strong world economy, and an uplifting for the long downtrodden poor people of the world to recover. We strongly urge the scientific community to accept the challenge and meet it head-on.

Tom Bearden

22 July 2002.

Chapter 1

Foundations and Scientific Mindset

"...the scientist makes use of a whole arsenal of concepts which he imbibed practically with his mother's milk; and seldom if ever is he aware of the eternally problematic character of his concepts. He uses this conceptual material, or, speaking more exactly, these conceptual tools of thought, as something obviously, immutably given; something having an objective value of truth which is hardly even, and in any case not seriously, to be doubted. ...in the interests of science it is necessary over and over again to engage in the critique of these fundamental concepts, in order that we may not unconsciously be ruled by them." [Albert Einstein]{1}

1.1 Introduction

Einstein's quote is a beautiful statement that scientists should never take the present understanding — and the present models — as absolute. That is the approach the present author has taken for some 30 years, in a struggle to comprehend that class of electromagnetic (EM) systems that are open systems in disequilibrium in their *virtual photon energy exchange* with the active vacuum, and exhibiting a broken symmetry in that exchange. The statement beautifully expresses that the major problems encountered in grappling with such EM systems have been the existing errors and non-sequiturs in classical electrodynamics and other parts of physics. Many difficulties have resulted from the continued propagation of a 137-year old classical electrodynamics model formed before electrons, atoms, nuclei, positrons, the active vacuum, special and general relativity, quantum mechanics, etc. were discovered or known.

1.1.1 EM Foundations Are Incomplete and Contain Errors

In any model, there are many assumptions. Even when a model is well-fitted and well-developed, it still applies only when the foundations assumptions on which it is based are true or are not too much in error. Whenever one or more of the fundamental assumptions is violated by phenomena uncovered, then there is a new class of phenomena where the model does not hold, or does not hold well and is only an approximation at

best. In that case, either the existing unsatisfactory model must be improved and advanced, or a new model must be constructed.

Great scientific minds continue to point out Einstein's beautiful principle in different words. E.g., expressing the thought of Stephen Hawking, one of the great physicists of our day:

"All we ever know is our models, but never the reality that may or may not exist behind the models and casts its shadow upon us who are embedded inside it. We imagine and intuit, then point the finger and wait to see which suspect for truth turns and runs. Our models may get closer and closer, but we will never reach direct perception of reality's thing-in-itself." [As stated by George Zebrowski] {2}.

Excellent scientists — Feynman, Wheeler, Bunge, Evans, Barrett, and many others — have indeed pointed out that classical EM theory is seriously flawed. In the words of Bunge {3}:

"...it is not usually acknowledged that electrodynamics, both classical and quantal, are in a sad state."

The author also found it imperative to return to many of the original seminal papers of physics, particularly in electrodynamics. The major concepts in those papers led to the present classical EM model. This was particularly true of the work of Poynting {4a, 4b} and Heaviside {5a-5c}, who independently and simultaneously arrived at the notion of the flow of EM energy through space⁵. Their work occurred in the 1880s, after Maxwell was already deceased. It also necessitated reviewing Lorentz symmetrical regauging of the Maxwell-Heaviside equations, where Lorentz arbitrarily discarded all permissible COP>1.0 Maxwellian systems.

The science of this "EM energy flow through space" is controversial to this day. Which is the real "EM energy flow vector" as such has never been

⁵ As we shall point out later, the concept of energy flowing through 3-space is a non sequitur and requires substantial revision today, to be consistent with the nature of observation and the fact that no observable continuously persists. Any observation is an instantaneous frozen 3-space "snapshot" at a single instant, gone the next instant when almost immediately replaced by another such frozen snapshot. In between observations, not mass but *masstime* exists. The same is true for 3-space, which only exists as the output of an observation process. Prior to observation, *spacetime* exists.

adequately resolved, and there continue to be polite debates about it {6}. One should also be aware that physicists really do not know what many things — including energy — *are*. The definitions of these fundamentals are still uncertain, as stated rather poignantly by Feynman {7} in this quote:

"It is important to realize that in physics today, we have no knowledge of what energy is."

As another fundamental example, Feynman {8} also pointed out that we really do not know what *force* is⁶ either! Quoting:

"One of the most important characteristics of force is that it has a material origin, and this is not just a definition. ... If you insist upon a precise definition of force, you will never get it!"

1.1.2 Physics Is Not the Mathematics, But What It Manipulates

Following Feynman's ansatz, one should realize that the physics is not really in the mathematics itself, but in the physical meaning of the concepts that the mathematics manipulates. Here again, the inimitable Feynman {9} cautioned against over-attachment to the mathematics itself. He said it very clearly:

"Mathematicians or people who have very mathematical minds, are often led astray when "studying" physics because they lose sight of the physics. They say: "Look, these differential equations – the Maxwell equations – are all there is to electrodynamics it is admitted by the physicists that there is nothing which is not contained in the equations. The equations are complicated, but after all they are only mathematical equations and if I understand them mathematically inside out, I will

⁶ The problem is the ubiquitous and erroneous use of a "separate" force acting on a "separate" mass. Actually mass is a *component* of force, as can be seen from $F \sum d/dt(mv)$. Hence there is no such thing as a separate force in empty space, acting upon a mass. Instead, the massless 4-field in space acts upon mass to produce force *in that interaction*. Force is not a cause, but an effect of an ongoing interaction — as is any observable. An observable is a continuing series of frozen 3-space LLL snapshot entities given by the result of continual application of $\epsilon/\epsilon t$ (LLLT) ♥ LLL by photon emission. The formation of the LLLT (spacetime and masstime) in between observed m as LLL, is produced by photon absorption of the previous $m = \epsilon/\epsilon t$ (LLLT).

understand the physics inside out." Only it doesn't work that way. Mathematicians who study physics with that point of view – and there have been many of them – usually make little contribution to physics and, in fact, little to mathematics. They fail because the actual physical situations in the real world are so complicated that it is necessary to have a much broader understanding of the equations."

Such matters and similar thoughts had bothered me even back in the early 1950s, when I could not find a single professor or dictionary of physics that *logically* defined a field or a potential. Considered rigorously, the definitions all fell apart and violated elementary logic. Improper, insufficient, or just plain *wrong* definitions in physics have continued and are still widespread to this day. To give a single example from an excellent book by Kraus {10}: On p. 60, Kraus gives the formula for a potential referred to as the "absolute potential" of a charge source. Quoting:

"This potential... is, by definition, the work per coulomb required to bring a positive test charge from infinity to the point r_1 ."

Kraus erroneously "defines" the scalar potential identically as work, which is equating the cause with the effect. The work that dissipating a potential does or can do, is not the potential itself! Else "human" means nothing but how well one can chew one's food or drive an automobile. Actually, Kraus gives one theoretical way to measure or calculate the effect of the potential's *local intensity at a point*.⁷ Note that what is measured is the energy *diverted from* the potential at that point, around that test charge. This does not specify the *entity* (the potential itself) at all, but only what has been diverted from it. It is rather like confusing the whirlpool (water diverged from the normal river flow) in a river as being the river itself.

⁷ To show the non sequitur, a million more positive test point charges could be brought from infinity to that same point, and the potential — without any change in it — would cause the same amount of work to be done upon each of those charges. As can be seen, even noted professors can speak rather casually when they "define" the potential's point intensity as "the" potential (which extends over all space, not just at that one point). There may be different intensities at different points in the potential, but the potential itself remains one-and-the-same thing regardless of which one or all of the point intensities are discussed. And neither the point intensity of the potential nor the potential is the work that is done upon a moving charge by that potential or its intensity.

Integrating what has been diverted from it does not yield the potential itself! At best, the measurement gives an indication of the *intensity* of the potential at a point, insofar as its reaction with charge is concerned. More rigorously, what is being utilized is the potential's reaction cross section presented to a *unit point static charge* at that point. The same unit point charge, if placed in particle resonance, will sweep out more geometrical area and exhibit a greater reaction cross section. That will increase the energy collected divergence of the energy flow that is being moved around the particle itself. By normal calculations, the resonant charge may collect some 18 times as much energy as is possible at the same point by the same charge in static mode — e.g., as shown by Bohren {24, 25}.

A definition must present an identity. Examining the proposed definition as "the potential is identically ... work" one sees the problem immediately. *The potential exists whether or not there is a positive test charge, or whether one moves such a charge in from infinity or not, and whether there is any work done or not.* None of that is what a potential *identically is*, but only one aspect of what it *does* or *can do* or *can cause*. One leaves as an exercise for the reader the task of further examining dictionaries of physics and textbooks, to try to find a satisfactory definition of that common scalar potential.⁸ We do not believe the reader will find it.

Yet any good textbook will also contain some real gems of great insight, simply said. As an example from Serway {11}, we eventually took a most marvelous cue, of how to get around classical thermodynamics' prohibition against heat energy "running uphill" from hot to cold. In an insightful statement, Serway said {11}:

"The second law [of thermodynamics] does not rule out the possibility of pushing heat uphill, as it were, from a cold object to a hot one, or of creating order out of

⁸ The scalar potential identically is actually a harmonic set of phase conjugate longitudinal EM wavepairs, as shown by E. T. Whittaker in 1903 {85}. Even Whittaker, however, misinterpreted his wavepairs only after interaction with that ubiquitous unit point charge assumed at every point in space. He gave two *effects* of that interaction, not the *cause* (which exists prior to interaction) *and the effect* (which exists only after interaction). Reinterpreting to get at the causal wave, each wavepair is a matched set of two waves; an incoming EM longitudinal wave in the time domain prior to interaction with a charge, and — after the time-energy wave is absorbed by the charge, an emitted outgoing EM longitudinal EM wave in 3-space. The so-called "static" potential is not static at all, but is a dynamic, ongoing 4-space process. This follows the re-interpretation by the present author {12} of Whittaker's decomposition — a reinterpretation then found to be consistent with quantum field theory {19} and with broken symmetry of opposite charges in particle physics {73}.

disorder. It merely states that such a reversal of the natural flow requires an influx of energy..."

This essentially states the *law of entropy*, where to reverse entropy (disorder), one must apply ordering (energy).⁹ We also note that the original concept of entropy was as *dissipation of potential*. There are of course different ways to apply the energy, and it need not be by the operator himself. Chapters 4, 5, 6, 7, and 8 of the present book give some unusual ways. A special paper {12} published by the author in 2000 gives another. Indeed, when the flow of time is predominantly reversed, so is the "entropy" of a situation, since the "videotape is running backward", so to speak. In that case, the entire classical thermodynamics must be extended to essentially include its own opposite. The making of a small time-reversal zone where such things happen is as simple as involving a predominance of antiphoton interactions with the charged particles in that zone, rather than a predominance of photon interactions. What we are saying is that the notion of irreversibility in thermodynamics is not necessarily absolute. It usually assumes a "time forward" situation, and may not hold in a "time-reversed" situation. In our chapter on cold fusion, we will present some specific and quite startling nuclear interactions that occur as a result of the time reversal of the coulomb barrier (repulsion of

⁹ Now notice what Serway's statement means with respect to the classical thermodynamics "definition" of closed system. Thermodynamics defines a *closed system* as one in which mass is not exchanged across its boundary, but energy can be. That definition permits a closed system to receive excess energy from its active environment, and thereby reduce its entropy. A specific example is simply potentializing a circuit, prior to movement of the current. Hence the entropy of a closed system does not necessarily increase, but may decrease or increase if the system is in disequilibrium (difference in energy received from its active environment and energy escaping back to the active environment from the system. For the same system, if energy exchanges across its boundary equally in both directions, the system is said to be in "equilibrium" with respect to external energy exchange. One must be very careful in interpretation of the second law of thermodynamics! One has a very different "closed thermodynamic system" when it is in *energy exchange disequilibrium*, than when it is in *energy exchange equilibrium*. Equilibrium is the condition of maximum entropy. For substantial disequilibrium condition, entropy cannot be computed, but is less than the entropy of the same system in equilibrium. The entire ansatz of thermodynamics may be violated once time-energy is transduced into internal EM energy inside the system. That is a fundamental disequilibrium, performed by every charge in the universe. Hence of necessity we have advanced and utilized new definitions of "open system" and "closed system" in our approach in this book, as discussed in the Appendix.

like charges in a forward time situation) into a coulomb attraction between like charges in a time-reversal zone and time-reversed situation.

If Serway's statement were reversed, it would then be a statement of the *law of negentropy*. It would state that self-ordering (i.e., freely receiving energy from the active environment) in a system could indeed "push heat uphill from a cold object to a hot one", and the system could simultaneously emit energy in the process. Every charge does it!

We did find it necessary to correct the classical thermodynamic definitions of "open system" and "closed system". To define a closed system as closed only to mass transfer, but open to energy transfer, is a gross non sequitur. Since general relativity was published in 1915, energy and mass are known to be the same thing (*mass is just a special form of energy*), hence the term "mass-energy" (mass as energy) in physics. Whenever energy crosses the boundary of a system, the system's mass changes and mass (or certainly mass change) has also crossed that boundary. Indeed, as we shall point out, in 1917 Hilbert specifically pointed out that in general relativity there can be no energy conservation equations of the kind usually employed elsewhere. The fact that general relativity falsifies much of the present foundations of classical thermodynamics seems to have been either ignored or missed by most of the scientific community, although we will quote leading Russian scientists who have noticed it and are aware of it.

The reader is thus warned that, henceforth, when we use "open system" we mean one where either energy or mass or both exchanges across the system boundary. When we use "closed system" we mean one in which *neither* energy nor mass exchanges across the boundary. In short, the notion of a "closed system" has been redefined into what classical thermodynamics calls an "isolated system". We already know from particle physics and the active vacuum (and from general relativity and the change of spacetime curvature with every change of spatial energy or mass-energy), and from the giant negentropy involving time energy transduced into 3-space energy and vice versa, that there is no such thing in all the universe as a truly closed system.

In Appendix A, we have discussed how extension and change to classical thermodynamics must be made. We do this by extending the first law, refuting any absoluteness of the second law and third law, dealing with the zeroth law in a new way, etc. We also urge the better theoreticians to re-examine classical thermodynamics along such lines, to modernize and upgrade it. We believe that the present scientific work to extend

thermodynamics so it fits those situations now known to violate it should include additional considerations such as we present in Appendix A.

In short, with the new definitions Serway clearly states the difference between classical equilibrium thermodynamics, where no excess energy from the environment is received, and the thermodynamics of systems far from equilibrium with their active environment (using the new definition of open system for clarity), in which case excess net energy from the environment can be received and used in electromagnetic systems, providing $COP > 1.0$ systems or even $COP = \leftarrow$ systems. The windmill, sailboat, and waterwheel are age-old examples of disequilibrium systems where of course the energy of mass in motion is what is transduced. It is our objective in this book to point out the use of electromagnetic systems in energetic disequilibrium with their active environment (the active vacuum and curved spacetime) to provide just such negentropy.

1.1.3 Time Is Energy and Must Be Considered As Such

In a physics model, one's choice of fundamental units is arbitrary.¹⁰ As an example, in one type of physics only a single fundamental unit — length — is employed. All other entities then become functions of length.

We are also free to choose the *joule* as the single fundamental unit in our physics model. The result that mass is a function of energy is now familiar and quite accepted, by the famous formula $E = mc^2$. Indeed, as can be seen, in that equation mass and energy are one and the same thing, since c^2 is a dimensionless constant. However, in our new model time becomes a function of energy similarly, and thus time is identically energy.

Let us perform a thought experiment. Suppose we take some spatial EM energy in 3-space, and compress it by the factor c^2 . What can we do with it? If we leave it there in 3-space, it is known as "mass". If we place it on the fourth Minkowski axis *ict*, it is known as time because t is the only variable on that axis, and the only "place we can set it".

So to first order, *time has the same energy density as mass*. Multiplying an amount of time t (in seconds) by c^2 gives the decompressed spatial energy E that the time t will transduce into. In short, $E = tc^2$ also.

Now we notice what special relativity has to say about the relationship between time-energy and mass-energy. When the mass-energy increases

¹⁰ E.g., see Jackson, *Classical Electrodynamics*, 2nd Edition, Wiley, 1975, p. 811-812; *ibid.*, 3rd Edition, 1998, p. 775. Jackson wryly remarks on how much excess heat and passion have been unnecessarily expended on that subject.

(e.g., as a function of velocity), time "dilates" or "decreases". In other words (hint), there is a sort of special new extension to the conservation of energy law: If mass (3-space) gains some 3-spatial energy, then time loses some time-energy. Since time is spatial EM energy compacted by c^2 , then *the relativistic energy changes in the time domain are enormously greater than the corresponding relativistic changes in spatial energy in the photon*. To the external 3-space observer, this is the injection of negentropy with respect to the present 3-spatial conservation of energy law. In the reverse case (as when the object reduces its velocity), if mass (3-space) loses some energy, then time gains some time because the time dilation reduces — i.e., time contracts or densifies (less time has more energy). To the observer, this is the production of entropy with regard to 3-space energy conservation. Yet the observer misses the fact that, accompanying entropy in 3-space is negentropy in time energy on the 4th Minkowski axis, and vice versa.

We believe this to be a rather dramatic extension to the previous concept of entropy in thermodynamics. We get 3-space entropy in physical processes only by gaining 4th dimensional negentropy accordingly. One can thus appreciate the impact upon the entire subject of thermodynamics, once time-energy is accounted and the new interplay of entropy and negentropy are accounted. We believe that this mechanism may involve the fundamental mechanism for both entropy and negentropy. Neither is produced alone; both are always produced in tandem. This of course is not what we "observe" since all observation is 3-spatial. Hence to observe the system and see 3-space entropy or negentropy is to hide the simultaneous 4th dimensional negentropy or entropy that unobservably accompanied the observable that we did see.

Again we call attention to the original meaning of entropy: the dissipation of potential (i.e., potential energy).

Once we understand that *time* is a special form of energy (we discuss this shortly), we may input the energy required to "move heat energy backwards" — i.e., we may directly engineer negentropy — by transducing some time-energy into 3-spatial energy. We can do it easily by time reversal, and every charge in the universe does it already. On the other hand, we can do it by breaking the symmetry of time-energy flow — which is as simple as forming a little dipole. The broken symmetry of unlike charges — and therefore the dipole — was discovered by Lee and Yang {13a-13c}, who strongly predicted it in 1956. Wu *et al.* {14} confirmed it experimentally in early 1957. This was such a revolutionary

change to physics that Lee and Yang were awarded the Nobel Prize in the same year, 1957 — an almost unprecedented action.

Its broken symmetry tells us that the dipole's unlike charges continuously absorb virtual photon energy from the active vacuum, transduce it into real observable energy, and pour out real, observable EM energy in all directions in 3-space. That puts an entirely different perspective on *what really powers every dipolar EM circuit; i.e., what produces the flow of energy pouring from the terminals of every generator and battery, filling all space around the external circuit and its conductors*. The EM energy pouring from the generator or the battery is not due to the generator outputting some of its own available internal energy (from the shaft energy input to the generator, transduced into magnetic field energy inside the generator, and then dissipated to separate the charges and form the source dipole between the generator terminals) or the battery transducing and outputting some of its available chemical energy (which is only dissipated inside the battery to separate the internal charges and form the source dipole between the battery terminals). We will explain that later, and explain how any dipole or charge simply pours out real, observable energy continuously in all directions, without any *observable* input of energy. The input energy is there, but it is in *unobservable* (virtual) form.

In 1971 while a graduate student at the Georgia Institute of Technology, I realized the mechanism that generates the "passage of time" insofar as the observer is concerned {15}. With a little more work, this gave the clue in the 1990s for the mechanism generating little momentary *time-reversal zones* (TRZs) {16} in the electrolyte utilized in cold fusion experiments. Hence we proposed the use of little time-reversal zones forming momentarily in the electrolyte after loading of the palladium lattice of the electrodes with hydrogen or deuterium. Such time-reversal zones can form in the region of excessive positive charge accumulation, since positive charge can be said to receive negative EM energy from the time domain and output negative EM energy in 3-space.

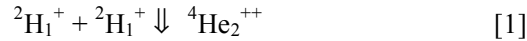
This led to uncovering an entire class of new nuclear reactions — fusion reactions at low spatial energy but high temporal energy — in these little temporary time-reversal zones (TRZs), in which like charges attract and unlike charges repel {17}, followed by rapid decay of the TRZs where the normal law of attraction and repulsion is restored again.

In theory, a fermion cannot be time-reversed because the Pauli exclusion principle prohibits it. However, a boson can be time-reversed, so fermions can be time-reversed in pairs, where each pair acts as a *quasi*-boson. The

TRZ completely overcomes and *reverses* the "coulomb barrier" between a pair of like fermion charges.¹¹

As an example, two deuterium ions in a little TRZ would momentarily form a quasi-nucleus of helium, since the two positive deuterons are attracted so closely that each enters the strong force region of the other. At the same time, the strong force is weakened by the partial time reversal of the gluon forces, so that the quarks are nearly freed. As the other ions in the surrounding solution then move to destroy the momentary time-reversal zone, their movement forces the TRZ to decay back to a time-forward zone — with the decay action starting from every point in spacetime inside the nucleons themselves¹². The TRZ decay-induced action thus strikes the *nearly freed* quarks first, and decay can occur by easy quark flipping while the gluon forces are still much reduced and not back to normal strength. Hence as the gluon forces return toward normal, the quasi-nucleus decays by the strong force increasing and overpowering and drawing the quasi-nucleus into a full-blown helium ion — i.e., an alpha particle — flipping the partially-freed quarks as necessary to do so (that is not necessary in equation [1] below).

During decay of the TRZ, the weakened strong force grows much more rapidly than the Coulomb force zeroes and then increases. Consequently, the quasi-nucleus of two D⁺ ions merely draws together due to the rapidly increasing strong force, forming an alpha particle without quark flipping. Four H⁺ ions — four protons — in a quasi-nucleus in a TRZ will undergo quark flipping twice when the TRZ decays, thereby resulting in an alpha particle.). So that explained the anomalous formation of the alpha particles in the experiments. The interaction for two ions of deuterium is given by:



¹¹ In a TRZ, the law of attraction and repulsion of charged particles is reversed.

¹² Any moment in time exists everywhere simultaneously throughout the universe. In short, time is a multiple connection in 3-space. Hence in any time-reversal zone (a TRZ) where time is reversed, then starts fading away and back to a time-forward zone (TRZ), the changes induced by the "fading back to TFZ" *simultaneously* involve every point in the 3-space of that TRZ that is changing (decaying). An easy change is quark flipping, since the quarks are almost freed in the TRZ to begin with. The reason the reaction proceeds in that direction is that the recovery of the strong force is much faster than the restoring of normal electrical repulsion, hence the quasi-nucleus is drawn further together into a full nucleus, constituting a legitimate nuclear transmutation at low spatial energy but high time-energy.

This interaction between two deuterons in solution does not occur in a normal time-forward zone because of the coulomb barrier preventing the two deuterons from entering each other's strong force region and acting as a quasi-nucleus of helium, so particle physicists have missed it. It does exist in a time-reversal zone; such zones form and then decay back into normal time-forward zones. This is possible because the coulomb barrier is momentarily reversed. The use of such TRZs in particle physics opens up thousands of new nuclear reactions, all at low *3-spatial* energy, but involving very high *time-energy*. Because of the extreme energy density of time, *these time-energy-induced reactions are actually much higher-energy reactions than high-energy physicists presently consider and utilize!* Indeed, it opens up a new kind of far more energetic "high energy physics".

Cold fusion experimenters have unwittingly opened a window upon a vast new particle physics, previously overlooked by our scientists because they have disregarded the use of time-energy, time reversal zones, and transmutation of time-energy into 3-spatial energy in their nuclear reactions. However, a few physical theorists attempting to better explain particle physics have recognized the importance of the time domain, and probing work in that respect is occasionally done {18}. In our view, it is not accidental that more than 600 successful cold fusion experiments have been obtained, by a variety of researchers in many labs in several nations. We strongly suggest that much of the conventional physics community has firmly placed its collective head in the sand, and is refusing to grapple with the startling new time-energy physics that is being initiated by cold fusion research.

In 1999 (published in 2000) {12} we finally discovered a great new symmetry in EM energy flow, whereby time-energy flow symmetry and 3-space energy flow symmetry are each individually broken, while an overlooked and more fundamental 4-symmetry energy flow — between the time-domain and 3-space — is sustained. *The result is that all EM energy in 3-space comes from the time domain locally and returns to the time domain locally, in a giant negentropic circulation.*¹³ Together by the

¹³ This is also understandable from the implications of the observation process, which yields a frozen 3-space snapshot existing only at a single instant. Thus any 3-space energy existing there in that frozen instant, had to just come from 4-space (from the time-domain via the giant negentropy process, if we take the view that "the past exists only in time itself"). For the frozen snapshot to "change", time must be added to it, which converts it to a 4-space process again. So the "3-spatial" observed

discovery of relevant quantum field theory work by Mandl and Shaw {19}, this now lends strong support to the use of time-energy in physics as a practical matter for strenuous investigation.

As an example, Mandl and Shaw {19} treat the four polarizations of the photon. Neither the longitudinal nor the scalar photon is directly observable, but in the presence of charge the two are observable in combination, where they manifest as the "instantaneous" Coulomb (i.e., electrostatic) potential. This argument, translated from particle terminology to wave terminology, directly fits our re-interpretation {12} of Whittaker's 1903 decomposition of the scalar potential {85}. For the combining mechanism of the fields of the photons, we must account for *the field as a ubiquitously assumed interaction with the detecting/observing unit point charge*. Thus we must account for the absorption of the incoming time-polarized wave or photon, the transduction of that excitation energy of the charge into longitudinal EM wave/photon energy, and subsequent emission of that excitation energy in 3-space. That is what happens for a negative charge. For the positive charge, the process is time-reversed, hence occurs in opposite fashion. Or as an alternative, the positive charge can be said to continuously receive negative time-energy from the time domain and emit negative spatial EM energy.¹⁴

There is an *energy polarization transduction function* of charge, whereby it transforms received time-polarized photon energy into emitted longitudinal photon energy in 3-space (for the negative charge, and vice versa, for a time-reversed positive charge). This transduction appears to have been overlooked in physics prior to our recognition of it. It can in fact be used to generate an acceptable definition of charge itself. Charge is the

energy must come from an immediately previous 4-space process, and must return to an immediately following 4-space process.

¹⁴ As we will find in our chapter on antigravity, there is good reason to treat the positive charge as a source of negative energy and negative energy fields. However, this is pertinent only prior to observation of the charge, while it is still a 4-spatial unobserved negative energy electron entity. For the observable charge, one has already conjugated — after all, the positron is observed as if it were an electron going backwards in time, which we observe as an electron with its charge reversed and with parity reversal (of its spatial direction). For the observable charge, we have already reversed the negative energy fields into positive energy fields by simply reversing their direction and the time associated with the photon (quantum of the EM field).

continuously active entity which performs that ongoing process or those ongoing processes of energy transduction between the time domain and 3-space (between the causal unobserved 4-space process and the observed 3-space snapshot). Or in other words, it is an active process connecting 4-space cause and 3-space effect, and connecting the unobserved (such as virtual) to the observed (such as mass).

So for a dipole, the "causal" time-polarized EM wave or photon as a 4-space entity comes to the dipole¹⁵ (3-spatial as observed) and is absorbed by the detecting negative charge or dipole, then is re-emitted as the longitudinally polarized EM wave or photon in 3-space. *That absorption and remission is what charge does, since it is an entity for performing that process.* The emitted energy in turn is absorbed by the nearby positive charge, retransduced into time-energy, and re-emitted back to the time domain. This ongoing very special 4-space energy circulation (even with a virtual charge in the vacuum) is what a scalar potential *identically is and is doing*, at every spatial point of itself, inducing vacuum polarization and "point dipoles" in the virtual state in the process. Recognition of these missing functions allowed at last a solution to the long-vexing problem of the source charge and its associated fields and their energy, often called the most difficult problem in both quantum and classical electrodynamics {68}. We discuss that solution later.

1.1.4 The Search for COP>1.0 Circuits and Systems

A very long search and much intense study and reflection eventually revealed the concepts and principles of those long-neglected disequilibrium Maxwellian systems that permissibly output more energy than the operator inputs. The active environment — not the operator — simply inputs the rest of the energy. Such disequilibrium systems are indeed permitted in Maxwell's theory {20}, and are also still prescribed by Heaviside's severe curtailment of it {21} into what is two vector equations with variables unseparated, rather than Maxwell's 20 equations in 20 variables.

¹⁵ Prior to interaction of the incoming time-energy with the observable charge or dipole, it interacts with the virtual particles of the vacuum, generating vacuum polarization. Neither the virtual particles nor the time-energy are observable; only the effects of their conglomerate interactions with observable charges are observed. Hence one can take the particle view that virtual particle energy is continually absorbed, or one can also take a quantum field theory view that time-energy is continually absorbed. The two are always present in combination.

When Lorentz¹⁶ symmetrically regauged the Maxwell-Heaviside equations, he arbitrarily discarded the entire class of Maxwellian systems that are far from equilibrium in their exchange with their active (vacuum) environment. Lorentz revised (symmetrically regauged) the Maxwell-Heaviside equations to make them amenable to separation of variables and closed analytical solutions, thus reducing the onerous chore of numerical methods. This Lorentz symmetrical regauging is given in most EM textbooks {22}, and we show it in Chapter 2. The symmetrically regauged Lorentz equations are not Maxwell's equations, nor are they the truncation of Maxwell's theory by Heaviside *et al.* Considering an active environment, under our altered thermodynamics definitions Lorentz implicitly selected and retained only the equilibrium class of Maxwellian systems, while *arbitrarily discarding* the entire disequilibrium class. He thus discarded all those Maxwellian systems permitted to produce COP lying in the range $1.0 < \text{COP} \leq \infty$.

Maxwell's electrodynamics is a *material fluid flow theory* and it assumes a material ether. Anything that fluid systems can do, electrodynamics systems can do, at least in theory, because their mathematical models are the same form. So when one cites known examples of fluid-driven physical systems where the energy to run the system is freely furnished by the active environment, analogous electrodynamic systems in active environments — and in disequilibrium exchange with that environment — must also exist in nature. Indeed, particle physics requires it and proves it. These are the very systems arbitrarily discarded by Lorentz symmetrical regauging in every university.

So there exists a direct analogy between fluid systems and classical electromagnetic systems. The common windmill, waterwheel, and sailboat demonstrate by analogy that open EM systems far from equilibrium — powered by free EM "winds" and "energy flows" in the active vacuum environment — also exist in consonance with natural law. They are no more mysterious than a solar cell power system, which is after all a recognized "free energy" or "overunity" system, as is the humble charge (thought to be the source of all EM energy, fields, and potentials). In physics, the powering of systems by receipt and use of energy from their

¹⁶ Actually first accomplished by Ludwig Valentin Lorenz in 1867, then by H. A. Lorentz much later. Lorentz was given the credit erroneously. Lorenz actually derived electromagnetic theory independently in his paper. See J. D. Jackson and L. B. Okun, "Historical roots of gauge invariance," *Rev. Mod. Phys.*, Vol. 73, July 2001, p. 663-680.

active environment leads directly to the thermodynamics of systems far from thermodynamic equilibrium in their energetic exchange with that active environment.

It follows that the seeming absence of such *electrodynamic* systems arises not because they are impossible but because present-day circuits and systems are ubiquitously designed to self-enforce an inherent energy equilibrium with their active vacuum environment. The closed-current loop circuit turned out to be the Lorentz self-regauging demon involved in destroying the $COP > 1.0$ capabilities of every EM circuit. So little by little, we unraveled the long tedious trail of Maxwell's electrodynamics and what had happened to those missing Maxwellian-Heaviside systems far from equilibrium with the active vacuum.

We learned how, where, and by whom those permissible overunity Maxwellian systems were discarded. That is, we found what happened to all those Maxwellian *open disequilibrium systems* — originally included in Maxwell's and Heaviside's theories — where such a system receiving and using excess energy from its active environment¹⁷ is permitted by the laws of physics, electrodynamics, and thermodynamics to:

¹⁷ For the discerning reader, of necessity we have revised the foundations of the ancient classical thermodynamics, as further discussed in Appendix A. We refer the reader to Bimalendu N. Roy, *Fundamentals of Classical and Statistical Thermodynamics*, Wiley, New York, 2002, and to any good book on the history of thermodynamics. Also particularly good is Kondepudi and Prigogine, *Modern Thermodynamics: From Heat Engines to Dissipative Structures*, Wiley, Chichester, 1998, reprinted with corrections in 1999. The foundations of classical thermodynamics (and its fundamental definitions) were basically frozen prior to the advent of Maxwell's 1865 seminal theory, and well before the 1880s discovery (modeling) of the flow of EM force field energy through space. Some of the fundamental definitions of thermodynamics now will not withstand critical review in terms of "meshing" with the Heaviside/Poynting material fluid energy flow theory. Neither will they withstand the new concepts of energy such as mass-energy, time-energy and transduction between time-energy and spatial energy by every charge. E.g., thermodynamics defines an *open system* as one that exchanges energy and mass with its surroundings. Yet it defines a *closed system* as one closed only to mass exchange, not to energy exchange. *If the energy exchange is analogous to material energy flow and changes the mass of the system, then that definition of closed system is a non sequitur.* From general relativity, mass is simply energy anyway, and so "mass" exchanging across the boundary of the system is actually energy exchanging, and vice versa. Since Maxwell's theory is a *material fluid* theory, the Poynting and Heaviside energy flow models are *material fluid flow energy* models by analogy. The specialized thermodynamics definition of *closed system* rigorously will not logically allow the exchange of "material fluid energy flow" (or energy as matter)

since it prohibits matter flow, but the specialized definition of *open system* would and does. In short, with respect to material fluid energy flow, the concept of the “closed system” in thermodynamics has forced itself to become the *isolated system* instead, which is unacceptable since we must model EM energy flow exchange between the environment and the system. So we must change the thermodynamic definitions of *open system* and *closed system*. Else there cannot be any EM energy-mass or mass-energy flow between environment and system, which totally violates what is well known to be happening in all EM systems. In modern physics, every charge and every dipole already have such energy exchange with the active vacuum environment, and it is never zero; instead, it is of enormously high magnitude. Without that exchange, as we advance in this book, there cannot even be a “source charge” or associated EM fields and potentials and their energy, reaching across space. In other words, without it we can have no electrodynamics at all. So we have uncovered a fundamental and major contradiction between classical thermodynamics and general relativity, as well as between thermodynamics and the “material EM fluid energy flow” model used in electrodynamics. What classical thermodynamics calls a “closed system” permitting energy flow exchange, we must now logically regard as an *open system* because it is open to energy exchange across the boundary! The previous notion of the *isolated system* — with no exchange of either energy or mass — is what we must treat as a truly *closed system*. And there is none such in the universe, as we know in particle physics (e.g., because of the discovery of broken symmetry in 1957 and because of the well known active vacuum exchange with every EM charge and dipole). So we have corrected these direct contradictions between “EM as a material fluid energy flow theory” and the old classical thermodynamics.

As the reader will later see, this strongly affects our new definitions of *efficiency* and *coefficient of performance*. The new definitions we advance are rigorous, and they also apply to $COP > 1.0$ EM systems, and even to self-powering ($COP = \infty$) EM systems. They also hold for very novel new energy processes such as quantum potential energy in a multiply connected space, multiple retroreflections and re-use of the same energy, conversion between time energy and spatial energy, and 4-space giant negentropy energy flow circulation.

But one can no longer be allowed to equate *efficiency* with *coefficient of performance*. Now they are never the same thing, just as a six-foot tall man and a six-foot tall doorway are never the same thing, even though they have the same height magnitude. We warn the reader that a great deal of thought and study must be put into appreciating these suddenly encountered changes to the quite old classical thermodynamics definitions. The changes are absolutely necessary. Bluntly put, in light of much more modern knowledge, a rigorous foundations analysis reveals the classical thermodynamics as well as disequilibrium thermodynamics to contain logical contradictions, such as its direct contradiction with general relativity and the EM material fluid energy flow theory. Either we give up or dramatically change the present EM energy flow theory, or we must make the necessary foundations changes to thermodynamics. We have chosen the latter option in this book, and the reader is forewarned of that dramatic change. The specific changes and rationale are discussed in Appendix A.

- (1) self-order,
- (2) self-oscillate or self-rotate,
- (3) output more energy than the operator inputs (the excess being freely received from the active environment),
- (4) power itself and its load simultaneously (all the energy being freely received from the active environment), and
- (5) exhibit negentropy.

We vigorously pursued those long-lost Maxwellian systems, and we eventually found them. We also found real experiments {23, 24, 25, 26, 27, 28} and real devices {29a, 30, 31, 32, 33, 34, 35a, 36a, 36b} that performed one or more of those fabulous five functions, though there was often no realization by the experimenters, inventors, and scientists of the actual mechanism involved. Eventually my colleagues and I were also able to produce a successful experimental device {37, 38a-38c, 39}, the motionless electromagnetic generator (MEG), which outputs more energy than we input to it. We cover the MEG in Chapter 7. Presently a cooperative research program is ongoing with the National Materials Science Laboratory of the National Academy of Sciences of a friendly foreign nation, to develop and market commercial power systems based on successful laboratory experiments with the MEG. At this writing, we are also strongly seeking the extensive funding required to set up a physics lab and complete the final research allowing production of power systems.

1.1.5 Additional Very Important Implications

We also formally proposed {40} that the vast nondiverged EM energy flow component — Heaviside's "dark" nondiverged energy flow component, accompanying every reaction of a charge with a field or a potential, but arbitrarily discarded by Lorentz and modern classical electrodynamicists — is the generatrix for the extra gravity holding the arms of the spiral galaxies together, after all the dark matter is accounted.¹⁸

¹⁸ Heaviside himself recognized the gravitational implications of his extra component of energy flow, which is in closed circular loops. Beneath the floorboards of his little garret apartment, years after his death, handwritten papers were found where Heaviside used this component for a unified EM approach to gravitation. See E. R. Laithwaite, "Oliver Heaviside – establishment shaker," *Electrical Review*, 211(16), Nov. 12, 1982, p. 44-45. Laithwaite felt that Heaviside's postulation that a flux of gravitational energy combines with the (**EΔH**) electromagnetic energy flux, could shake the foundations of physics. Quoting from Laithwaite: "*Heaviside had*

In addition, my close colleague Bedini and I have filed a patent application upon a very special process to "freeze-frame and lock-in" a disequilibrium Maxwellian system in its otherwise far-from-equilibrium state, so the apparent disequilibrium operation of the system can be maintained stably as a new equilibrium condition. This appears to be a method to produce and utilize what Kondepudi and Prigogine refer to as a *nonequilibrium stationary state*. This stabilization is necessary in order for such a system to maintain its $COP > 1.0$ excitation and steadily output more energy than the operator inputs, or to steadily power itself and its load {41}.

We also found that $COP \gg 1.0$ EM systems (and some $COP > 1.0$ systems) produce (as a function of the COP) a current of Dirac sea holes (positrons) *in the local vacuum environment itself*, from the output section back to the input section. At $COP < 1.0$ and COP not too greatly above 1.0, a Dirac sea hole in the vacuum almost immediately interacts with an orbital electron in the material lattice of the system. This converts the negative energy, negative mass "vacuum hole or state" into a lattice hole, which is attached to the large positive mass of the ion left by the disappearance of the electron. This "lattice positron" type of problem has been known in semiconductor design for some decades. Normal EM circuits do not usually meet the phenomenon overtly because the semiconductor designers controlled it in the semiconductors themselves by use of appropriate donors and acceptors.

There is a great difference between the actions of Dirac sea holes in the vacuum prior to observation, and lattice holes in materials (after observation). So there is a great difference between the action of a "positron" on spacetime before its interaction with mass and observation, and its action on spacetime after it interacts with mass and is observed.

For $COP \gg 1.0$, significant phenomenology and novel effects occur because a substantial fraction of the Dirac sea holes (unobserved positrons) sweeping from output to input do not convert to lattice holes (observed and bound positrons) along the way. For substantial values of COP above 1.0, Bedini's invention (patent application filed by Bedini and the present

originally written the energy flow as $\mathbf{S} = (\mathbf{E}\Delta\mathbf{H}) + \mathbf{G}$, where \mathbf{G} is a circuital flux. Poynting had only written $\mathbf{S} = (\mathbf{E}\Delta\mathbf{H})$. Taking p to be the density of matter and \mathbf{e} the intensity of a gravitational force, Heaviside found that the circuital flux \mathbf{G} can be expressed as $p\mathbf{u} \ 4\pi c\mathbf{e}$, where \mathbf{u} represents the velocity of p and c is a constant."

author)¹⁹ covers the master process for intercepting and transducing this appreciable flow of negative energy from the output section back to the input. Otherwise, that flow — if not intercepted and not converted — will "eat" extra input electrons from the power supply, thus acting as a novel "extra load" appearing in the input section. That extra load then draws additional current and power from the external power supply by electron-hole annihilation²⁰.

With the Bedini invention, the negative energy (unobserved positron) flow appearing at the input section is transduced into a flow of positive energy (a flow of electron current) from the input section back into the system. The process deliberately uses the "interaction and observation" process to phase conjugate the charge and reverse its direction of flow! In that case, the otherwise detrimental *negative* energy output back through the COP>1.0 system (which is nature's decay process for COP>1.0 interactions) is changed to a beneficial *positive* energy input within the system itself, freely received from the vacuum environment. This process is then used to close-loop the system for self-powering in a "locked" and stabilized disequilibrium condition — a nonequilibrium stationary state.

If we consider mass to be a special kind of positive energy state, then positive energy states represent curvatures of spacetime that are positive gravity. Negative energy states generate antigravity (the time-reversal of gravity).

¹⁹ Bedini personally discovered and implemented the solution before the exact nature of either the problem or the solution was recognized! My contribution was to recognize the nature of the problem and the mechanism used in the solution. We also stress that, contrary to conventional treatment, all EM circuits do involve not only lattice holes in the conductors and components, but also Dirac sea holes in the local vacuum. That the Dirac sea is involved whenever there are EM fields is clearly shown by Felix Finster, "Definition of the Dirac Sea in the Presence of External Fields," *Adv. Theor. Math. Physics*, Vol. 2, 1998, p. 963-985.

²⁰ With a proper change in the curvature of local spacetime, pair annihilation can occur with no accompanying photon radiation. The condition is that the part of the curvature of spacetime representing the energy change of the otherwise emitted radiation, does not "relax" even though it is an "excited state". Rigorously, the emission of the radiation from pair annihilation occurs in two steps: (i) first the local spacetime is curved for and by the energy excitation, as a *static change* of the curvature, and (ii) then that curvature relaxes back to its former value, propagating that specific curvature in space, which is recognized as the radiation propagating in space. If the spacetime curvature excitation does not relax, there is no photon emission and propagation.

Before their interaction and observation, the Dirac sea hole (positron) currents — produced in natural $COP > 1.0$ processes in the universe — are still negative energy electrons in 4-space. They are not 3-positrons until interaction with matter has occurred. These “negative energy electrons” generate negative energy EM fields, including both the Poynting energy flow component and the Heaviside nondiverged energy flow component. These negative energy EM fields appear to be *generating the antigravity* whose effects are seen in the distant parts of the universe. They produce far more powerful effects than the accounted electrogravitation effects in astrophysics, which only uses the gravitational effects of the very much smaller Poynting energy flow component. Also, astrophysicists do not use the “positron before observation,” when it is still a negative energy electron with negative mass. The accumulation of the negative energy (Dirac holes) in space (in the surrounding vacuum) is connected with massive objects and violent processes, where very strong gradients are produced.²¹ As a result, very large negative energy fields and potentials are produced. In turn, this results in cumulating antigravity. This cumulating and interacting antigravity appears to be the mechanism for the forces *accelerating* the expansion of the universe — rather than it decelerating as would be the case if the net gravity there were positive. In Chapter 8 we propose this explanation for the observed acceleration of the expanding universe — and the basis for the explanation can be and has been successfully demonstrated in a legitimate overunity EM circuit or system {42}. We offer this in honor of Heaviside, who first discovered the gravitational aspect of his huge nondiverged energy flow, but did not live to publish it. He also did not consider the Dirac sea prior to hole interaction with matter, as it was not yet formulated, so he had not yet recognized the way to produce and utilize the practical antigravity potential of his discovery.

1.1.6 A Scientific Dilemma

There would seem to be a sufficient abundance of techniques, devices, processes, and theoretical works to impel a crash project in the scientific community to develop successful overunity electrical power systems {43a-43d}. This would be especially appropriate at this time, since the

²¹ Kondepudi and Prigogine, *ibid.*, p. 459 already point out that strong gradients produce situations that violate present thermodynamics. Research in these and other situations violating present thermodynamics is going forward under the caption of “extended thermodynamics” research. A discussion of the area is given by D. Jou, *Extended Irreversible Thermodynamics*, Springer-Verlag, New York, 1996.

escalating energy crisis now threatens to slow the world economy, and then eventually collapse it. At this writing, the MidEast has heated considerably, and appears headed for another MidEast war, with resulting severe interruptions of cheap oil supplies from the MidEast. Nonetheless, in spite of Russia having opened its oil field spigots to try to fill the need, a crisis in oil appears to be looming.

So *why* does the U.S. scientific community still so adamantly oppose the very notion of Maxwellian systems freely extracting EM energy from the vacuum? Why is there no outcry pointing out what the hoary old Lorentz regauging really means in terms of equilibrium or disequilibrium of the regauged system with the active vacuum? The unequivocal participation of the vacuum in a continuous energy exchange with the charges and dipoles of every EM system has long been affirmed by particle physics. All the fields and potentials — and their energy — manipulated in any EM circuit come from the vacuum, as proven in particle physics for 45 years. Why have our electrical scientists not understood — from the broken symmetry of the vacuum exchange with the opposite charges of the source dipole between the charged terminals of every generator and battery — that *EM energy from the vacuum powers, and has always powered, every electrical power system and circuit ever built*? Why have the later rigorous broken symmetry findings of particle physics not been incorporated to update the ancient classical EM theory used to design and build electrical power systems, nearly a half-century after those broken symmetries were discovered and proven? Why do our classical electrodynamicists continue to assume that every charge and dipole in the universe is a perpetual motion machine, freely creating energy out of nothing and pouring it out across all space at the speed of light?

Therein lies one of the real problems of present science — its historical and continuing resistance to "out-of-the-box" thinking²² and to research that overcomes conventional strictures. More than 40 years after the basis for the vacuum-energy powering of every dipolar system (and of every

²² "Out-of-the-box" thinking is a widely used concept among planners and program formulators, when conventional thinking will not suffice to solve a major problem with which they are struggling. Conventional thinking is considered "in the box" thinking, so by demanding out-of-the-box thinking, a problem demands an unconventional solution outside those normally proposed. In short, some new thoughts and concepts are required. Much lip service is given to the concept as a favored buzzword, but few proposed programs with truly "out of the box" approaches will be funded. In the energy field, none at all are funded that are truly "out of the box", whether or not that or similar phraseology is used.

observable charge once its clustering virtual charges of opposite sign are accounted) was discovered and proven in particle physics, all our university electrical engineering departments continue to erroneously teach that the shaft energy input to the generator powers its external circuit. Internal EM energy in the generator, transduced from the input shaft energy, does not directly add a single watt to the external circuit. Instead, it only continually forces the generator's internal charges apart, to continually remake the source dipole, which then extracts energy from the vacuum and pours it out of the terminals, filling the space surrounding the conductors of the external system for the system to intercept and utilize some of the available external energy flow.

Once the dipole is established, it will extract and transduce EM energy from the vacuum and pour it out in all directions at the speed of light, without ceasing. Else, the Nobel Committee should admit its grave error and revoke the Nobel Prize awarded to Lee and Yang. Real observable EM energy extracted and transduced from the vacuum's virtual energy is precisely what the "broken symmetry of the opposite charges" on the ends of the dipole *means*. Indeed, all the forces of nature are already considered as generated by the interaction of virtual particles with observed particles. Since force produces energy changes in the system affected, then it follows directly that energy changes are produced by the interaction of virtual particles with observable particles.

However, our power system engineers ubiquitously use the closed current loop circuit. This inane circuit self-enforces the Lorentz symmetrical regauging condition. It uses half the energy captured by the external circuit (from intercepting some of that "energy flowing around the circuit from the seething vacuum" that is copiously pouring out of the generator terminals) to ram the spent electrons back through the back emf of the source dipole itself. That scatters the dipole charges and kills the dipole and its broken symmetry — and also kills the free flow of transduced EM energy from the vacuum.

That insane circuit kills the source dipole in the generator faster than it powers its external loads! So one has to keep rotating the shaft of the generator, to keep producing a magnetic field inside the generator, so that this magnetic field energy can continue to force the charges back apart and continually reform the source dipole.

In short, our engineers build the equivalent of an electrical windmill, then — so to speak — force it into a closed barn so the environmental wind

cannot reach it any longer. It is little wonder that we ourselves then have to do work on that "electrical windmill" to crank it around!

We pay the power company to engage in a giant wrestling match inside its own generator and *lose*. We also wildly pollute the planet with hydrocarbon and nuclear wastes, poison species (including killing of X numbers of humans every year via the disruption of their body functions and health), and enhance global warming. We are slowly strangling our biosphere and ourselves. None of that is necessary.

1.2 Organized Science Often Resists Innovative Change

The history of science is littered with examples where the scientific community has ignored the principle behind Einstein's statement quoted at the beginning of this chapter. As pointed out by Smith {44}, science has become reoriented toward profit. Quoting:

"...science is not the danger; scientists encouraged to do bad science to survive are." ... "...changing the way modern science is funded is an enormous undertaking, but it is a necessary one if we want to protect our future. Call it managed risk."

Science's resistance to change is so well known to historians of science that it is rather universally accepted — although usually not made explicit to undergraduates. Further, scientists are under great pressure to conform:

1. After all, science is *patronized*; someone must fund the laboratories, the research supplies, the salaries and personnel benefits, etc.
2. To procure and protect its patronage, science has become quite organized, particularly with respect to how the funds — received and channeled down from the top — are cut into individual packages (research grants and research programs) and made available for competition among the "performing" chain of universities and research laboratories.
3. In the last few decades, there has risen an increasingly fierce demand by universities that the scientific researchers (i) be successful in attracting outside funds and (ii) file patents assigned to the university. So fierce has this demand become, that the research professor's continued livelihood may literally depend upon his or her success in bringing in extra funding. Further, much of his time is now spent in writing proposals to

compete for these "packaged funds". When he wins them, the kind of research and the areas of research are already stringently defined, and he dare not deviate — else there will shortly be no more funding packages won, no funding for his graduate students, and soon thereafter there will be no job of any importance for the professor!

4. In the United States, all the government National Laboratories and our universities are intensely seeking and filing patents! So small, independent inventors cannot deal with these organizations, without risking and almost guaranteeing the loss of their patents and intellectual property. Funding dangled in front of the inventor, much like a carrot dangled in front of a horse, is often tied to "march in" rights {45, 46} calling for surrender of the inventor's patent rights altogether, *whenever the government — i.e., a single bureaucrat — wants to take it*. All that has to be done is to declare that the inventor is not getting it developed and to market fast enough. Science has thus become more avaricious and — some inventors would even say — it increasingly involves overt and covert piracy of intellectual property rights. From personal experience, reluctantly I would not argue with that statement. Simply ask Larry Fullerton of Time Domain Corporation about his struggle with a National Laboratory over patent rights to his ultrawideband communications invention and technology.²³ It eventually resulted in a "draw" of sorts. He did not lose his rights, but the government gained them also, in competition with him. The government *circumvented* his patent, even though they did not succeed in taking it. We were delighted to recently see that Larry (the company is Time Domain, Inc.) received its 74th patent in this technology, as well as a ruling that will allow the technology to at last go to market.
5. The result is a dramatic increase in the pressure on working scientists and independent inventors to conform, and to "play the game by the rules". Then everybody up the scientific food chain is fed, and is happy and secure. The journals happily publish the research papers and results, the professor gets

²³ Stephen Fenichell, "Radio Flyer," *Discover*, 22(5), May 2001. Fullerton's technology has been given a limited go-ahead by the FCC, which has drafted standards and regulations in the area as of February 2002.

funding for his graduate students, the university gets that wonderful overhead cut of the research funding — such as half or it or more — and the entire apparatus is like a very large and tidy Titanic adhering to its ponderous course toward the iceberg. Meanwhile, truly new and innovative science discoveries — vulnerable and desperately needing nurturing funding during their initial embryonic state — get shoved aside, crushed, and starved in the funding rush to adhere to performance of the *prescribed* funding packages.

6. In this environment, the day of the "defenders of the scientific faith" has arrived! A small percentage of conventional scientists who are dogmatic and vociferous, are now very prominently attacking any novel experiments and ideas with a vehemence seldom seen in organized science. It is again reminiscent of some of the noted scientific attacks in history, e.g., as pointed out by Hellman {47}. Yet, because of the financial pressure upon the scientific community, and the increased pressures to conform, there is little restraint of the dogmatists and they are almost never called to task. Cold fusion is a current example. The American Physical Society has recently issued a statement condemning perpetual motion machines — yet the society's members continue to condone and use a classical EM model that assumes every charge in the universe to continuously be creating energy from nothing. Even the American Physical Society has not recognized what broken symmetry of opposite charges means with respect to the common dipole and dipolarity in every circuit. Nuclear reactions at low spatial energy (which means at extraordinarily high total energy when the c^2 -compressed time energy is considered) do indeed sometimes occur in carefully controlled experiments, whether or not we yet sufficiently understand the reactions theoretically, and regardless of whether we can get the anomalous results to happen every time. Yet this area of nuclear interactions at low *spatial* energy {48} — and unknown to the scientific community, at very high *time* energy {49, 50, 51} — has been savaged by these self-appointed spokespersons for the "official" community, none of whom even account the compressed energy in the time increment portion of the photon. More than six hundred successful experiments in multiple laboratories, by respected scientists in multiple nations worldwide, are now

rather resoundingly ignored. Yet the replication rate for good cold fusion experiments is certainly higher than many of the replication rates for novel and little-understood phenomena in large particle accelerators, and the cold fusion experiments are also *far cheaper*.²⁴ While particle accelerators are "popular" in their ability to garner huge funding, their cost/benefit ratio compared with, say, cold fusion experiments, may be abysmally low. Simply examine the decades of effort and many billions of dollars expended on the search for *warm* fusion (using spatial energy only). What has it produced, in terms of watts of power on the power lines? When will it produce any electrical power of any significance? Prototype cold fusion power systems have in fact been produced and patented {52}. With seed money from the scientific community and using a higher symmetry electrodynamics, cold fusion power could proceed at a rapid pace.

Strangely, the ever-present pressure to conform to *that which is already known and accepted* has often made science its own worst enemy throughout its history. Establishment scientists and the "system itself" now probably block — and have blocked over the decades — more innovative scientific research than does any other factor {53}.

1.2.1 Many Scientists and Historians Have Pointed It Out

The scientific community is well known to have always been highly resistant to novel ideas and innovations. Here are some selected pertinent comments regarding this phenomenon, where organized science is itself the obstacle to the advance of science, and where such has been recognized for many decades:

²⁴ As an example, see R. P. Taleyarkhan *et al.*, "Evidence for Nuclear Emissions During Acoustic Cavitation," *Science*, Vol. 295, 8 Mar. 2002, p. 1868-1873; Charles Seife, "'Bubble Fusion' Paper Generates a Tempest in a Beaker," *ibid.*, p. 1808-1809. See also Donald Kennedy, "To Publish or Not to Publish," *ibid.*, p. 1793. *Science* had the courage to publish the peer-reviewed results of a tabletop sonoluminescence experiment that apparently produces nuclear reactions. Editor Kennedy essentially advises all protagonists on both sides to cut the rhetoric and allow the scientific community to do its replication work, to either validate or refute the successful experiments of Taleyarkhan *et al.* This action by *Science* is a shining beacon to remind the scientific community that science is based on experimental method, and that prevailing theories cannot refute new experiments that contradict them. Instead, laboratory bench experiments must decide such an issue.

"Every great scientific truth goes through three stages. First, people say it conflicts with the Bible. Next they say it had been discovered before. Lastly they say they have always believed it." [Louis Agassiz, 1807-1873.]

"There are three steps in the history of a great discovery. First, its opponents say that the discoverer is crazy; later that he is sane but that his discovery is of no real importance; and last, that the discovery is important but everybody has known it right along." [Sigmund Freud].

"Anybody who has studied the history of science or worked as a scientist knows that whenever something novel is discovered or proposed, there is a polarization of scientists, with hostility and bitterness that may last for generations. What wins arguments is scientific fact, and that may change as the years go by. A good example of this is the geological theory of continental drift, as proposed by Wegener in 1912. When I studied geology around 1950, continental drift was acknowledged in my undergraduate textbook as a crank theory. The first serious confirmation was in 1956, and it was finally established as the dominant theory in the early 1970s. Until that time, anybody who admitted that he or she believed in continental drift was the subject of derision and scorn. Sorry, folks, science is not and has never been the 'idealized portrait painted in textbooks'." [Allan Blair] {54}

"... the four stages of response to any new and revolutionary development [are]: 1. It's crazy! 2. It may be possible — so what? 3. I said it was a good idea all along. 4. I thought of it first." [Arthur C. Clarke]. {55}

"...I suggest that most revolutions in science have taken place outside the lofty arena of the refereed journals, and with good reason. The philosophy by which these journals govern themselves virtually precludes publication of ideas that challenge an existing consensus." [William K. George] {56}

"At every crossway on the road that leads to the future, tradition has placed against each of us, 10 thousand men to guard the past." [Maeterlinck].

"An important scientific innovation rarely makes its way by gradually winning over and converting its opponents: it rarely happens that Saul becomes Paul. What does happen is that its opponents gradually die out, and that the growing generation is familiarized with the ideas from the beginning." [Max Planck] {57}.

"Peer review is widely seen as a modern touchstone of truth. Scientists are roundly drubbed if they bypass it and 'go public' with their research... The first limitation of peer review is that nobody can say quite what it is... A more pernicious danger is that peer review may reject the important work. As Charles W. McCutchen, a physicist at the National Institutes of Health, has put it, peers on the panel reviewing a grant applicant 'profit by his success in drawing money into their collective field, and by his failure to do revolutionary research that would lower their own ranking in the profession. It is in their interest to approve expensive, pedestrian proposals.' " [Jonathan Schlefer] {58}.

The sheer massive size and inertia of the modern scientific establishment also exert mind-numbing difficulty in "hearing" and recognizing an innovative scientist's message, even a message of utmost importance, and even if it gets through the censors. For example:

"We used to be able to say things once; if the message was reasonable, it had a good chance of becoming a permanent part of the structure of the field. Today, a single publication is lost; if we say it only once, it will be presumed that we have changed our mind, and we therefore must publish repeatedly. This further fuels the large publication volume that requires us to repeat." [Rolf Landauer] {59}

1.2.2 Some Specific Examples

There are hundreds of examples of new discoveries in science that have at first — and often for an extended period of years — been severely obstructed and ridiculed. Here are just a selected few:

1.2.2.1 *Conservation of Energy*

Von Mayer {60}, the discoverer of the modern statement of the conservation of energy and the mechanical equivalent of heat, was severely chastised for his "insane" work. He was hounded and severely

ridiculed. This extremely harsh treatment, together with domestic problems, drove him to a suicide attempt and a nervous breakdown, and into psychiatric treatment for some years. Toward the end of his life, his principle of energy conservation had so greatly increased the ease of calculations and the understanding of systems that the same scientific community — due to the commendable efforts of Helmholtz, Clausius, and Tyndall — began to recognize his great contributions and lionize him. In 1867, he was made a member of the nobility, dying in 1878 with his "insane" work by then well respected. He was fortunate to have the "cur dog attack" reversed in his lifetime. Most scientists with novel discoveries are not so fortunate.

1.2.2.2 Continental Drift

Alfred Wegener {61} proposed the theory of continental drift in 1912. The reception was extraordinarily hostile. So ferociously was he ridiculed for the notion that huge continents of rock could "float" and "drift" that his very name, "Wegener", was often used as a synonym for "utter idiot". To refer to someone as "a Wegener" was to cast the greatest slur possible upon that person's mental powers and to label him a gibbering lunatic. Only in the 1960s when sea-floor spreading from ocean ridges was discovered, proving that ocean basins are not permanent features, did Wegener's concept of continental drift concept finally gain acceptance.

1.2.2.3 Kinetic Theory of Gases

As pointed out by Paul Nahin {62}:

"J. J. Waterston's paper on the kinetic theory of gases, in 1845, was rejected by the Royal Society of London. One of the referees declared it to be 'nothing but nonsense, unfit even for reading before the Society.' ... 'Waterston's dusty manuscript was finally exhumed from its archival tomb forty years later, because of the efforts of Lord Rayleigh..."

Lord Rayleigh was the Secretary of the Royal Society when he had Waterston's paper reprinted nearly a half-century after submitted. Lord Rayleigh also gave an introduction to the paper, regretting it lying so long unpublished when its content was quite important. His introduction is a way of explaining the delay.²⁵

²⁵ Waterston's paper was finally published as John James Waterston, "Free and Elastic Molecules," *Phil. Trans. Roy. Soc. Lond.*, Vol. 183, 1892, p.1-79. Lord

1.2.2.4 *Surgical Pain Deemed Necessary*

It has *always* been this way in science. As another example, the famed surgeon Alfred Velpau wrote in 1839:

"The abolishment of pain in surgery is the chimera. It is absurd to go on seeking it today. 'Knife' and 'pain' are two words in surgery that must forever be associated in the consciousness of the patient. To this compulsory combination we shall have to adjust ourselves." [Martin Gumpert] {63}.

Wryly we observe that today a similar attitude of "we must glory in the pain" — where the "pain" is due to the yoke of COP<1.0 EM systems and of the second law of classical equilibrium thermodynamics — consumes most modern electrical power system scientists and engineers.

1.2.2.5 *The Photoelectric Effect*

Almost every household now knows Albert Einstein's epochal achievements. Yet his formative three papers — on Brownian motion, the photoelectric effect, and special relativity — were published in 1905 while he was working in the Swiss Patent Office. The most renowned physicist of the time was Max Planck. Planck was embarrassed that a scientist who was not even employed in physics was doing such important work in physics. So Planck and other scientists arranged for Einstein to be awarded a chair in physics at a proper university. In their letter to the university, they pointed out Einstein's brilliance in his papers. They also then excused him for straying down the road of the photoelectric effect, because — as they put it — everybody knew that was foolishness, but persons of such brilliance could be forgiven a few such little bobbles along the way. Years later, in 1921, Einstein was awarded the Nobel Prize for Physics, for his work in theoretical physics and *especially* for his explanation of the photoelectric effect.

The Einstein incident is a typical illustration of Arthur C. Clarke's cogent observation:

"When a distinguished but elderly scientist states that something is possible he is almost certainly right. When he states that something is impossible he is very probably wrong." [Clarke's First Law]

Rayleigh's introduction and Waterston's paper also are given in Jefferson Hane Weaver, *The World of Physics*, Simon and Schuster, New York, 1987, p. 632-651.

1.2.2.6 Amorphous Semiconductors

Stanford R. Ovshinsky's development of amorphous semiconductors {64, 65} is another modern example. "Everybody knew" that a crystalline structure was necessary in order to have a semiconductor at all; in short, a semiconductor formed out of non-crystalline material was deemed to be totally impossible, never mind this "phase" change that Ovshinsky advanced. However, some young graduate students, e.g., began to look at Ovshinsky's amorphous materials and his phase change approach.

Finally funded by the Japanese, Ovshinsky's company, Energy Conversion Devices, Inc. (ECD) simply placed its amorphous semiconductor devices into working equipment. Copy machines appeared with his amorphous semiconductors installed in them — with the machines and their amorphous semiconductors working very well. More graduate students and post-docs enthusiastically entered the area, did research, and wrote dissertations.

As a result, amorphous semiconductors finally became accepted, and they are now part of the established technology and scientific knowledge base. The interested reader can simply look up Ovshinsky's company and statistics on <http://www.ovonics.com>. The Japanese have reaped a continuing bonanza from the sales of amorphous semiconductors, because of the shortsightedness and bias of the U.S. scientific community.

1.3 Scientific Disagreement or Street Fight?

It is one thing to scientifically disagree — even strongly — in a technical and courteous fashion, and quite another to engage in ad hominem attacks. The first is science; the second is a cur dog fight. Unfortunately the history of science far too often reveals "cur dog fights" instead of respectful scientific disagreements {66}.

A recent modern example of legitimate research and qualified researchers still being savaged in a "cur dog fight" manner is cold fusion (low energy nuclear reactions). Quoting one learned orthodox scientist, whose name is withheld, speaking to a learned scientist in cold fusion:

"How stupid do you think we are? My assessment of you and your colleagues is that you are complete frauds or totally mad. There is no known physical principle that would support the kind of results that you claim your technology can accomplish, nor is there any credible argument why there should be such a principle."

We answer that "cur dog attack" unemotionally and scientifically. The key is in the scientist's own phrase: "no *known* physical principle." If the experiments work and are replicated, but are not understood by the conventional theory, then they refute the prevailing theory, whether the physical principle is understood or not. Else scientific method has been totally abandoned in favor of "truth by authority and dogma". The experiments clearly show that a previously *unknown* physical principle is at work. The real task then is to rediscover this new principle — that being one of the primary ways that science advances. We propose new principles in this book as a possible explanation of those experiments.

The dogmatic scientist's statement was made in spite of some two hundred (200 at that time; now more than 600) scientific experiments worldwide, in many nations, many at prestigious institutes, where dozens of scientists have reported positive and anomalous results in cold fusion experiments.

So yes, there is indeed a very "credible argument" — *the results and replicability of the experiments*, which are supposed to be the *decisive* statement of science. If that view in science has changed, then we are no longer practicing the scientific method. Instead of accepting successful and replicable experiments and seeking to change the model, the scientist is insisting that we must first understand the principle and thus have a model. This of course is a total violation and reversal of the scientific method. We used aspirin effectively for decades without the slightest notion as to the mechanism enabling its beneficial actions. The mere fact that "there is no known physical principle" for the results achieved has nothing to do with the validity of the replicated experimental results. Instead, it merely substantiates that *there should be a vigorous scientific program to uncover the new principle or principles obviously involved*, since the old model has either failed or been revealed as too limited.

The derogatory statement by the dogmatic scientist is also made from the viewpoint of the conventional nuclear physics model. The conventional physics has not taken into account that all 3-spatial electromagnetic energy associated with charges and dipoles and their fields and potentials in fact comes from the time domain {85, 86, 12, 19}. It has also not taken into account that time itself (as in the time component transported by the time-polarized photon or a time-polarized EM wave) may be comprised of extraordinarily dense energy. Indeed, time appears to be spatial EM energy compressed by the factor c^2 , so it has the same energy density as mass {67}, which we pointed out earlier. The smaller the *spatial* energy of the

photon, the greater its time component and hence its *time-energy* in seconds expressed in decompressed spatial energy joules²⁶. The highest energy particle physics is not *spatial-energy* physics as presently practiced, but *time-energy* physics, where some of the time-energy of photons is transduced into spatial energy. One second of time transduced (decompressed) into spatial energy yields approximately $9\Delta 10^{16}$ joules. Further, every negative charge in the universe continuously accomplishes that decompression, and every positive charge continuously accomplishes the recompression.

In other words, not all physical principles were discovered in the particle physics of, say, five years ago, as the literature since then clearly shows. To assume that everything is already known today is ludicrous; science is never completed. The new principles reported in the present book now are at least "candidates" for the physical principles that do support cold fusion results. There is also another powerful argument for these hypothesized principles: they have produced the final resolution of the source charge problem — something for which the arch skeptic quoted has no solution whatsoever, and which he himself cannot explain. *If the arch critic cannot produce an alternate solution to the source charge problem, and is unaware of that new principle that may solve it, let him go and learn the new principle. Until then, he unwittingly assumes that every charge in the universe is a perpetual motion machine, continuously creating and pouring out EM energy in all directions at the speed of light.* So we return his own argument and approach to him: he should attack the conventional scientific community for accepting the source charge, while having absolutely no principle to explain how it continuously pours out observable EM energy without any observable EM energy input. In short, he should practice what he preaches; else he brands himself a total hypocrite. The alert reader will note that none of the arch skeptics doing all the ad hominem attacks on cold fusion and COP>1.0 EM systems are practicing what they preach.

²⁶ The spatial energy of the photon decreases linearly as the frequency is lowered, while the time component in seconds increases linearly. But the highly compressed time energy, comprising that time component, increases nonlinearly (by the factor $c^2 \div t$). Hence the highest energy photons are actually the low frequency photons — something completely alien to particle physicists — and not the high frequency photons chased by "high energy physics". Indeed, high energy physicists are practicing a high spatial energy physics, which — overall — is a much lower energy physics than radar, microwave, VHF, or ELF, *if the total energy of the photon, to include its time energy, is considered.*

What we are saying is this:

- (a) If one's physics knowledge was current five years ago, it may be stale today. A few years ago, no one believed the expanding universe was accelerating. Today we know that it is, rather unequivocally. And by "no known physical mechanism". We will later present a strong candidate for that missing mechanism. The results of experiments will substantiate or refute it.
- (b) The proposed principles in this book, e.g., are newer, and may shed light on the mechanism for the cold fusion results as well as other phenomena. The experimental results themselves are irrevocable; any proposed explanation requires validation.
- (c) The new principles do explain cold fusion and are consistent with the phenomena encountered in multiple experiments by multiple researchers in many laboratories. We readily admit that the stale and incomplete principles presently utilized in nuclear physics *do not* explain cold fusion. Neither do they explain how a charge continuously pours out EM energy. So do the skeptics attack all those physicists who believe in source charges and their provision of the fields and potentials and all EM energy? Of course not. They themselves believe in that greatest of all "perpetual motion" *faux pas*.
- (d) The proposed new principles also solve the source charge problem, which is still ignored by most conventional physicists and electrodynamicists, even though often referred to as the "most difficult problem in electrodynamics" {68}.
- (e) Scientists should not be close-minded, but should consider new proposals and let the experimental results decide their validity or falsity — precisely the position taken by the journal *Science* in publishing the results of some new cold fusion experiments. That is the scientific method in action.
- (f) Those scientists who remain close-minded, and viciously attack experimentally demonstrated new processes and mechanisms, are guilty of practicing dogma and not science. They are in fact guilty of being what they so frequently charge: *pseudo-scientists*.

When science does not allow proposed new mechanisms and principles to be considered in science following demonstration of new phenomena inexplicable by present models, then science is no longer practicing scientific method. When any scientist rejects these demonstrated new

experimental phenomena out-of-hand, he is practicing dogma rather than science. The “friendly skeptic” attitude is welcomed and appropriate. The cur dog attack has no place in science, but only among cur dogs — and those who behave like them.

1.4 A Few Significant and Unresolved Scientific Problems

1.4.1 Time as Structured Energy

Time also has internal structure and dynamics {69, 70}, as we explain later, as well as the same energy density as mass. So it should not be surprising that a tiny bit of time-energy, transduced into ordinary spatial EM energy, might be capable of energetically inducing a wide variety of nuclear reactions. One has transduced not only "gross" energy, but also energy structuring and dynamics — which *act internally* on any object with which interaction occurs. Further, the overall spatial energy component and the time-energy component in a photon are canonical. Being quanta, all observable photons have the same fixed "total magnitude" with respect to angular momentum. The photon is also "made" of $(\div E)(\div t)$ which may be taken as $(\div E)(c^2 \div t)$ in terms of *purely spatial* energy equivalent content, assuming that the time energy is decompressed into spatial energy. As can be seen, the so-called "low (spatial) energy" photons are precisely the photons that transport the greatest time-component. When that time-energy component $(\div t)$ is converted to spatial energy $(\div E_C)$, the formula is $(\div E_C) = c^2(\div t)$. As can be seen, the converted time energy will produce far more spatial energy in the *converted* interaction, than was carried by the photon in its spatial energy $(\div E)$ component prior to interaction and time-energy transduction. Hence the highest energy photons are actually low frequency photons — under the circumstances where time-energy transduction into spatial energy is involved. With transduction, the highest energy particle physics can be conducted at low frequencies and low spatial energy if conversion of time-energy occurs in the interaction.

Since cold fusion involves transduction of a little bit of the time-energy, the total lack in physics of knowledge of time-energy transduction into spatial energy explains why conventional nuclear physicists find the cold fusion results so confusing and astonishing.

1.4.2 The Obsolete Foundations of Classical Electrodynamics

Another modern example of science's resistance to change is the failure to update classical electrodynamics to include the active vacuum interaction

and the interaction with the local curved spacetime²⁷, as we shall discuss in Chapter 2. It has been scientifically established (in particle physics) that there can be no equilibrium of any physical system without accounting for the vacuum interaction.²⁸ To simply observe a physical electrical power system sitting there stably and running, is to prove its vacuum interaction in order to even *have* such equilibrium.

An interesting point then arises since every charge and dipole in the system is a *broken equilibrium* in the exchange between the material system and the vacuum. Not only does an electrical circuit receive some energy from the vacuum, but also the energy from the vacuum is *massively hemorrhaging* from the vacuum into the system (and back out)! The isolated charge, e.g., is infinite if one removes the screening clustered virtual charges of opposite sign, as is well known in modern physics. Further, the screening virtual charges also have infinite charge, again as is well known. The difference between these two infinite values of charge, e.g., gives the standard finite observed charge of the charged particle. The lay reader may wish to positively verify that statement; e.g., as given by Nobelist Steven Weinberg.²⁹ Quoting:

"[The total energy of the atom] depends on the bare mass and bare charge of the electron, the mass and charge that appear in the equations of the theory before we start worrying about photon emissions and reabsorptions. But free electrons as well as electrons in atoms are always emitting and reabsorbing photons that affect the electron's mass and electric charge, and so the bare mass and charge are not the same as the measured electron mass and charge that are listed in tables of elementary particles. In fact, in order to account for the observed values (which of course are finite) of the mass and charge of the electron, the bare mass and charge must themselves be infinite. The total energy of the atom is thus the sum of two terms, both infinite: the bare energy that is infinite

²⁷ We again stress the concept of the *supersystem*, introduced in footnote 11.

²⁸ E.g., see T. D. Lee, *Particle Physics and Introduction to Field Theory*, Harwood, New York, 1981. On p. 380-381, Lee shows how there is no symmetry of matter alone, but only of matter and vacuum.

²⁹ Steven Weinberg, *Dreams of a Final Theory*, Vintage Books, Random House, 1993, p. 109-110.].

because it depends on the infinite bare mass and charge, and the energy shift ... that is infinite because it receives contributions from virtual photons of unlimited energy."
[Steven Weinberg].

So a simple charged particle actually involves a polarization of the vacuum involving two charge energy functions — the bare charge and the charge change functions — each of which has a known and recognized COP = \leftarrow !

A priori, the conventional system's overall actions must incorporate functions (whether intentional or unintentional) that continuously adjust to provide *net equilibrium in that exchange by adjusting the hemorrhaging-out to equal the hemorrhaging-in*. In this book, we will spell out just what those unintentional functions are, such as the ubiquitous closed-current-loop circuit, and how to beat them so that excess energy from the vacuum can be utilized by the system to power the loads.

1.4.3 What Powers an EM Circuit or Electrical Power System?

Another modern example of science's resistance to change is the continued engineering of electrical power systems with the erroneous notion that mechanically powering the shaft of a generator directly powers the power line. The notion is that the generator transduces some of the mechanical shaft energy into output EM energy added to the power line {71}. To the contrary, *all EM systems are powered by energy extracted from the vacuum*. They are not powered by the mechanical energy we input to the shaft of a generator, or by the chemical energy in a battery. In this book, we discuss at some length what powers the EM system, and we have previously published the basis for our "shocking" statement {12, 72}. The basis for how an EM system is powered by energy from the vacuum has been known in particle physics for nearly a half-century {73}, since the experimental proof of broken symmetry {74}, including the broken symmetry of opposite charges (and hence of any dipole) in its fierce energy exchange with the active vacuum {75}.

A generator or battery expends all of its available energy to separate its internal charges and form its source dipole between the terminals. Once made, the dipole's broken symmetry — in its violent energy exchange with the active vacuum — converts virtual photon energy absorbed from the vacuum into observable EM energy, and emits it — *pours it out* — through the terminals and along the power line, filling all space around the conductors.

If one wishes to appreciate the enormity of the vacuum changes engendered by formation of that source dipole, simply visualize those two

infinite charge energy functions (from Weinberg's quotation above) for every charged particle on the ends of that dipole. The dipole then is a great set of offsetting infinities in EM energy (photon energy) boiling and being ordered in the vacuum. Making a simple little dipole or producing a simple charge initiates into motion an enormous set of infinite energy changes in the vacuum! None of these startling, enormous vacuum energy changes and functions is modeled in classical electrodynamics and electrical power engineering. So when we speak of the Heaviside nondiverged energy flow component pouring from the terminals of a generator, as being a trillion or ten trillion times as great in magnitude as the intercepted Poynting component, the reader should not be appalled. The reader should recall that we are dealing with the difference between sets of infinities that combine to provide finite differences. These finite differences can be very small, or they can be extraordinarily large, depending on the exact situation. In the case of a source dipole formed in an ordinary generator or battery, the difference of the infinities is very large.

Figure 1, adapted from Kraus {76}, illustrates that small part of the external energy flow around a typical transmission line that is intercepted by the surface charges and their fields, and that is drawn into the wires to power the circuit as these charges are driven axially back and forth across the conductors. The surface charges are constrained to the "drift velocity" (usually a few inches per hour) movement down the wire by repulsion of the electrons ahead of them.

The spinning, *longitudinally restrained* electrons precess laterally, thus withdrawing across the transverse axis of the wire. So the laterally precessing electron withdraws a little ways, withdrawing that first small portion of its fields and their energy increased by intercept of additional energy from the outside energy flow. The further part of the fields is not withdrawn into the conductor, and is not used to power the electrons.

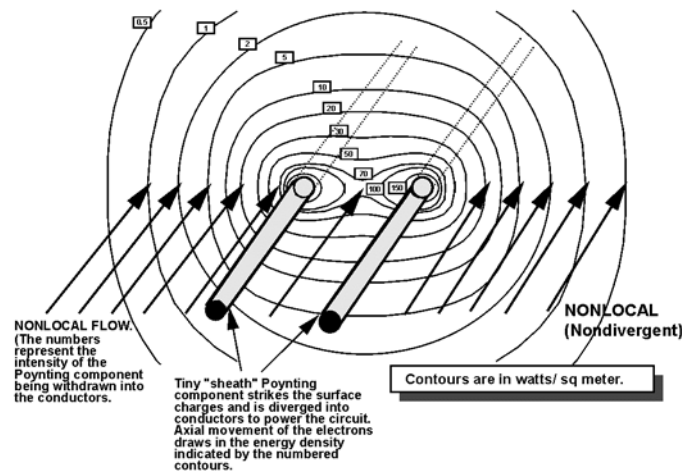


Figure 1-1 Poynting (caught energy) flow contours surrounding a transmission line.

Most of the available energy flow misses the circuit and is not drawn into the conductors. However, that large component is not shown by Kraus, and Poynting did not consider it. Heaviside {5c} pointed out that the remaining flow component is hardly reduced (hardly changes direction) from the entire flow component before the extraction of the small Poynting component. Given sufficient intercepting charges outside the wires in separate receiving circuits, the total remaining energy flow that could potentially be intercepted is enormous — far more than the feeble amount of energy that is input to the generator shaft or that is in the chemical energy of a battery.

This is easily established by actual experiments placing intercepting charges in separate "receiving" circuits in the otherwise nondivergent energy flow outside the conductors, or one may show it with Bohren's experiment {24}. Collecting additional energy completely outside conductors is one part of the $COP > 1.0$ operation of the motionless electromagnetic generator (MEG) {37}, to be discussed later in this book. The Sweet device {29a} established sustaining self-oscillation of the

barium nuclei in a barium ferrite magnet, by using the surrounding vacuum as a semiconducting medium.³⁰

1.4.4 The Incompleteness of Aristotelian Logic

Another false notion usually perpetuated in much of science and mathematics is that Aristotelian logic is complete and consistent {77, 78}. To the contrary, it is both incomplete and inconsistent, as is easily shown. Let us use the symbols "A" for a particular thing, " \bar{A} " for that which is not-A, " Σ " for "is identical to", " \neq " for "is not identical to", " \vee " for "or", and " \wedge " for "and". Using these symbols, the three laws of Aristotelian logic may be expressed as follows:

$$A \Sigma A \quad [2]$$

$$A \neq \bar{A} \quad [3]$$

$$A \vee \bar{A} \quad [4]$$

The first law states that a thing is identical to itself. The second states that a thing is not identical to that which is not itself. The third states that a thing is either itself, or it is something else. Those are the three laws of Aristotelian logic. As written, the process of perception, observation, etc. *has been excluded*. More on that in a moment.

Specifically excluded are the laws

$$A \neq A; A \Sigma \bar{A}; A \wedge \bar{A} \quad [5]$$

Which says that a thing is not identical to itself but is identical to something else that is not itself.

Heraclitus posed a profound challenge to Aristotelian logic, a challenge that has not been adequately resolved by Aristotelians to date. He simply observed that, for a thing to change, it had to change into something else. "But then," he asked, "how can a thing be itself but also something else as

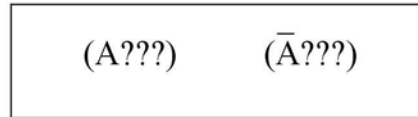
³⁰ E.g., see Richard E. Prange and Peter Strance, "The Semiconducting Vacuum," *Am. J. Phys.*, 52(1), Jan. 1984, p. 19-21. The vacuum may be regarded as a semiconductor. In particular, the vacuum in the region close to the nucleus of a superheavy element is analogous to the inversion layer in a field effect transistor. The authors introduce the idea of the inverted vacuum. Just as a semiconductor may be manipulated by subjecting it to external fields, doping etc., it appears that so can be the vacuum.

well?" In philosophy that is still known as the unresolved "problem of change". It has no resolution in Aristotelian logic, but can be resolved in an extended logic we shall advance. The solution to Heraclitus' problem of change is the nature of observation, as advanced in this book.

We now critique Aristotelian logic, by observing a simple Venn diagram of the type used in "proving" logic theorems in axiomatic logic. See Figure 1-2.



1-2a. Usual Venn diagram of A and \bar{A} .



1-2b. Applying second and third laws to divider.



1-2c. Applying second and third laws to divider and outer boundary.

Figure 1-2 Applying Aristotle's laws to Venn diagram used to prove logic theorems destroys the entire diagram.

In Figure 1-2 a, we have introduced a dividing boundary line between A and \bar{A} . *Unfortunately that dividing line belongs entirely to both A and \bar{A} .* So it violates all three Aristotelian laws, and must be removed.³¹

Therefore, we remove it in Figure 1-2 b. Now we have neither a discernible A or a discernible \bar{A} , but we have removed naught but the boundary separating them, so we may argue that they are both still there although not discernible. However, if they are not discernible, we cannot distinguish what A is or what \bar{A} is, and so we cannot discern whether they

³¹ A clever fellow once proposed regarding the boundary as a total discontinuity, being neither A nor \bar{A} . However, in that case A and \bar{A} could never meet, so there could not be a cause interacting with not-cause to produce an effect. So that suggestion as to how to "fix" Aristotelian logic does not hold.

are identical or not. Here again this violates all three laws of Aristotelian logic, so we have to remove the diagram. Indeed, the outer rectangle line is also such a boundary, between the "inside" and the "outside" (the not-inside), and so it must be removed. In compliance with Aristotle's laws, we are left with the trivial diagram shown in Figure 1-2 c, which is nothing at all.

If this Venn diagram method is objected to, then we must insist that all those papers and texts using that method of proof of logic theorems be either abolished or corrected!

Sometimes the objection is raised that, as far as the center boundary line is concerned in Figure 1-2a, the line "belongs to A on the left and belongs to \bar{A} on the right". Fine! Then we have a unique situation where a line (call it L) is an entity made of two entirely different things, which we may refer to as L_L and L_R . Yet $L \sum L$, without any qualifications as to "sides" L_L and L_R . It can be shown that every point in L is a point in L_L , and is simultaneously a point in L_R . The point in L is obviously identical to itself, by Aristotle's first law. Further, the same point in L_L and in L_R is identical to itself, by the same first law. But L_L is the set of all such points, and so is L_R , and so is L. Therefore $L \sum L_L \sum L_R$, since each one consists of each point that the others consist of. There is absolutely no distinction between the three things themselves, unless we are to violate Aristotle's laws.

Note that in passing from left to right across the boundary, a "change" occurs. This simply re-resurrects Heraclitus' original objection that, according to Aristotelian logic, there can be no change. That is, a line cannot change from "a different entity as seen from the left" compared to that entity as seen from the right. None of Aristotle's three laws contains a "left and a right" for A or \bar{A} .

So the question of logic is a little more complex than writing three simple laws and drawing simplified Venn diagrams. In short, one cannot have Aristotelian logic without having something else *outside* it, which follows directly from Gödel's theorem and proof {78}. Note that we are introducing the required notion of "perception" into the formal notions implied as axioms in Aristotle's laws, as that "something outside the prescription of the laws themselves" and in addition to them. We are perfectly free to *use* Gödel's theorem and observation.

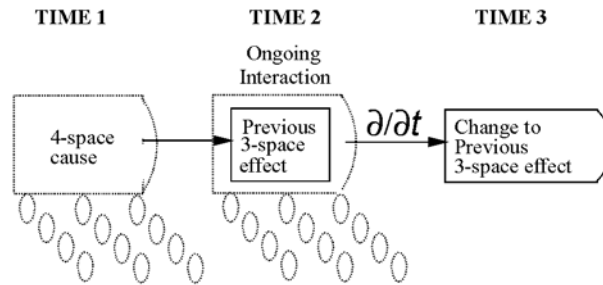


Figure 1-3 Mechanism for observation of change to a previous observation.

See Figure 1-3. We now add the notion that a thing is a perceived, thought, or observed thing. So let us use the symbol \Rightarrow to mean *explicit*, i.e., *output* by a given perception, thought, or observation process as the result of a $\epsilon/\epsilon t$ operator having been applied to whatever exists prior to perception, thought, or observation. The symbol \Leftarrow is used to mean *implicit*, e.g., when one observes an observation "Y" at time two, and later is deciding in time three whether or not that observation "Y" in time two is identical to a previous observation "X" made during time one, then *memories* of the observations of X and Y are involved in time three rather than the observations X and Y themselves, and so the observations of X at time one and Y at time two — by whatever manner they were observed and according to whatever decision algorithm is used — is said to be "implicit".

We note that we can know nothing about the so-called "thing in itself" *without* thought, perception, observation, or other process involving $\epsilon/\epsilon t$. Further, at the moment the $\epsilon/\epsilon t$ operator is applied, time momentarily ceases. The resulting perception, thought, or observation exists therefore as a "frozen output" at that single moment in time. To have it "persist" or exist a moment later, we have to apply the $\epsilon/\epsilon t$ operator *again*, and stop time again, so that we again perceive, think, or observe.

But at any moment later than when we made a particular perception, thought, or observation of "A", *that* specific "perceived A" no longer exists, except in our memory as a recording of "observed A" that we can *continually recall*. Our conscious mind is a very fast serial processor, with only one "perception" or "thought" at each fleeting moment — only one

slide at a time in the slide projector, so to speak. But it is very rapid. However, our so-called "unconscious" mind is totally conscious, just multiply so. It is a massively parallel processor, and has "a great many slides in the slide projector" at any given time.³² Hence in our genetic multiprocessor mind, we can indeed record, recall, compare, etc. — and perform all the modern massively parallel computer operations.

Let us now re-examine the three Aristotelian laws. Let us label the "slide snapshots" with the time instants when each "perception, thought, or observation" is or was consciously made, by use of a subscript, such as A_1 , which means *what was perceived, thought, or observed as "A" in time-snapshot 1*. Let us also note that each of the symbols \sum , \neq , \forall , and \wedge actually involves the output of a *comparison and decision algorithm* in the massively parallel processor, after the two observations X_1 and X_2 were made. Let us use the symbol \heartsuit to mean "results in the decision that" or "implies that". As a check for identity, e.g., simple comparison algorithms for determining identity or nonidentity might be

$$\{[A_1 - A_{(2)}] = [0]\}_3 \heartsuit_4 (A_1 \sum A_2) \quad [6]$$

$$\{[A_1 - A_{(2)}] \Pi [0]\}_3 \heartsuit_4 (A_1 \sum A_2) \quad [7]$$

Thus we more precisely rewrite Aristotle's laws as

$$A_1 \sum A_{(2)} \quad [8]$$

$$A_1 \neq_3 \bar{A}_{(2)} \quad [9]$$

³² E.g., this can be seen by a moment's reflection. At any one time, the "unconscious" mind is controlling and directing a great multitude of ongoing physical processes, is also processing short-term and long-term memory processing, filing conflicts for resolution or later presentation to the conscious mind in symbolic fashion, etc. One can physically measure the electromagnetics associated with this activity, after the mind transduces its time-polarized EM interactions into 3-space EM actions. The process is two-way, and certain recorded EM stimuli will be "reverse-processed" back to affect the time-polarized EM operations of mind. Mind operations are electromagnetic; but they use time-polarized (scalar) photons and time-polarized (scalar) EM waves which are unobservable a priori. Mind operations are also electrodynamically engineerable, but that is beyond the scope of this treatise.

$$A_1 \vee_3 \bar{A}_{(2)} \quad [10]$$

Where — surprise! We have now accounted for all those different times and periods of observations, processing, comparison, decision, etc. We are dealing not with some mystical "thing-in-itself", but with interactions (perceptions, thoughts, observations, associations) in the mind and psyche of the observer. And hidden in time 3 is the application of a decision algorithm such as given in [6] and [7] above.

Now the first law [8] states that in time one an observation was made and named "A", notated (A_1), by comparing it to a previously recorded observational memory of what we call "A". The existence of that *memory* of what we call A is implicitly assumed in the first law, as well as the others. We do not show the memory itself in [8], [9], and [10]. In time two an observation X_2 was made (not notated), but it is not then known at the moment whether that X_2 is A or \bar{A} . So in time interval three the decision algorithm to determine identity or non-identity occurred in the mind, and the zero output of that algorithm [6, 7] established that $A_{(2)}$ was actually identical to A_1 , *according to the decision algorithm actually used. The algorithm matters, and it too is a variable.*

A similar process occurs in law two [9], but this time the algorithm had a different output. Note that the little line over $X_{(2)}$ to make it $\bar{A}_{(2)}$ was not assigned until time interval four (not shown) after the decision algorithm had given its output in time interval three.

The second law merely states that the operation of the decision algorithm in time interval 3 found the two snapshots (in time 1 and in time 2) not to be identical, *by the decision algorithm and comparison process utilized. Again, the algorithm matters, and it too is a variable that must be taken into account.*

All three laws [8, 9, 10] written one after the other assume that the identity algorithm does not change between snapshot 1 and snapshot 2, in all three of them. This is the key point.

With two different versions of the identity decision algorithm, the results of two different comparisons may differ. If the identity decision algorithm does not change during the time between snapshot one and snapshot two, then we have one case. This is like a person with good color vision, looking at a red marble beside a black marble. That observer clearly

distinguishes the marbles, and to him they do *not* appear identical. Every time he looks again, they still differ because he did not change his decision algorithm between looks. On the other hand, a color-blind observer cannot distinguish the marbles, and to him they are seen as identical. Every time he looks, they are seen as identical, because his identity decision algorithm did not change.

Or, suppose a proponent argues that the "rightness" or "leftness" of the dividing line L, between A and \bar{A} in the Venn diagram, can be taken into account. He is actually invoking a different algorithm (it belongs to the left and therefore to A) in one time snapshot than the algorithm (it belongs to the right and therefore to \bar{A}) used in the other time snapshot. So his right side and left side of a line implicitly invokes the very point we are making: *the algorithm utilized is a variable and must be accounted.*

The point is this: *identity — whether in perception, thought, or observation — is not absolute, but depends upon the precise nature of the operation of the perception, thought, or observation process utilized and specifically on the "decision algorithm" used for "determining" identity or nonidentity.*

For example, two antennas certainly "see" quite differently, if one is a VLF (very low frequency) antenna and the other is an IR (infrared) antenna! As another example, two observers in different frames may see a particular object as quite different observed things! In n-space, an observer in a frame at right angles to the lab frame, will see any mass in the lab frame as a wavefront going at light speed; in short, as a photon or photonic object, whereas the observer in the lab frame will continue to see it as just a common old mass object. So the "same object" *physically* differs to the two different observers, according to their frame of reference. An observer whose frame is rotated by three orthogonal rotations from the lab frame, will see that object as an "object existing in time only," i.e., as simply a sort of "thought" image, so to speak. To be more scientific, he may assign it to something called the "virtual state".

In short, we can violate any and all of the laws of Aristotelian logic, because identity per se is *perceived, thought, or observed* identity — the output of a variable decision algorithm — and is not absolute.

For clarity, we add a fourth law that violates all Aristotle's three:

$$A_1 \sum \bar{A}_{(2)} \quad [11]$$

All this really says is that, in time 3, the decision algorithm being used was changed from what it had been in times 1 and 2, and now could not distinguish between what was seen in snapshot 1 and what was seen in

snapshot 2, even though to some "ultimate" observer the two were distinctly different.

In addition, we say that it "implicitly includes" the negations of all three Aristotelian laws. We then add an "application rule" (or a fifth law, as one wishes) as follows:

$$\{ [(A_1 \sum_3 A_2) \Rightarrow^{\wedge} (A_1 \neq_3 A_2)] \Leftrightarrow \}_5 \vee \{ [(A_1 \sum_3 A_2) \Leftrightarrow^{\wedge} (A_1 \neq_3 A_2)] \Rightarrow \}_5 \quad [12]$$

This winds up producing an extension of Aristotle's logic, so that the following explicit laws emerge:

$$A_1 \sum_3 X_{(2)} \heartsuit A_1 \sum_3 A_{(2)} \quad [13]$$

$$A_1 \neq_3 X_{(2)} \heartsuit A_1 \neq_3 \bar{A}_{(2)} \quad [14]$$

$$A_1 \vee_3 \bar{A}_{(2)} \quad [15]$$

We also have the exact opposites of those three laws implicitly. The opposites can all be congealed into a single fourth law:

$$A_1 \sum_3 \bar{A}_{(2)} \quad [16]$$

To make sense of these, we also have the master application rule or 5th law:

$$\{ [(A_1 \sum_3 A_2) \Rightarrow^{\wedge} (A_1 \neq_3 A_2)] \Leftrightarrow \}_5 \vee \{ [(A_1 \sum_3 A_2) \Leftrightarrow^{\wedge} (A_1 \neq_3 A_2)] \Rightarrow \}_5 \quad [17]$$

We prefer to refer to this extension as a "four-law logic", where equations [13], [14], and [15] are the normal "explicit" laws, with the implicit law [16] understood but not explicitly written, and where equation [17] is the master application rule that puts it all together. But if one wishes to be rigorous, we have specified a 5-law extended logic that contains but expands Aristotle's 3-law logic. The application rule is the fifth law.

The point is this: In every case, we have a part of the perception, thought, or observation that obeys the explicit laws, and we also have a part that obeys the implicit laws. If opposites are not *explicitly* identical, then they

are simultaneously *implicitly* identical. If opposites are *explicitly* identical, then simultaneously they are also *implicitly* not identical.

The new approach then covers what we observe more completely. As an example, any "wave" (observed) is implicitly a non-wave (particle), but not observably so. If its particle nature is observed and therefore explicit, its wave nature is unobserved and therefore implicit, and vice versa.

One also resolves such dilemmas as stating something "does not exist" but having to first call it into existence to even state it does not exist. In the new approach, it simply does not *explicitly* exist, but *implicitly* exists. *Not-being* is something like that: explicitly it doesn't exist, but implicitly it exists. The great problems of the philosophers were never solved, mostly because the logic brought to bear was Aristotelian and incomplete. The ultimate answers they sought all involved the fourth and fifth logic laws. So the ultimate answers all appeared to them to involve such things as "the accursed necessity for the identity of opposites." Precisely!

In physics, there has been the same problem over whether a fundamental particle is a particle or a wave. Physicists argued fiercely until they realized the futility of further argument, and settled for the duality principle. That simply states, well, in one case it can be a particle as observed in your experiments, and in another case it can be a wave as observed. So simply treat it as whichever one is useful! The philosophers, on the other hand, split into different schools, where each school had its "interpretation" usually involving a very "smooth" position statement of the school's position. In physics also, there are eight or more "interpretations" of quantum mechanics, for example. So the same centuries-old problem is still with us today in modern physics.

Opposites are no longer the formidable opponents they once seemed. Instead, they become more like the two sides of a coin, lying with only one side up. To see heads or tails is to decide which is explicit. The other is always there, implicitly. But notice also that the "two sides" require a 3-dimensional object, and not just the 2-dimensional "head" or the 2-dimensional "tail". This juxtaposition of "identical" opposites is strongly met with in modern physics. For example, quoting Lee³³:

³³ T. D. Lee, "Space Inversion, Time Reversal and Particle-Antiparticle Conjugation," *Physics Today*, 19(3), Mar. 1966, p. 23. Positive charge is really *observation* imposed on negative charge moving backwards in time, and the positron is really observation imposed upon an electron traveling backwards in time, etc.

"As we expand our observation, we extend our concepts. Thus the simple symmetries that once seemed self-evident are no longer taken for granted. Out of studies of different kinds of interactions we are learning that symmetry in nature is some complex mixture of changing plus into minus, running time backward and turning things inside out."

Any addition to the Aristotelian laws of logic is actually a higher dimensional form of it. Three-law Aristotelian logic is in fact fitted to primitive observation — the result or output of single-photon interaction and observation processes.

This "four-law" logic (or "five-law" logic if one includes the master application rule as another "law") has proven very useful over the years, particularly in bioenergetics applications. It has also been most useful in attempting to decipher that branch of Russian energetics weapon science called "psychoenergetics", and in attempting to decipher the mind-body coupling mechanism, but that is beyond the scope of this chapter {79}.³⁴

1.4.5 Substitution of Effect for Cause

Refer to Figure 1-3 again, to see the relationship of the unobserved cause, the interaction of cause and a previous effect, and the production of the resulting "new effect" as a change to the old effect or the output of a second replica of it. The greatest non sequitur in electrodynamics — and in parts of physics such as mechanics — is the widespread substitution of the *effect* for the *cause*, as a result of considering an observable to *persist in time* without any physical interaction. We discuss that more fully in Chapter 2, particularly with respect the notion of the same EM field existing both as a component of a material environment and as a component of a nonmaterial environment, but with the "force reducing to zero" in the latter. Jackson {80} points out the prevailing view of electrodynamicists as follows:

"Most classical electrodynamicists continue to adhere to the notion that the EM force field exists as such in the vacuum, but do admit that physically measurable

³⁴ The interested reader is referred to my website, www.cheniere.org, for papers dealing with the nature of the mind-body coupling mechanism and the body-mind coupling mechanism, as well as direct engineering of the mind, and limited information on the weapons referred to.

quantities such as force somehow involve the product of charge and field."

On the other hand, Bunge {81} very clearly stated that the standard electrodynamics and physics itself are in terrible shape. Here is a direct quotation:

"... the best modern physicist is the one who acknowledges that neither classical nor quantum physics are cut and dried, both being full of holes and in need of a vigorous overhauling not only to better cover their own domains but also to join smoothly so as to produce a coherent picture of the various levels of physical reality."

We shall try to further clarify these unresolved difficulties with the field concept in Chapter 2.

1.5 Electrodynamics is Still Developing

1.5.1 Statement by Penrose

Roger Penrose, one of the leading physicists of our time, pointed out the still-developing nature of electrodynamics with respect to the developments from conventional gauge-theoretic interpretation of Maxwell's equations. Quoting Penrose {82}:

"These facts should not, however, deter theoretical or experimental physicists from seeking alternative descriptions, unconventional formulations, surprising electromagnetic effects, or radical generalizations. The various articles in this book provide the reader with a great variety of different kinds of approach to developments of this nature. We have historically motivated accounts, suggestions for new experiments, unconventional viewpoints and attempts at generalizations. We also see novel and ingenious formulations of electromagnetic theory of various different kinds... I am sure that this book will make it clear that electromagnetism is a subject that is in no way closed to stimulating new developments. It is very much alive as a source of fruitful new ideas."

1.5.2 An Example of a Ubiquitous Error

One of the rather horrid "bad examples" of ubiquitous errors in electrodynamics is the conventional illustration of a so-called planar EM wavefront moving through space, as shown in Figure 1-4.

A succinct evaluation of that diagram and notion is given by Evans {83}, one of the great electrodynamic theoreticians of our times:

"I broadly agree ... that the transverse plane wave view of vacuum electrodynamics is the biggest blunder of twentieth century science."

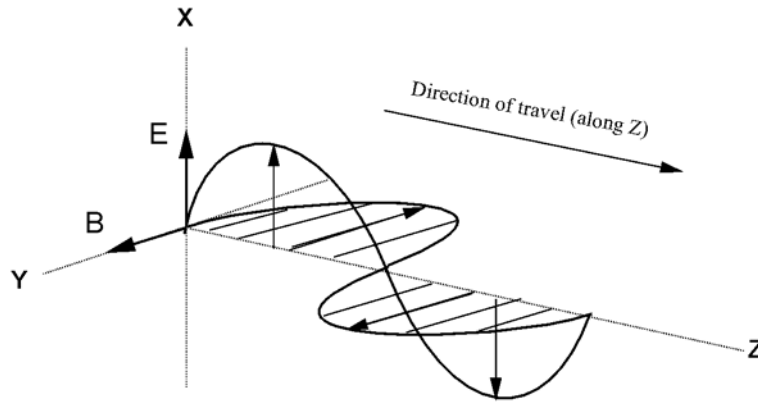


Figure 1-4 The erroneous but ubiquitous supposed illustration of the transverse EM wave in 3-space.

Dr. Robert H. Romer, former Editor of the *American Journal of Physics*, also chastised the horrid diagram shown in Figure 1-4, purporting to illustrate the transverse plane wave traveling through 3-space. In endnote 24 of his noteworthy editorial, Dr. Romer {84} takes that diagram to task as follows:

"...that dreadful diagram purporting to show the electric and magnetic fields of a plane wave, as a function of position (and/or time?) that besmirch the pages of almost every introductory book. ...it is a horrible diagram. 'Misleading' would be too kind a word; 'wrong' is more accurate." "...perhaps then, for historical interest, [we

should] find out how that diagram came to contaminate our literature in the first place."

Indeed, each point along the z-axis, is a momentary "3-space frozen slice" of the $\epsilon/\epsilon t$ operator being applied to the ongoing 4-space interaction of the causal field in 4-space interacting with the previous "observed effect" (in this case, the previous 3-space slice) to produce a change to it. So the entire diagram is a set of "frozen 3-space observations", in which nothing at all is moving, and where the fields shown are in the mass (detecting/observing) medium. There is no such thing as a "traveling EM wave in 3-space", because "moving" or "changing" or "traveling" *a priori* must involve time as well as 3-space. What we are looking at in Figure 1-4 is the iterative and very rapid results of continual "3-space observations" (frozen 3-snapshots) of an on-going 4-space interaction.

1.5.3 An Extremely Important EM Omission

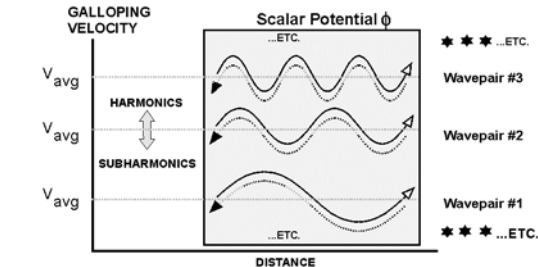
There is an enormous amount of development yet to be done in electrodynamics! As a simple example, for nearly a century there has been waiting quietly a fundamental "internal" or "infolded" electrodynamics by Whittaker {85, 91a, 86}, based on more primitive initial work by Stoney {87}, existing inside — and *comprising* — all conventional EM potentials, fields, and waves. This internal electrodynamics {88} has been essentially ignored in the West, but has already been weaponized in the weapons laboratories of several nations under the aegis of *energetics*. The U.S. Secretary of Defense, Secretary Cohen {89}, alluded directly to some of these weapons in a speech in 1997 as follows:

"Others [terrorists] are engaging even in an eco-type of terrorism whereby they can alter the climate, set off earthquakes, volcanoes remotely through the use of electromagnetic waves... So there are plenty of ingenious minds out there that are at work finding ways in which they can wreak terror upon other nations...It's real, and that's the reason why we have to intensify our [counterterrorism] efforts."

The weapons are already being utilized against various nations in the form of terrorist acts in an undeclared war {89}, and have been so used since the 1950s.

This internal longitudinal-wave EM and its dynamics is a much more fundamental electrodynamics (actually a subset of a unified field theory) consisting of correlated longitudinal EM wavepairs in both the 3-space and time domains. Each Whittaker decomposition wavepair is comprised of an

incoming longitudinal wave — a "time-polarized" EM wave {90a-90c} — in the time domain, perfectly correlated with an emitted longitudinal EM wave in 3-space. See Figure 1-5. This multiwave structuring and dynamics in both the time domain and in 3-space simultaneously *comprises* the scalar potential.



The Structure Is:

- A harmonic set of longitudinal phase conjugate wavepairs.
- In each wavepair the two waves superpose spatially after detection, but travel in opposite directions.
- Prior to detection, the convergent wave set is in the imaginary plane, and hence is not observable. It is EM energy incoming to the potential (dipolarity) from the time domain.
- The charges receive the complex convergent EM energy, transduce it into real EM energy, and emit enormous energy at the speed of light in all directions -- which includes bidirectional pairs in 3-space (after the reaction, being after "observation").
- This produces the fields and potentials from the "source charge or dipole."
- Mandl and Shaw argue that the scalar (time-polarized) photon and longitudinal photon are observable only in similar pairs, which then makes the instantaneous scalar potential. Thus quantum field theory work strongly supports the "negative resistor" interpretation of the scalar potential and our solution to the source charge and source dipole problem.

Figure 1-5 The scalar potential is a harmonic set of phase conjugate longitudinal EM wavepairs.

We specifically stress that the dynamics occur in the *time* domain (in its specific structuring, propagation pace, etc.) as well as in 3-space.

Deliberately changing the internal longitudinal EM wave structuring produces precise energetics (both energy and dynamics) in spacetime itself. This is a special form of "spacetime curvature structure and dynamics" which we call a *spacetime curvature engine* or *vacuum engine*. Together with superpotential theory in the original form initiated by Whittaker {91a} and extended by others {91b, 91c, 91d}, this internal electrodynamics — together with scalar potential interferometry {92} — creates all ordinary EM fields and waves {79}. Superluminal communication is possible using the internal longitudinal EM wave structure of the EM fields, potentials, and waves {93a, 93b}.

1.6 A Summarizing Letter

Our thrust in this book is to attempt to (1) reveal some of the major flaws in electrodynamics that have prevented development and use of $COP > 1.0$ electrical power systems, and (2) point the way toward the development and use of such systems. To give a general summary of the ground this book will cover, we conclude with an informal E-mail letter I sent to the recent editor of *American Journal of Physics*, pointing out the greater implications of his cogent observation of that "dreadful diagram" and where it leads. Indeed, it (i) leads to a dramatic change in electrodynamics, (ii) changes the way in which we regard "propagation of EM energy through 3-space", (iii) solves the long-vexing problem of the association of the source charge or source dipole with its fields and potentials and their energy, (iv) changes dramatically the way we view what powers an electromagnetic circuit or power line, (v) allows extraction and use of copious EM energy from the vacuum, and (vi) solves the energy crisis permanently.

Here is the letter sent informally to Dr. Robert H. Romer — *slightly edited* to improve the grammar, correct one error of misstatement, and with reference citations added and listed at the end of this chapter:

To: Dr. Robert H. Romer
American Journal of Physics
Amherst College, Box 2262
Amherst, MA 01002

Thursday, Mar. 8, 2001

Personal communication

Subject: Implications of your cogent comments on that atrocious illustration

Dear Dr. Romer:

This is not a submission of a manuscript, but a personal communication to you on a matter of great importance in physics, directly related to endnote #24 of your seminal editorial {94}.

It will take a little exposition, so please bear with me and read this when you have the spare time to do so. We are going to show you how your keen insight can be extended to solve some extraordinarily formidable

foundations problems in present electrodynamics. We will also show how to apply the implications of your insight to totally solve the present electrical energy crisis permanently.

In your endnote #24, {94} you took to task (quoting):

"...that dreadful diagram purporting to show the electric and magnetic fields of a plane wave, as a function of position (and/or time?) that besmirch the pages of almost every introductory book. ...it is a horrible diagram. 'Misleading' would be too kind a word; 'wrong' is more accurate." "...perhaps then, for historical interest, [we should] find out how that diagram came to contaminate our literature in the first place."

Dr. Romer, you have lifted the corner of a dark cover concealing one of the most important flaws in electrodynamics and in fact in all of physics: the unwitting and pervasive substitution of the effect for the cause. A marvelous extension to the present physics is enabled if one removes this terrible non sequitur in physics, and particularly in electrodynamics. For openers, one solves what has been called the most difficult problem in electrodynamics (the problem of the source charge and the association of its fields and potentials and their energy) {100}. I will solve that problem for you in this informal write-up. I will also explain how to extract enormous EM energy from the vacuum, anywhere and anytime, easily. Extracting it is easy; catching it and using it to power loads without killing the extraction process is another matter.

One also gets a unified field theory, engineerable by novel electrodynamic means, as is steadily being shown by a series of rigorous Alpha Foundation's Institute for Advanced Study (AIAS) papers published in various leading journals (and more than 90 of them carried on a Department of Energy website restricted primarily to DoE scientists). Dr. Myron Evans, Director of the AIAS, has over 600 papers published in the literature, including such journals as *Physical Review*, *Foundations of Physics*, *Physica Scripta*, etc. Many of the other AIAS co-authors are excellent theoreticians and scientists.

The early pioneers of electrodynamics (Maxwell etc.) all assumed a material ether filling all space {95}. To these early scientists, there was not a single point in the entire universe that was devoid of matter, because the ether was present there. Hence their outlook as to the nature of EM fields etc. was quite material. Faraday conceived his "lines of force" as physical, taut strings, so that perturbations were "plucking these taut strings".

Maxwell himself points out in his famous "Treatise" that he specifically captured the thinking of Faraday in his theory. In fact, Maxwell wrote a *material fluid flow dynamics* theory.

In the light of more modern knowledge, let us see the impact of these and similar early *but still retained* erroneous electrodynamics assumptions.

First, observation/detection is totally spatial, as is well known in quantum mechanics. In fact, observation is a $\epsilon/\epsilon t$ operator imposed upon 4-space (LLLT spacetime), yielding a frozen instantaneous snapshot LLL of an ongoing 4-space dynamic process. At the next instant, that particular *previous* observation no longer persists. Why?

Well, no observable *persists*, since it is only an instant frozen 3-space snapshot, at a single point in time, *a priori*. Here again we have another horrendous non sequitur in all of physics: the assumption that observables "continue to exist" and therefore persist in time in a passive manner. In fact, there is an interactive process that generates their (seeming) persistence, involves time, and continually changes mass into masstime and back to mass, etc. With the reader's permission, we will pass discussing that mechanism until another time (pun intended!).

What we conceive as "an observable such as mass, traveling through space and persisting in time while doing so", is actually an iterative, continual series of these frozen 3-space snapshots or observations, much like the frames of a motion picture film. We ourselves mentally add the "continuity" to provide "the sensed motion", but rigorously what is actually "observed" is not continuous, but is a vast continual series of those frozen 3-space snapshots.

We're getting directly at that atrocious diagram!

Each snapshot is an *effect*, not a cause, because it was the output of the observation process whereby a 4-space *causal* entity (non observed *a priori*) interacts with a previously observed frozen entity (say, a unit point charge at some point in space) to produce the observation (change or effect generated in that interacting observed charge) as the "next instantaneous observation".

The usual "representation" of a "3-space EM wave" propagating in 3-space is indeed atrocious, just as you stated! It is actually just an iterative succession of such instantaneously frozen snapshots in 3-space, one after the other. There is no such thing as that set of snapshots independently existing in spacetime, *prior to interaction with charge* in that series of

interactions and observations, unless we wish to discard quantum mechanics and the laws of logic.

There is, however, a continual iterative stream of those observations — those frozen 3-space snapshots — that we interpret (erroneously) by recall from memory as the "EM wavefront propagating in 3-space". As you eloquently pointed out, that is not so, and it is atrocious. An observation, being an absolutely frozen entity, cannot "move through time" anyway, since it cannot persist, nor can it move. A change to an observable can only be another observable snapshot of the ongoing 4-space entity and action, which is then compared to the first snapshot and a difference noted {96} [See Figure 1-3].

In short, a great stream of "frozen effects" (frozen instant observations) does not constitute a "picture" of the ongoing 4-space action, but only a series of frozen 3-space intersections involving the interaction of that fixed observed (3-space) charge with the ongoing causal 4-space entity. If we add and integrate a series of 3-space pieces, we *do not* get a 4-space entity! Instead, we get a longer or bigger 3-space slice/piece, but one for which each piece of it only existed at a single point in time as a 3-space "slice" at that moment. That is precisely what is wrong with that horrible illustration.

But it is also "wrong" with electrodynamics itself! Electrodynamicists mistakenly conclude that the same *effect* "series of static 3-slices" — which they might call, e.g., the "field" in a case where the field is the subject — is the same as the 4-space continuous *causal* field prior to observation interaction with charge at all. Well, LLLT is definitely not LLL, nor is it $n(\text{LLL})$ where n is some large but finite number of 3-slices LLL.

So the field concept is dichotomously used in two contradictory manners in electrodynamics:

(1) it is considered to be in 4-space prior to the observing/detecting interaction with the observable (such as a unit point 3-space charge), and it is also considered a 3-space entity *after* that interaction. The dimensions of the two entities are not the same, and neither are the dynamics. The causal EM wave is dynamic and 4-spatial, the effect "3-space EM wave" (ugh!) is static and 3-spatial at each instant it is "observed". Assuming that the two are the same thing is a non sequitur.

In fact, it substitutes the *effect* for the *cause*, a rather gross violation of the causality principle itself.

(2) then an attempt at glossing over the illogic is used by the smooth statement that "the field (meaning that atrocious series of frozen 3-space snapshots) remains in the absence of charge, but the force goes to zero." Well, if the field is defined as a force field, it cannot be a "non-force field in the same observation!" Else, opposites are always identical.

So of what importance is all that?

It is of great importance. Let me show you one very startling thing that comes out of correcting this "biggest foundations non sequitur in physics, that of substituting the effect for the cause".

Consider a very special paper by E. T. Whittaker {97} in 1903. [I can send you a pdf file of the paper if you do not have it and are interested]. In this much-neglected paper, Whittaker decomposed the so-called "static" potential into a harmonic set of bidirectional longitudinal EM wavepairs, where each pair consists of a longitudinal 3-space wave (an *as-observed* wave) and its longitudinal phase conjugate wave (*considered unwittingly as having also interacted with charge, and therefore as being shifted into 3-space as an "as-observed" wave with inverse parity*).

Whittaker — as has everyone since him — unwittingly assumed the "iterative continual observation" interaction in there for the phase conjugate wave also. In so doing, he came up with two *effect* "waves" that are the outputs of the assumed observation process. Neither of these effect waves would be a wave in spacetime {98} at all, but the two in ensemble are an example of the same thing you objected to in your cogent commentary on that abominable "illustration".

In short, Whittaker invoked *observation* as a process with two effects and no cause, rather than with a cause and an effect, with the interaction with the observing/interacting unit point charge being assumed for both waves. Whittaker and everyone since seem to have made the same error in interpreting that seminal Whittaker decomposition. This misinterpretation of the decomposition has until now hidden one of the greatest secrets of all times in Nature's electrodynamics!

Let us correct the interpretation, and uproot that great secret to the light of day.

First, for observation to occur, one must have a cause acting upon the affected (observable) entity, and an effect (observable change) must be produced in, on, or of that affected (interacting) entity. One *must not* have two effects (two observables) and the affected entity (another observable and therefore another effect)! Again, assuming that one has three effects

(observables) constituting the observation process is a logical non sequitur of first rank.

Let us now correct that logical non sequitur made by Whittaker and other physicists and electrodynamicists, and see where it leads us.

First, we go to particle physics, where broken symmetry {99} was discovered in the 1950s. Lee, e.g., received a Nobel Prize for his work in that area {75}. Lee also showed that any dipole is a broken 3-symmetry in its violent energy exchange with the active vacuum.

Well, a scalar potential is a dipolarity; always a potential is actually a difference between two potentials, so to speak. So the potential itself represents a broken 3-symmetry in an energy flow exchange with the active vacuum.

Let us further examine that interesting broken symmetry aspect. It means that the "static" potential is a process whereby energy is received from the vacuum in *one* form, not observable, and hence unusable, but is output in *observable* (usable) form. In short, the dipolarity or dipole receives and absorbs (QM view) virtual photons, integrates them into observable magnitude, and emits real, observable EM energy ("continual observation" snapshots of the latter being assumed).

In physics, all observation is 3-spatial, as is well known. And 3-space is the realm of the observed. The EM energy from the vacuum is not received in 3-spatial (observable) form, else there would be no broken 3-symmetry of the dipolarity.

We can also *experimentally* verify that there is no 3-space input of EM energy to the potential — e.g., to the potential between the ends of any source dipole, because we cannot measure any 3-space observable energy feeding the charges of the dipole. Instead, observable 3-space energy is continuously pouring out of the dipole.

Let us continue now with the notion of a real dipole of separated source charges, with our "scalar potential" between its ends, so we have something concrete in mind.

First, our instruments prove there is a continual emission of EM energy in all directions in 3-space (of the kind in that atrocious diagram; a "series of iterative film-snapshots"). That is the way it is conventionally represented, as if observed at each and every point successively in that 3-space, and along every radial.

But secondly, our instruments also prove there is no such observable *input* of EM energy in that same 3-space *to* the dipole. Bummer! That is precisely what has stopped electrodynamicists from solving that vexing problem of where all the energy pouring out of the source dipole is coming from, and how! They unconsciously assume that the only possible source of the EM energy input is in 3-space. That is totally wrong. Further, the conservation of energy law does not require that energy be conserved in 3-space! Instead, rigorously — if we are using a 4-space (i.e., spacetime) model — it requires that energy be conserved in 4-space. The assumption of the extra condition of 3-space energy conservation is an added and arbitrary extra condition.

Since electrodynamics has not resolved this "source dipole and its associated fields and potentials" problem, it has stopped work on the problem and implied that every dipole in the universe is a perpetual motion machine, freely creating all that EM energy it continuously pours out across space, in all directions, creating its associated fields and potentials. That implicit assumption, if true, of course destroys the conservation of energy law.

It isn't true, and the energy conservation law is alive and well!

We can experimentally prove that the source dipole *does* continuously pour out energy in all directions in 3-space, without ceasing, as follows:

In a gedanken experiment, we set instruments every 300 million meters or so, along a radial line from an origin in the lab. With the instruments and clocks synchronized, we suddenly form a dipole at the origin. One second later, the first instrument reads. A second later, the second instrument reads. And so on. But it is not a "passing pulse". Whatever reading the instrument makes as the forward edge of the energy flow reaches it, is then continuously maintained thereafter. This proves that the energy is poured out continuously and at the speed of light, and in any (and all) directions in 3-space, *and it continues to pour out at exactly the same rate so long as that dipole remains intact.*

Dipoles in the original matter of the universe have been pouring out EM energy in that fashion for some 14 billion years, and they have not "exhausted" their unobserved energy input source yet.

A newly formed simple dipole, e.g., in one year will have poured out energy into a spherical volume of space that is a light-year in radius. Wait another year, and that volume of space whose energy density has been

changed will be two light years in radius. The dipoles in the original matter have filled the universe itself with that energy outpouring from them.

In other words, an incredible amount of EM energy has been and is being poured out into space from every dipole in the universe.³⁵ And electrodynamicists have had not the foggiest notion of where that mind-boggling amount of outpoured EM energy has come from.

Unless we wish to totally discard the conservation of energy law, we must have an equal input of energy *from outside 3-space*, going into every dipole continuously. In 4-space, that only leaves the fourth axis, along which and from which the input energy must move into the dipole.

And so it does. If we re-interpret that phase conjugate half set of the Whittaker decomposition, *before* observation has occurred, it then is a harmonic set of longitudinal EM waves moving in the time-dimension, *into* the source dipole (parity is not inversed because no interaction with charge has occurred to shift it into 3-space).

So voila! We have strangely (but quite rigorously) solved what Sen {100} referred to in this manner: *"The connection between the field and its source has always been and still is the most difficult problem in classical and quantum electrodynamics."*

We express our reasoning as follows: (i) we know from particle physics that the source dipole³⁶ is a broken 3-symmetry in its flux exchange with the vacuum. This means that we know the energy is received from the vacuum in an *unobservable* form, absorbed by the dipole, and emitted as *observable* EM energy. It remains to translate that into classical electrodynamics rather than quantum physics {101}. (ii) The *time* domain is the only domain outside 3-space, in the standard 4-space model. (iii) Anything in the time domain exclusively, is indeed nonobservable, since the ϵ/ϵ_t observation operator destroys time and all its internal structure and dynamics whenever observation occurs. (iv) Looking for a "3-space" input is looking for an "observable" EM energy input, which would in fact disagree with the known broken 3-symmetry of the source dipole.

³⁵ Later we will see that, in a time-forward situation, the negative charge pours out positive EM energy while the positive charge may be said to pour out negative EM energy. Charge conservation then implies that an energy balance is maintained overall.

³⁶ Because of the broken symmetry of the opposite charges on its opposing ends.

Let me digress now to speak of fundamental units. As is well known, the fundamental units one chooses to make his physics model represent an arbitrary choice. One can, if one wishes, make a perfectly valid (but mentally nightmarish!) physics using only a single fundamental unit. In that case, all other "fundamental units" in the present model become functions of that single fundamental unit.

Suppose, e.g., that we make the joule our only fundamental unit. Then "mass" becomes totally a function of energy — and we have no heartburn with that one since the Einstein revolution and the nuclear age. But then "time" also becomes totally a function of energy — and that surprises us, because we have unconsciously been taught (erroneously) that "time is a flowing river down which a mass drifts like a drifting boat". That is not the nature of time at all; the totality of the photon interactions with a mass create that mass's "motion through time". I can later explain that to you also, if you wish, but let us pass it for now.

It turns out that time is spatial energy compacted by the factor c^2 , so it has the same energy density as mass, but in the time axis instead of 3-space. Intuitively, if we are interested in cause and effect, the energy of the cause (time) should be equal to the energy of the effect (in this case, mass). After one reflects a moment, one also sees that "time energy" is required to "drive" a mass through time, just as "spatial" energy is required to "drive" a mass through space. The notion that mass in an inertial frame moves through "empty space with no reaction" is false; it continually moves through the energetics of spacetime, and interacts continuously with it.

Anyway, from still another viewpoint there is no magic in EM energy currents moving in the time domain! Quantum field theory already recognizes multiple polarizations of the photon, including transverse, longitudinal, and time-polarized. Thus, it implies a time-polarized EM wave also. A longitudinal EM wave *moving in the time domain* oscillates along its line of travel. That is indeed oscillating its energy density in the time domain, so that it is "time-polarized". Hence it is a proper time-polarized EM wave, and appears to "gallop" {102} or vary its speed periodically.

The solution to the "source dipole" problem is that the phase conjugate wave half-set of the Whittaker decomposition, when reinterpreted, is the *incoming* EM energy in the time domain, continuously input to the charges of the dipole. The charges interact in the imaginary plane (the time domain), and absorb the time-energy, then transduce it into 3-space, and emit it as Whittaker's set of real observable longitudinal EM waves in all

directions in 3-space (as observed). The time-energy waves that are input to the dipole cannot be observed, since observation destroys time and its constituents.

All 3-spatial EM energy comes from the time domain! Broken 3-symmetry of the source dipole immediately releases our arbitrary additional restriction on nature's energy conservation law — i.e., our insistence that the energy input for conservation must be input in 3-space. By removing these arbitrary "shackles" from nature's feet, we allow nature to joyously resume her much-preferred special 4-symmetry in EM energy flow: the circulation of EM energy from the time domain into 3-space, and outpouring of that energy in all directions in 3-space, at the speed of light {103}.

Now let us solve the source-charge problem as well. That one is now easy to resolve.

We know from quantum mechanics that any "isolated" observable charge is actually clustered around by virtual charges of opposite sign. So we simply take one of these clustering opposite charges while it exists, and a differential piece of the observable charge, and we have a composite dipole. Hence the "isolated charge" may be represented as a grouping of such momentary dipoles, each (while it exists) with a scalar potential between its poles, and hence each subject to the same decomposition and reinterpretation we have done.

That is why the source charge can "sit there" and pour out EM energy in 3-space (as observed) continuously, and indefinitely. It is also continuously absorbing EM energy from the time domain. As a set of composite dipoles, it is a set of broken 3-symmetries in EM energy flow. Hence it exhibits nature's preferred 4-symmetry in energy flow, between the time-domain and 3-space.

Note also that, to the 3-space observer, this 4-symmetry is purely negentropic. It is a continuous and ongoing (and expanding) reordering of the vacuum energy, in the form of the reinterpreted Whittaker decomposition.

We can easily engineer negentropy! Just make a little dipole, and nature happily starts pouring out energy and reordering part of the vacuum, with that reordering spreading at the speed of light, steadily increasing all the while.

Reinterpreting Whittaker's marvelous decomposition tells us many things: (i) the source charge or dipole does indeed continuously receive and

absorb its input energy from the time domain, (ii) it continuously transduces its absorbed energy to real 3-space energy (as observed!), and (iii) it continually outputs its absorbed and transduced time-energy as 3-space energy emitted in all directions in 3-space (as continually observed).

So the terrible foundations problem of the source charge and source dipole is resolved, and the energy conservation law is maintained.

We have also uncovered a most important thing: Given a little broken 3-symmetry in EM energy flow, t-symmetry in EM energy flow is also broken. A more primary 4-symmetry {104} between time-energy flow and 3-space energy flow emerges *automatically*. In short, every potential, every dipolarity, and every charge is such a broken 3-symmetry and an example of the new, preferred 4-symmetry of EM flow, with input flow in the time-domain (nonobservable!) and output flow (as continually observed in a series of 3-snapshots) in all directions in 3-space.

This also resolves the logical cause and effect problem for observation.

This 4-symmetry is a purely negentropic process, once the dipole is established! Well, we should have known that from the gauge freedom axiom in gauge field theory anyway! That axiom says that we can change the potentials anytime, freely and at will. In electrodynamics, that means we can change the potentials at will, anytime we want to. But that means *we can freely change the potential energy of a Maxwellian system at will, whenever we wish*. It costs nothing — at least in theory; in the real world we have to pay a little for switching — to suddenly potentialize an EM system, prior to the time the Drude electrons relax and current flow begins.

I have applied this great new 4-symmetry in EM energy flow, that is freely evoked and persists indefinitely after one pays a little to make the dipole and thus produce a little broken 3-symmetry, to produce EM energy freely from the vacuum. Without going into it, I refer you to our forthcoming papers {105}. Indeed, we can use this negentropic process to extract as much EM energy from the vacuum as we wish, anywhere, anytime, for peanuts. Let us now move to discuss that area.

First, we point out another astounding result that comes from resolving this "source charge and source dipole" foundations problem.

Generators do not use any of the shaft energy input to them — even in transduced form — to power their external circuits! A generator itself does not add a single watt to the power line, and neither does a battery's chemical energy dissipation add a single watt to its attached circuit.

Neither does burning all those hydrocarbons, consuming all those nuclear fuel rods, building all those dams, etc. to provide our conventional power systems and grid. None of that enormous destruction of the biosphere and pollution of it has ever directly produced one watt on the electrical power line.

Just follow the energy flow, in light of what we now know. Here's how it works.

Typically, we burn some fuel to boil water and make steam, and use the steam to power a steam turbine, which forcibly rotates the shaft of the generator, thereby inputting mechanical shaft energy into the generator. So far, so good. That took care of all the hydrocarbon burning and fuel rod consuming, extracting and transporting the oil, etc.

This input of the shaft energy forcibly rotates the rotor against internal resistance, forming an internal magnetic field. Assuming a 100% efficient generator with no internal losses whatsoever, this means that the *mechanical shaft energy input* has now been totally transduced into *internal magnetic field energy*.

So what does that magnetic field energy *do*? It is totally dissipated upon the internal charges of the generator, performing work on them and forcing the positive charges in one direction and the negative charges in the other direction. That dissipation of the energy in the internal magnetic field *forms a source dipole inside the generator, connected to the terminals*.

And that is all the generator does. Period. *None* of the energy transduced from that shaft input, went roaring out of the terminals and down through space outside the conductors of the power line. Not a single watt. So let us turn to particle physics to find out what happens next, because *it does not yet appear in the electrodynamics model, even though proven*.

The internal source dipole, *once formed*, is a great broken symmetry in the vacuum flux, as we discussed and as is well known in particle physics. But the proven and well-known vacuum interaction with the generator and the dipole charges is not even modeled in the classical EM theory used by the scientists and engineers to build electrical power systems — much less a *broken symmetry* in that active exchange! That's atrocious, since it's been proven in particle physics for nearly a half century, Nobel prizes awarded, etc. But the hoary old 137-year old Maxwell-Heaviside model, further curtailed by Lorentz symmetrical regauging, does not incorporate what has already been proven in physics. *It does not accurately model the situation as it is and as it is known to be*.

Let us continue.

Once that dipole is formed, it extracts *enormous* EM energy from the vacuum, and pours it out of the terminals of the generator, filling space surrounding those conductors of the attached external power line. It is a huge EM energy flow, trillions of times larger than what we account after Lorentz taught us to disregard almost all of it.³⁷

Only the tiny little bit of that EM energy flow in space along and surrounding the conductors — the little "boundary layer" that skims down the surface of the conductors — will strike the surface charges in the conductors and get diverged into them to potentialize the Drude electrons and "power the power line and its circuits and loads". *All the rest of the giant EM energy flow in space surrounding the conductors, and generally parallel to them, misses that power line entirely and is just wasted.*

Check the original papers by Poynting {4a, 4b} and by Heaviside {5a, 5b, 5c}, who independently discovered the flow of EM energy through space (as if continually observed!) in the 1880s, after Maxwell was already dead. I can furnish the citations required. From the beginning, Poynting only considered that component of the energy flow that actually enters the circuit. He considered only the "boundary layer" right on the conductor surfaces, so to speak.

Heaviside considered that component that enters the circuit, and also uncovered and recognized the *gigantic* component in the surrounding space that *does not* enter the circuit but misses it entirely and is wasted. [Added] Here is Heaviside's {106} own statement:

"It [the energy transfer flow] takes place, in the vicinity of the wire, very nearly parallel to it, with a slight slope towards the wire... . Prof. Poynting, on the other hand, holds a different view, representing the transfer as nearly perpendicular to a wire, i.e., with a slight departure from

³⁷ However, contrary to what is in the textbooks, $\mathbf{E} \Delta \mathbf{H}$ energy flow is not in observable EM field form \mathbf{E} and \mathbf{H} until it interacts with charge. Instead, the flow is in the form of virtual energy currents in the vacuum. We point out that the fields \mathbf{E} and \mathbf{H} utilized in the Poynting energy flow theory are effects and not causes. They are rigorously defined as \mathbf{E} and \mathbf{H} only after the causal 4-fields have interacted with charge. E.g., \mathbf{E} is "defined" as force per unit point massive charge — i.e., as the force created by interaction of the "vacuum field" (curvature of spacetime) with a unit point charge. No unit point charge interaction, no force or force field intensity per interacting unit point charge.

the vertical. This difference of a quadrant can, I think, only arise from what seems to be a misconception on his part as to the nature of the electric field in the vicinity of a wire supporting electric current. The lines of electric force are nearly perpendicular to the wire. The departure from perpendicularity is usually so small that I have sometimes spoken of them as being perpendicular to it, as they practically are, before I recognized the great physical importance of the slight departure. It causes the convergence of energy into the wire." [End of Added].

But Heaviside had absolutely no explanation for the enormous and startling magnitude of this energy flow that "misses the surface charges of the conductors and is wasted". You can see an elementary illustration of the "point intensity" of this Poynting diverged energy flow component in Kraus {107}. Kraus's figure 12-59, p. 576 shows a good drawing of the *Poynting* component *being withdrawn* from the total EM energy flow filling all space around the conductors [see our Figure 1-1 in the present chapter].³⁸ Most of that available energy flow is not intercepted and thus not diverged into the circuit to power it, but just "wasted." The *remaining* huge component discovered by Heaviside is not shown on Kraus's diagram. Kraus's numbers on the contours represent the amount of power (watts per sq meter) being withdrawn from each contour, by the very limited axial movement of the electrons and the very ends of their associated fields into the wire.³⁹

³⁸ The energy flow in space near the surface of the wires strikes the surface electrons and their fields, potentializing them and creating a force field with respect to inner electrons. This drives the surface electrons axially into the wire, since they can only move down the wire with the drift velocity, nominally on the order of a few inches per hour. The short inwards drawing of those small portions of the fields and of the increased potentials attached to the charges that move into the wires, interacts with the internal charges in the interior of the wire, powering the Drude electrons throughout the conductor and the circuit. For a discussion of the importance of the surface charges, see J. D. Jackson, "Surface charges on circuit wires and resistors play three roles," *Am. J. Phys.*, 64(7), July 1996, p. 855-870.

³⁹ Obviously the increased fields on the withdrawing surface charges reach toward infinity radially outward from the wire. Thus most of this increased field on a withdrawing electron remains outside the wire, radially reaching toward infinity, since the electron and its field cannot be withdrawn further than the diameter of the wire. As the surface charges and their fields change in Jackson's discussion, obviously those distant parts of the field remain outside the conductors. Hence there remains an extensive field and field energy outside the conductors and the circuits

So Heaviside {106} spoke cautiously of the *angles* and *relative directions* of the flow components; he did not wish to be scientifically destroyed for pointing out such an inexplicably large EM energy flow, far larger than the known energy input to the generator. There was then no such thing yet discovered as the electron, the atom, the nucleus, special relativity, general relativity, quantum mechanics, the active vacuum, etc. Poynting {4a, 4b} never even thought of the "nondiverged component that misses the circuit", nor did he consider it.

Lorentz, however, understood the extra Heaviside component and its vast magnitude, but he also could not explain it in any fashion. Even the great Lorentz could not risk publishing or advocating such an enormous energy flow, lest he be called a "perpetual motion nut" and destroyed. So he reasoned that, since that stupendous nondiverged energy flow component misses the circuit and powers nothing, it has "no physical significance" (his words).

Jackson in his famous 1975 *Classical Electrodynamics*, 2nd edition, uses essentially the same phrase {108a} as did Lorentz. And so do most other electrodynamicists.

So Lorentz {109} originated a little trick of integrating the energy flow vector itself around a closed surface surrounding any volume element of interest. Obviously, that zeros all *nondiverging* EM energy flows — including precisely that inexplicable and enormous Heaviside "dark energy" component. The integration trick does retain that small, *diverged* Poynting component that enters the circuit. In addition, our instruments measure energy dissipation from the circuit, and the energy has to *enter* the circuit to *be dissipated* from it. So our instruments and their measurements will indeed agree with the Poynting energy flow component. Lorentz thus arbitrarily discarded accountability of trillions of times as much EM energy flow as was retained and accounted.

In a later book by Lorentz, one can see that little trick {109} that is still used by electrodynamicists {110}.

that is never drawn into the wire. Additional separate receiver circuits with resistive loads, adroitly placed in this "externally remaining" field energy flow, can be made to intercept additional EM energy and will perform additional work in those external loads in the secondary circuits, separate from powering the loads in the primary circuit.

The Lorentz trick does not cancel the *actual* flow of the Heaviside dark energy component around every circuit! It just drops it from any accountability.

Indeed, we do precisely a similar thing for the "field" and the "potential". There is not a single text in the U.S. that calculates the magnitude of the *field itself*, prior to point interaction. Instead, we are taught to calculate the reaction of that field at a point in it, with a unit point static charge at that point. In short, we calculate *what is actually locally diverged from the field or potential by that little point static unit charge*, and call it "the magnitude of the field". At best, it is indicative of the field intensity at a point, because we have prescribed the magnitude of the static point charge's *reaction cross section* with the field, *not* the overall magnitude of the entire field itself. Another major non sequitur! By identifying the "field" as "that which is diverged from it", we gravely err. We do the same for the potential, again using its reaction cross section for a unit point charge at a point in the potential.

There is hardly a living electrodynamicist, it seems, who has calculated the magnitude of the field itself, or of the potential itself! All calculate the respective reaction cross section (and the *static* reaction cross section at that!) and erroneously call that the "magnitude of the field" or the "magnitude of the potential". It is no such thing. No thing filling all space is identical to a little something diverted from one point in itself, else we discard all logic.

Now we can return to our source dipole and its extraction of an *enormous* energy flow from the vacuum, once we account for the long-neglected (for more than a century) Heaviside dark (nondiverged, unaccounted) energy flow component. That is the essence of one of my papers {111}.

The easiest thing in the world to do is to extract enormous usable EM energy flow from the vacuum, *from the time domain*. Every circuit and every electrical power system already does it, and every electrical power system is powered by vacuum energy, *not* by burning all that coal, oil, etc. None of that does anything to actually power the circuit. It only makes dipoles.

If you will check the characteristics of the ubiquitous closed current loop circuit, you will discover a diabolical thing: that closed current loop circuit forces all the spent (depotentialized) electrons from the ground return line back through the source dipole (back through the back emf). It is easily shown that precisely half the energy *collected* in the circuit from that feeble Poynting energy flow component is then used to perform work on

those dipole charges and scatter them, thereby destroying the source dipole and abruptly shutting off all energy extraction from the vacuum. The other half of the collected Poynting energy is dissipated in the external loads and losses. That means that half the collected Poynting energy is used to kill the source dipole, and less than half is used to power the loads {112}.

Well, we must input at least as much energy (assuming a 100% efficient generator with no losses) to the shaft of the generator to *restore* the dipole, as was used to *destroy* it. This means we shall always have to input *more* energy to the generator shaft, than we get dissipated in the loads.

That is precisely what is responsible for our ubiquitous $COP < 1.0$ systems. *COP* is Coefficient of Performance, and is the average load power output in the external circuit divided by the average shaft power we pay to input to the generator.

$COP < 1.0$ comes from (i) the ubiquitous usage of the closed-current-loop circuit, and (ii) the prevailing notion that electrical power systems far from equilibrium in their energetic exchange with the active vacuum are impossible to build. In fact, every electrical power system is *already* just such a $COP > 1.0$ system, as far as the energy flow out of the generator or battery — compared to the shaft input energy to the generator or battery — is concerned.

As is well-known in the thermodynamics of open systems far from equilibrium with their active environment (in this case, the active vacuum), such a system is permitted to: (1) self-organize, (2) self-oscillate or self-rotate, (3) output more energy than the operator himself must input to the system (the excess energy being freely received from the active environment, in this case the active vacuum), (4) power itself and its loads simultaneously (all the energy being freely received from the active environment, in this case the active vacuum), and (5) exhibit negentropy.

But by designing all our systems so that they use more of their collected energy from the vacuum to kill their source dipoles than they use to power their loads, we have foolishly wasted the planet's resources, vastly overcharged the consumer, artificially created a great energy crisis, fomented wars for precious oil and other energy resources, polluted the planet, enhanced global warming, and strangled species.

In short, we pay the power company to have a giant wrestling match inside its generators and lose! And we pay our electrical engineers to keep designing and building such asinine systems!

This sad state of affairs is what is now upon us as a great and increasing energy crisis, polluting and destroying the biosphere, etc. and threatening to eventually collapse the world economy.

It is astounding that, since the basis for the above has been in physics for nearly a century (Whittaker decomposition) and for nearly a half century (broken 3-symmetry of the source dipole, as well as the active vacuum), the hoary old classical EM model has not been updated to incorporate what has already been proven in particle physics. Such is inexplicable and unconscionable.

It is also astounding that no electrical engineer realizes that energy extracted from the vacuum powers every electrical power system, and few if any professors are aware of it either.

This is where your cogent realization of the terrible non sequitur in that atrocious "wave in 3-space" standard diagram leads.

Our AIAS (Alpha Foundation's Institute for Advanced Study) advanced theorists now have a series of papers published in the hard literature pointing out the feasibility of extracting EM energy from the vacuum {113a, 113b}. About 20 other AIAS papers along such lines or related have been submitted to the various journals and are in the referee process.

I just wanted to contact you informally and, for your personal information, show you how perceptive and correct your objection to that atrocious diagram is. You have lifted the corner of the veil on electrodynamics' confusion between effect and cause, with effect being widely used as the cause. The entire notion of a "separate force" acting on a "separate mass" in mechanics is also a non sequitur. If we define force as $F \sum \epsilon/\epsilon t(mv)$, then we see that mass is a *component* of force! So here is another major and uncorrected non sequitur. This one was also largely responsible for the dichotomy of the field concept, where the "same field" is used in both a force (mass-containing) manner and a force-free (without mass) manner, as if the two were the same!

I very much enjoyed your editorial, and would urge you to publish additional material along that same vein. You are striking at the very heart of the problem, and every bit of insight and change in those terrible non sequiturs will result in enormous progress in electrodynamics and physics.

Sincerely,

Tom Bearden, Ph.D.

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Chapter 2

Background and Concepts

"[Hypotheses made without realizing that they are being made] ...are what Poincare has called "unconscious" or "natural" hypotheses — a type which one hardly ever challenges, for it seems too unlikely that we could make progress without them. Nevertheless it should be the endeavor of the physicist always to drag them out into the light of day, so that it may be perfectly clear what we are actually doing." [Lindsay and Margenau] {114}

"Equilibrium states are the only ones that are capable of explicit analysis in thermodynamics..." [Lindsay and Margenau] {115}

"Non-equilibrium conditions cannot be specified by variables of state, and their entropy cannot be computed. ...the condition of equilibrium is the condition of maximum entropy." [Lindsay and Margenau] {116}

2.1 Comments on the Foundations of Classical Electrodynamics

2.1.1 Faraday, Maxwell, Quaternions, and Heaviside

For our purposes, we start with the important experiments of Faraday {117}, which produced experimental integration of electricity and magnetism {118}. Faraday's own work contained very little mathematics, and so he himself did not capture his own seminal experimental work in adequate theoretical fashion. That task was undertaken by James Clerk Maxwell {119a, 119b}, who deliberately set about to capture Faraday's results in a proper mathematical theory, using quaternion-like and vector expressions. Of the quaternion algebra, Maxwell had this to say {120}:

"...the virtue of the 4nions lies not so much as yet in solving hard questions as in enabling us to see the meaning of the question and its solutions."

Quaternion algebra {121a, 121b} is an advanced algebra created by William Rowan Hamilton, brilliant Irish mathematician. Hamilton was widely regarded as a "new Newton" by his peers. Hamilton coined the word "vector", wrote two books on quaternions, and hoped the books would find extensive use in physics. Vectors and tensors later came to suffice for most problems of that day, and so quaternions faded to the background.

Hamilton also grasped the importance of a science of time, and realized that such a science was possible. E.g., in 1837 Hamilton stated:

"The notion of time may be unfolded into an independent pure science... a science of pure time is possible."

In that statement, Hamilton anticipated that a physics model can be comprised using only a single fundamental unit, and that unit could be the second.

In the early 1890s, quaternions in electrodynamics were discarded in a short "debate", mostly in the journal *Nature*, and vector electromagnetics was adopted. So Maxwell's 20 quaternion equations {20} in some 20 unknowns contain a wealth of electrodynamics {122} that is not included in Heaviside's {123} later vector curtailment after Maxwell's death, or in the modern tensor formulation. As an example, Nikola Tesla's patented circuits cannot be properly understood in either a vector EM or tensor EM analysis. However, very novel functions performed in them can be seen in a quaternion EM analysis, as has been clearly shown by Barrett {124}. Any electrodynamicist, who has looked at Tesla's work only in terms of tensor or vector classical electrodynamics, has no concept of what Tesla was actually doing. Since that is precisely how most academics have examined Tesla's work, they have had little idea of the functions he was actually able to accomplish in circuits — functions that U.S. electrical engineering departments still cannot perform.

Along with other electrodynamicists at the time, Faraday and Maxwell believed in a material ether — a thin material fluid filling all space. Hence there was thought to be no point in the universe that was devoid of mass. For that reason, the EM field conceived in mass and the EM field conceived in "space" — actually, in the "luminiferous ether" thought to fill all space — were identically force fields and material entities, at least in the minds of the electrodynamicists at the time. The equations of Maxwell, the later truncation by Heaviside and others, and the final truncation by Lorentz are all still material fluid flow models. They still assume the material luminiferous ether, more than a century after its falsification.

See again Figure 1-3 in Chapter 1. Contrary to the conventional view, force is not a fundamental causative entity, but is a system of two coupled entities. It involves a nonobservable, dynamic, causative 4-space entity (which may be modeled as a curvature of spacetime) interacting with a previous "frozen" observable (a 3-space mass). The output of this interaction is another observable (i.e., a change to the previous observable or an iterative output of its replica). Observables do not continuously exist, but continually recur as continual outputs of the iterative observation process (photon interaction).

Mass is a *component* of force, as is apparent if we define force F as $F = d/dt(mv)$, which gives $F = m(dv/dt) + v(dm/dt)$. Both terms on the right of the expansion contain mass; hence force F contains mass as a *component*. Both terms on the right also contain nonmass terms; hence force F also contains nonmass coupled to and interacting with mass. So there can be a force generated by a nonmassive non-force entity in spacetime interacting with a mass, and the force only exists when that interaction is ongoing. The ether was erroneously considered to be a material system, containing mass, and hence capable of supporting a force. Maxwell modeled his fields (in what we know today to be mass-free space) as material force fields in the material ether.

In the 1880s, the Michelson-Morley experiments {125a-125d} destroyed the material ether. However, the fundamental Maxwell-Heaviside equations *assuming* those material force fields in the vacuum — which depended on the notion of a material ether and are a function of it — have never been altered, even to this day. Instead, electrodynamicists just assume the force "somehow" goes to zero in the field in space, but the same field remains. The equations still assume the same old material ether.

This is a non sequitur; a *force* field cannot be the same as a force-free *non-force* field. As an example, the EM force field in observable matter is an output of observation. It is therefore a *3-space effect containing mass*. The force-free field in mass-free spacetime (4-space) is a causal 4-space component of massless spacetime. *A priori*, it exists prior to interacting with the charged mass. It contains no observable mass and hence no force since mass is a necessary component of force. It independently exists without the presence of the charged mass at all.

In short, the field in massless spacetime is a specialized curvature (changed region) of that spacetime. *Spacetime consists of spacetime*, to slate a tautology. Once one fixes the concept of the medium, then any changes to the medium can only consist of "medium-stuff". So any

"changes" in spacetime can only be changes of 4-space itself, in the Einstein general relativity sense. This area is handled quite well by Sachs' unified field theory {126a, 126b}, extending and completing the work of Einstein.

Sachs' epochal theory provides a great generalization of general relativity and electrodynamics reaching from the quarks and gluons to the entire universe. Further, Evans' extension of electrodynamics into a higher $O(3)$ group symmetry turns out to be demonstrably a special subset of Sachs' electrodynamics.⁴⁰ Hence, for the first time, an *electromagnetically* engineerable unified field theory is available. Much of general relativity, quantum mechanics, etc. can be engineered directly by Evans' electrodynamics subset of Sachs' overall unified field theory. I am much indebted to Evans {127} for the following statement with respect to $O(3)$ electrodynamics:

*"In 1992 it was shown (Physica B, 192, 227, 237 (1992)) that there exists a longitudinal component of free space electromagnetism, a component which is phaseless and propagates with the transverse components. Later this was developed into a Yang-Mills theory of electromagnetism with $O(3)$ Lagrangian symmetry. This theory is homomorphic with Barrett's $SU(2)$ electrodynamics and has far reaching implications in field theory in general. Recently it has been recognized to be a sub theory of the Sachs theory of electromagnetism, based on the irreducible representations of the Einstein group of general relativity.⁴¹ The Sachs theory produces a non-Abelian structure for the electromagnetic field tensor. The $O(3)$ electromagnetism also has implications for the **potential** ability of extracting energy from the vacuum, **and its** topological implications are currently being **investigated** by Kanada. The $O(3)$ electromagnetism has **been tested** extensively against empirical data, and succeeds **in** describing interferometric effects and*

⁴⁰ E.g., see M. W. Evans, "The Link Between the Sachs and $O(3)$ Theories of Electrodynamics," in M. W. Evans (Ed.), *Modern Nonlinear Optics*, Second Edition, Wiley, 2001, part 2, p. 469-494.

⁴¹ Evans et al, "Derivation of $O(3)$ Electrodynamics from the Irreducible Representations of the Einstein Group," *Found. Phys. Lett.*, 15(2), Apr. 2002, p. 179-

physical optical effects where the conventional Maxwell-Heaviside theory fails. Implicit in both the $O(3)$ and Sachs theories of electromagnetism is the ability to extract electromagnetic energy from curved space-time. Working devices based on this ability would help solve the current energy crisis."

2.1.2 Mass Is a Component of Force

The dichotomy of using the field concept in two mutually contradictory fashions as something massless and also as something massive — still unresolved in electrodynamics — is clearly summarized by Jackson's important statement {128} of the prevailing view:

"Most classical electrodynamicists continue to adhere to the notion that the EM force field exists as such in the vacuum, but do admit that physically measurable quantities such as force somehow involve the product of charge and field."

In trying to rationalize the "massive field versus massless field" dichotomy, Jackson {129} also states:

*"...the thing that eventually gets measured is a force..."
"At the moment, the electric field can be defined as the force per unit charge acting at a given point."*

Actually, field is not force, so cannot be force per unit charge. Field produces force when it interacts upon charge. *Causing* something as an effect, but then *being* that same effect identically, is a confusion of cause and effect and a non sequitur.

We point out that spacetime is charged, but with *observably massless* (virtual) charge. So the field in spacetime is observably massless and therefore observably force-free. That massless field then interacts with an observable massive charge in the "observable" world, to create an observable force and an observable forcefield. In space, from a quantum mechanical view we may consider the field to have *virtual* force \times time, since the field may be regarded as a curvature of spacetime acting upon the *virtual* charged masses in the ever-bubbling *virtual particle fluctuations* of the vacuum permitted by the Heisenberg uncertainty principle. Nonetheless, that is only the "potentiality" for an observable force, as pointed out by Feynman and Wheeler, should the field — including its interactions with the virtual charges of the vacuum to produce forces and

accelerations on those virtual particles — interact upon an observable charged mass.

Obviously, the force-free field as a product of spacetime curvature and massless (virtual) charge, and the force field as a product of *that* observably force-free field but virtual force field (in the vacuum) with observable charged mass, cannot be the same thing. Assuming they are the same assumes an oxymoron, and confuses cause and effect. This illustrates the continuing dreadful foundations difficulties propagated in classical electrodynamics.

To resolve these EM foundations difficulties so long maintained and cherished as dogma, the scientific community at the highest priority should (1) fund extensive and rapid work by our very best theoreticians and foundations physicists to heal these century-old festering sores, (2) extend electrodynamics back to a higher group symmetry theory, as in $O(3)$ EM theory for example, and (3) provide a rigorous dictionary of science foundations concepts and terms which does contain valid definitions and full discussions — clearing misdefinitions and disinformation now notable in the electrodynamics literature.

Nobelist Feynman, co-founder of quantum electrodynamics, was careful to state the notion of the field in mass-free space very differently. Quoting Feynman {130}:

"...the existence of the positive charge, in some sense, distorts, or creates a "condition" in space, so that when we put the negative charge in, it feels a force. This potentiality for producing a force is called an electric field."

Feynman's imagery clearly invokes a "distortion condition in spacetime" {131}, eventually coupled to a charged mass and interacting with it — and *then* one has a force and a force field. He erred in still somewhat making the force separate from the charged mass, in the phrase "it feels a force" — which ignores the fact that the mass of the interacting charge is a *component* of the force, not separate from it and not "feeling it as a separate external thing". He pointed out that the field in spacetime represents only the *potential* for a force field, *if* a charge should be placed there. And he points out that the field is a "condition in space" — in the full sense, a condition in spacetime.

We comment that, in a sense, spacetime and vacuum may be considered one and the same. Vacuum contains many fluctuations and virtual state

dynamics, all of which are curvatures of spacetime or produce curvatures of spacetime. Vacuum has energy density, and is therefore a potential. This energy density has dynamics, so the ambient vacuum potential has dynamics, and so therefore does spacetime {132}.

However, a dynamic of the potential is precisely what a field *is*. It follows that dynamics of spacetime are what fields are. So fields (as force-free entities in spacetime) may be taken more accurately as the dynamics of the vacuum-spacetime, or as dynamics of the ambient vacuum-spacetime potential, or as dynamics of the ambient curvature of spacetime.

Again quoting Feynman {133}:

"We may think of $E(x, y, z, t)$ and $B(x, y, z, t)$ as giving the forces that would be experienced at the time t by a charge located at (x, y, z) , with the condition that placing the charge there did not disturb the positions or motion of all the other charges responsible for the fields."

Here Feynman very clearly shows that E and B involve functions of spacetime (x, y, z, t) only, prior to interaction, but do not physically exist until interaction with charge has occurred. But he has not quite yet completely eliminated the "force field" as a separate force acting on the charged matter independently. This centuries-old fundamental mistake in mechanics — that force is independent of and external to mass — has simply been propagated into electrodynamics, without correction. Physicists such as Feynman and Wheeler have been trying very hard to correct it.

The observed/measured force field is an output of observation, and observation is a d/dt operator imposed upon spacetime LLLT. All observables are 3-spatial, and any observation is an instantly frozen "3-space snapshot" at a single point in time. A single observation has no temporal existence *a priori*, since it is only an instantaneous 3-space snapshot existing at one moment only. Hence an observable — being 3-spatial and frozen — does not persist *as such* in time. Indeed, the next instant after an observation, that particular snapshot does not exist any more. [Refer again to Figure 1-3 in Chapter 1].

2.1.3 Mechanism for the Flow of Time and Related Matters

It is well recognized that the nature of time is itself an unresolved

question. For our purposes, we are interested in the energetics⁴² approach. So we apply that approach to arrive at a mechanism generating the "flow of an object through time". First we will choose our fundamental units.

2.1.3.1 *Getting Creative with Fundamental Units*

In physics, the choice of fundamental units one chooses for one's model is arbitrary. Usually mass, length, time, and charge are used, but a perfectly valid model can be generated using only a single fundamental unit.

This is well known to modern physicists and leading electrodynamicists, but sometimes comes as a shock to electrical engineers! Jackson {134} expresses it very succinctly: Quoting:

*"For example, theoretical physicists active in relativistic quantum field theory and the theory of elementary particles find it convenient to **choose** the universal constants such as Planck's quantum of action and the velocity of light in vacuum to be dimensionless and of unit **magnitude**. The resulting system of units (called 'natural units') has only **one** basic unit, customarily chosen to be length. All quantities, whether length or time or force or energy, etc., are expressed in terms of this one unit and have dimensions which are powers of its dimension. There is nothing contrived or less fundamental about such a system than one involving the meter, the kilogram, and the second as basic units. It is merely a matter of convenience."*

So let us consider what happens if we use the joule as the single fundamental unit for a model of physics. Then each of the entities "mass", "length", "time," and "charge" will become totally a function of energy. Since the dawn of relativity and the nuclear age, the notion that "mass is energy" is no problem, and everyone is familiar with Einstein's $E = mc^2$. Solving for m in that expression, one realizes that spatial energy E has been compressed by the factor c^2 , to yield what is called "mass m ". More rigorously, compressing the 3-space energy by the factor c , and then leaving it in 3-space, produces what we call "mass". However, if we

⁴² **Energetics** is an **old term from the early birthing** days of electrodynamics. Russian scientists resurrected **the term to cover their use of an expanded electrodynamics in a unified field-engineering manner, particularly in new superweapons developed and tested after WW II and deployed in 1963 and subsequently.**

remove it from 3-space and place it over on the fourth Minkowski axis *ict*, it becomes what we call "time" because *t* is the only variable in *ict*. Hence time has or can have similar energy density to mass. Specifically, 1 sec \Rightarrow 9×10^{16} joules of spatial EM energy, when transduced (decompressed) into spatial energy by a transducing charge.

In our new model using only the joule for our fundamental unit, we can also legitimately state that "time is energy", and be rigorously accurate. In that case, we must see what happens to 3-space EM energy when it is shifted to the time domain.

First, we take "EM energy in 3-space" as EM wave energy, in the usual transverse EM wave model (see Figure 1-4 of Chapter 1) of a field entity. We choose, say, the vector *E* oscillating in the x-direction, and another field entity (say, the vector *B*) oscillating in the y-direction. If we then rotate each of these vectors into the time axis, then that is an orthogonal rotation for each, which is what the velocity *c* actually is. So we have to do two orthogonal rotations, and the two resulting *c*'s multiply to give c^2 . With these two orthogonal rotations into the time axis, we have completely rotated the EM field wave energy vectors into the time axis. We have also compressed that EM field energy by c^2 .

Hence "time as energy" is just EM spatial energy compressed by the factor c^2 , but rotated into the time-axis as "time" rather than remaining in 3-space as "mass". Again, by this second analogy time has the same energy density as mass, but the highly compressed spatial energy has been rotated into the time domain to "produce time" rather than remaining in 3-space to "produce mass" {135}.

This sheds new light upon the scalar (time-polarized) photon of quantum field theory. Note that, prior to compression of the wave energy into time, the magnitude of the electric field *E* in the EM wave was oscillating lengthwise along its x-direction, which means that, with respect to x, it was a longitudinal EM wave. A similar consideration exists for the oscillation of the magnitude of *B* in the y-axis. Along the time-axis, we also have a "time-energy" vector having magnitude, and the magnitude of that time-energy can only vary along the time axis. Oscillating the time energy produces a longitudinal EM wave in the time dimension (on the fourth axis). What is actually varying is the time-density itself. This is a *time-polarized* or *scalar* EM wave, where by use of the term "scalar" we mean that it has no vector component in 3-space. In fact, this variability of time density produces a "galloping motion" in the speed of light itself, which has been recognized {136}.

We have uncovered a direct connection between the time-polarized EM wave (which can only oscillate its time-energy magnitude longitudinally in the time-domain) and the longitudinal EM wave in space. Such waves can only be observed when coupled or paired with an interaction existing between them, very similar to what Mandl and Shaw {167, 168} argue for the time-polarized and longitudinal photons of quantum field theory.

Again see Figure 1-3 in Chapter 1. Any observable is an instantaneous, frozen 3-spatial snapshot (or 3-intersection) of a 4-dimensional ongoing event. "Observation" itself may be taken as a process where a d/dt operator is invoked upon 4-space (spacetime), leaving a purely 3-spatial output. However, the resulting observable does not "exist or persist in time", since rigorously it is what was "caught" in only a single, frozen "3-slice" at one single instant, forever fixed.

For that reason, time is not an observable. It cannot be directly observed, even in principle, since *a priori* it is discarded by the observation process itself!

For further work along such lines, we recommend the Sachs unification approach to a combined general relativity, quantum mechanics, and electrodynamics, generalized from a topological standpoint {126a, 126b}. To work electromagnetically in that theoretical approach, we recommend the 0(3) electrodynamics as extended by Evans {137a, 137b}.

2.1.3.2. *The Four Polarizations of Photons and EM Waves*

In quantum field theory, four polarizations of a photon are recognized {138}. These are the x -, y -, z -, and t -polarizations, where x -, y -, z - and t - are assumed as the four dimensions in a 4-space. By agreement, z - is used as the direction of motion of a free photon or an electromagnetic wave. So at least in theory, there must also be four polarizations of electromagnetic waves, even though not all these waves are yet experimentally known.

The x - and y - polarizations are the familiar transverse photon and the transverse wave. The z - polarization along the line of propagation gives the longitudinal photon in 3-space and the longitudinal EM wave in 3-space.⁴³

⁴³ Here we are applying the conventional model of the "EM wave in space", which is known to be erroneous but is in ubiquitous usage. See Romer, {84} for a scathing characterization of that erroneous model. But here we are stuck with it, so will use it as "just a model".

2.1.3.3 *Imperfect Longitudinal EM Waves in 3-Space*

When attempting to produce longitudinal EM waves (LWs) in 3-space, from transverse EM waves (TWs) input to some sort of polarization transduction process, only imperfect LWs are produced and a residue of TW content remains. The resulting imperfect LW is referred to as an *undistorted progressive wave* (UPW). Some work has been done on UPWs {139}. UPWs are expected to have remarkable characteristics including wave velocities either slower or faster than c {140}.

The t -polarization in the time dimension is quite unique: The *spatial* energy overall is in equilibrium and not vibrating at all; instead, the energy of the photon or wave is vibrating in the time domain and therefore exists in the time domain. That is called a "scalar photon" (time-polarized photon). Its wave version does not yet seem to be known in the literature, although in 2000 we uncovered its secret hiding place {12}. It was unexpectedly hiding in Whittaker's {85} decomposition of the scalar potential in 1903, but had been slightly misinterpreted.

2.1.3.4 *Photons and EM Waves Carry Energy and Time*

On the other hand, the concept of "EM waves flowing in 3-space" may be in need of a thorough overhaul {141}. A photon y is a "piece of angular momentum" in the form of $y = (dE)(dt)$. Hence the photon carries an increment of spatial energy dE and also an increment of time-energy dt . The time-energy component (dt) may be regarded as ordinary spatial energy that has been compressed by the factor c^2 {142}.

As can be seen, since c represents an orthogonal rotation in n -space, the multiplication or division by c and by powers of c changes the dimensionality of an entity, as seen by the observer in the laboratory frame.

So the photon transports two types of energy: (i) a "weak spring" (spatial, decompressed) energy dE , so to speak, and (ii) a "very stout spring" (time) energy dt , so to speak.

When a mass m absorbs a photon $(dE)(dt)$, the (dE) component is compressed spatially by c^2 , turning it into an extra amount of mass dm , so that the mass becomes $(m + dm)*dt$ the same time, the (dt) component is joined, so that what results is $(m + dm)*dt$. In short, mass m is changed to masstime mt by photon absorption. So in the absorption of a photon y by a mass m , we have

$$y+m \rightarrow (dE)(dt) + m \rightarrow (m + dm)dt$$

In short, the mass m turns into masstime mt , by absorbing a photon, and masstime mt is as different from mass m as impulse Ft is different from force F . We point out that "mass" m alone does not even exist in time, but masstime mt does exist in time. This is proposed as a simple but fundamental correction to much of present physics. Further, the state "mt" is an excited, time-charged state, excited by very dense time-energy.

For the simplest case, in the next instant the excited state mt decays and a photon is re-emitted, and so we have

$$(m + \Delta m)\Delta t \rightarrow (\Delta E)(\Delta t) + m \rightarrow \gamma + m \quad [12]$$

So emission of a photon changes the excited masstime state (time-charged state) back to mass (uncharged state with respect to time-charging), in the simplest case.

See again Figure 1-3 in Chapter 1. "Observation" and "observable change" are in fact generated by the photon interaction. The total photon interaction with a mass creates the "flow of that mass" through spacetime, macroscopically as seen by the observer and microscopically in myriad streams of virtual time changes. Mass is continually charged to the masstime state, and the masstime state is continually decayed to the mass state. Time flow itself thus has a myriad internal EM energy streams and a vast dynamic EM energy substructure.

The photon itself is not observable, as it exists prior to interaction. It is thus a "causal" entity in 4-space. It *is not* a simple 3-space observed "frozen snapshot" particle! When the causal photon is absorbed, its spatial energy component goes through the c compression function, thus adding a small amount of new mass to the previous mass (previous effect), but simultaneously connecting its dt time-tail, so that the slightly increased mass in fact now exists as masstime and not mass. Observation has not been completed at that point.

In the next instant, a photon is re-emitted (from masstime, never from mass!), in the simplest case removing that extra little mass increase and orthogonally rotating it back into 3-spatial EM energy, coupling that spatial energy increment dE to that "time-tail" dt and tearing it away as the photon is re-emitted. That leaves behind a frozen 3-space snapshot of the mass (the interacting particle) and completes the "observation". In the simple case, this is a replica of the previous particle (frozen 3-space snapshot) with which the causal photon interacted. So this process accounts for the so-called "persistence in time" of an object or mass, as seen by the observer's continual recall process accompanying his stream of

iterative observations. Mass does not *continuously exist* in time, but *continually recurs* in time.

As is well known, what we call "observable" change must involve the expression in equation [13] in the fashion discussed and with the observation mechanism given.

We first pointed out the preceding mechanism for the "flow of a mass through time" in 1971, as a graduate student at Georgia Institute of Technology, and later published it in a crude paper {143} in 1973. It still needs a far more thorough theoretical treatment, which perhaps some graduate student will take up as the subject of his or her doctoral thesis.

2.1.3.5 Photon Interaction: Mechanism Generating Flow Through Time

See Figure 2-1. Mass does not really "travel through time" continuously *per se*, but proceeds with an overall serial change mechanism as

$$m \rightarrow (mt) \rightarrow m \rightarrow (mt) \rightarrow m \rightarrow \dots \quad [14a]$$

where (mt) symbolizes a nonobservable ongoing "coupled" interaction state prior to observation completion. Equation [14a] represents the results of the continual photon interaction process, observation process, and "flow of a mass through time" process, at the highest single-photon interaction or quantum change level, and as "seen" or measured by the external observer.

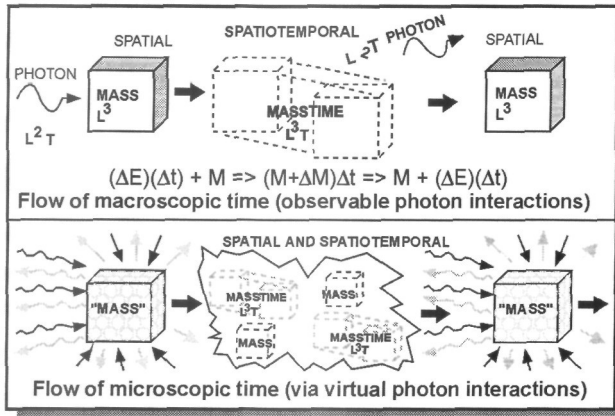


Figure 2-1 Mechanism for the flow of a mass through time.

Also, in that overall quantum level "flow" there are anyt number of ongoing streams and "sublevels" in the underlying subquantum level (in the virtual vacuum and in its virtual photon interaction with observable

mass). We might write one of these "internal time-stream interaction flow substructures" as:

$$(\delta m) \rightarrow (\delta mt) \rightarrow (\delta m) \rightarrow (\delta mt) \rightarrow (\delta m) \rightarrow \quad [14b]$$

In equation [14b] we have used parentheses, because all terms individually are nonobservable. We hypothesize that each stream continues until one of its terms participates in a summation which eliminates it by enfolding it into another interaction.

When a mass is observed as in [14a], a photon has been emitted (we observe the mass as the "effect" remaining). Time has been stripped away by the resulting d/dt operation, leaving a frozen 3-spatial snapshot, which we will see as (having been) a particle (simplest case). That occurs just after major ("observable") photon emission from the masstime state {144}. Immediately another observable photon is absorbed, and so state mt occurs. The particle of mass actually oscillates at a very high rate between the m and mt states — so high a rate that by arranging the interaction conditions one may interact with it either as a wave (react predominantly in the mt state) or as a corpuscle (react predominately in the m state).

Hence we propose that the process in [14a] may account for the duality of particle and wave.

2.1.3.6 *The Overall Flow of Time Has an Internal Dynamic Structure*

During the transition in any mass to masstime state by reaction of the mass with an "observable" photon, a myriad of fleeting virtual photon interactions involving very tiny (dE) (dt) components occurs with the mass m . These tinier increments of time, and their increments of energy, constitute internal structures in the time flow process. Therefore they may be considered as "energy currents" or "time-like energy currents" and dynamic structures or streams inside the flow of time. This is particularly straightforward if we use a model having only a single fundamental unit, the joule. In that case, time is energy, and we are speaking of energy flow and its constituent internal structures of energy flow.

So the dt component of masstime at the observable-photon action level has a myriad of energy-time structured dynamics infolded within it. Hence the mt state is very dynamic in time, particularly for fundamental particles. The mt state is in fact a "collection of time-energy dynamics" and therefore "wavelike".

See again Figure 2-1. A major point is that *mass* does not emit a photon; *masstime* does. Mass "travels through time" by an extremely high oscillation between corpuscle-like state m and wavelike state mt , and with

a vast internal "dynamic streams" of other such high oscillations between corpuscle-like m states and wavelike mt states.

The concept can be very much extended, of course, but this suffices for our concept of energy currents in time, the interaction of such energy currents with mass in a mass system, and the internal dynamic structuring of the "flow of time".

This internal structuring is important in the event of "*time-energy*" *charging*. There the internal structure of time has experimental consequences. We will discuss those consequences in later chapters.

2.1.4 The Ubiquitous Substitution of Effect for Cause

See Figure 1-3. To repeat, no observable exists or persists *as such* in time. An observable *as such* only exists at all when time has been momentarily stopped. It then quickly changes into (observable \times time) form, for a time interval after a photon absorption. Then it changes again to observable form by photon emission and the corresponding d/dt differentiation imposed by that photon emission.

What happens when we think we see an "observable moving through space" is that we make or suppose a continual series of very fast d/dt 3-spatial snapshot observations, one after the other in serial fashion (much like the individual frames of a motion picture film). For more than a million years, human brain and mind processing have "always interpreted" this serial set of iterative operations occurring in the eyes and in the physical senses — and continually recalled and processed by the mind — as an "observable persisting in time", which it is not.

This age-old "natural" and inbred, instinctual *mental practice* and assumption by humans — and therefore by scientists — has provided a major problem in physics and especially in electrodynamics. It has resulted in the substitution of the "effect" for the cause in a great number of models. Even a rapid and continual series of 3-space effects after reaction of an observable (frozen snapshot) with a 4-space causal entity, does not and cannot constitute that 4-space entity which interacts with the previous "frozen snapshot" observable and causes the resulting "comparative change or sameness" of the new observable with the former. Hence, e.g., Romer's scathing condemnation {84} of the conventional drawing of an "EM wave in space".

In general relativity, it is straightforward. The curvature of spacetime — the cause — is not the mass (the 3-space observable effect) that is further changed or created again in the ongoing interaction, as seen in the "next

3-space snapshot" (next output of observation) when comparing that snapshot to the previous one.⁴⁴

The same non sequitur — unwitting substitution of effect for cause — has existed for hundreds of years in mechanics, for example. There it is strongly passed on in the erroneous old notion of a separate force acting upon a separate mass. *Prior to* the interaction, no "force" exists. *During* the ongoing interaction, force exists because it is the product (interaction) of a "non-force" causal entity (e.g., a field in 4-space, as a certain curvature of spacetime there) and a previous effect (a 3-spatial frozen snapshot called "mass"). The force exists during the interaction and only during the interaction, when both cause and previous effect are coupled (and will produce the new effect at the completion of the next serial d/dt operation as a photon is emitted). The force can only exist when the mass (previous effect) is coupled to the cause (the curvature of spacetime), since *a priori* mass is a *component* of force {145}, and curved spacetime is another *component* of it. After the interaction "ends" in a new d/dt observation, the mind compares the new effect with the former, to determine whether there is a "change" or a replica (sameness). This comparison of the new observation (observable) with respect to the former, *occurs in the brain and mindprocessing*, and gives the sense of "persistence of an object in time" as well as of an object "changing in time".

So a great faux pas in physics — and especially in electrodynamics — is this widespread substitution of the effect for the cause. Understanding this non sequitur clearly, and correcting it, is a prerequisite to understanding the principles and concepts of legitimate COP>1.0 Maxwellian systems. Also, if we would ever hope to adequately correct electrodynamics, this tremendous faux pas must be recognized and rooted out of the model. Indeed, the same is true for mechanics and other branches of physics.

2.1.5 Some Additional Foundations Non Sequiturs

Another gross non sequitur is made in calculating the amount of EM energy flow continually being diverged around an intercepting unit static charge at a point in space, from a potential in which that point is located, and then calling this "local intensity" of the collecting interaction the "magnitude of the potential" itself.

⁴⁴ Rigorously, if one wishes to connect spacetime and mass, spacetime can be interpreted in *masstime* units, but not *mass* units. And vice versa. Again, *masstime* mt is as different from mass m as impulse Ft is **different** from force F .

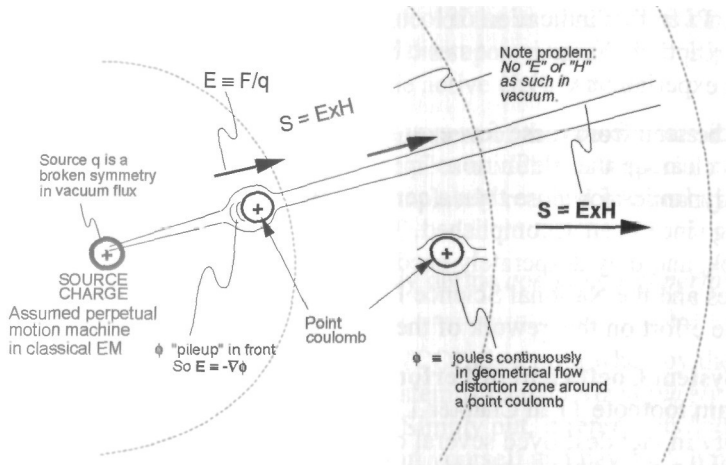


Figure 2-2 Field and potential are defined in terms of the diversions from them around a unit point static charge assumed at any spatial point

(See Figure 2-2). At best, it is a measure of the *local intensity of the diversion of energy flow* from the "bidirectional" EM longitudinal waves comprising a potential, as they are diverged around the unit point static charge. It is not the magnitude of the entire potential, filling all space, nor does it prescribe the spatial energy magnitude of that entire potential {146}. It is a small energy flow, *diverted* by an assumed standard fixed charge at a single point in the potential, from the overall energy flows comprising the potential. Calling this little "diversion of a bit of energy" the magnitude of the potential is rather like calling a little whirlpool in a river the "magnitude of the river". Or more exactly, it is like calling the amount of little "swirl diversion of a river's flow" around a standard small fixed rock the "magnitude of the river".

A similar non sequitur exists in the usual calculation of the "field" magnitude at a point, which is not the "entire field entity itself at all. It is merely what is *diverged from* the "field as it exists in spacetime" at a single point in it, by an assumed fixed standard point charge at that point that is interacting with the field. The field takes into account the patterning of the diverged flow, e.g., the difference in potential (difference in

pressure) across the unit point charge. That is not the field itself at all, and the textbooks and dictionaries of physics are completely wrong in calling it such. Again, at best, it is an indication of *the field intensity* at that point, and the reaction cross section of the field to an assumed unit point static charge. Even that indication of local intensity of the field will change if the intercepting charge is not static but is in resonance, as shown by the Bohren experiment {24}.⁴⁵

As can be seen from these few examples, a great deal of work needs to be done to clean up the "definitions" promulgated in physics and electrodynamics for more than a century. It is inexplicable⁴⁶ that this has not long since been accomplished. These errors permeate almost every textbook, and they desperately need correcting. The National Academy of Sciences and the National Science Foundation should fund the best possible effort on this rework of the foundations of physics.

2.1.6 System Coefficient of Performance (COP) and System Efficiency

See again footnote 11 in Chapter 1 and Appendix A. In 1915, general relativity in fact destroyed several of the fundamental definitions (axioms) of classical thermodynamics. It necessitated our correction of some thermodynamical definitions (open system and closed system) and our more rigorous definitions of COP and efficiency advanced below.

Once mass is recognized as energy and the two are just different sides of the same coin, there can be no thermodynamically closed system which passes energy across the system boundary without passing mass across it. Any system changing its rate of flow through time also changes its mass and its energy, and vice versa. Energy has mass characteristics, and any mass system with added or subtracted energy — either kinetic or potential

⁴⁵ Many Bohren-type experiments are continually done in nonlinear optical labs in universities and elsewhere. The effect (excess radiation from the medium) is euphemistically called "negative absorption of the medium," "negative resonance absorption of the medium," etc. Such terminology avoids clearly recognizing that more energy is output than the scientists (erroneously) calculate was input. Bohren faced the issue head-on, and clearly stated that more energy was output than was input (or than was thought to be input).

⁴⁶ A true pessimist might point out that it may be quite understandable, considering that it solidly blocks $COP > 1.0$ EM electrical power systems and electro-gravitational anti-gravity systems from being developed by our universities, which would solve the energy and transportation crises forever. Thereby it also keeps about \$1.5 to 2 trillion a year pouring into the coffers of controlling financial groups behind many great interlocking corporations.

— will also change its mass relativistically as well as its other characteristics such as inertia and gravitational attraction. As pointed out by Logunov and Loskutov {635}, in 1917 the new characteristics of general relativity led Hilbert {632} to observe that in general relativity there can be no energy conservation rules of the usual classical kind. This also follows from our consideration of the supersystem with multiple active environments rather than a single active environment.

We have formally destroyed any absoluteness of the present classical thermodynamics, which is just an imperfect model. It is a special case which can be approached but never completely reached in a real dynamic system.

With that in mind, we now more exactly define *coefficient of performance* and *efficiency* of a system.

The term "coefficient of performance" (COP) is a ratio whereby the useful energetic output performance of the system is characterized *purely with respect to the operator's energy input*. Simply put, it represents "how much you get for what you have to input yourself and pay for". It does not characterize the performance of the system with respect to the *total energy input from all sources*. For our purpose, in general there are two major ways of expressing this COP:

- (a) COP == (work accomplished in the load during a representative time of operation) divided by (energy input by the operator during that representative time of operation). Or for short, COP = (useful work out in the load) + {operator's energy input). We stress that there may be other free inputs of energy to the system, in addition to the operator's input, but only the operator's input is accounted in the COP calculation.
- (b) COP == (average power out in the load) divided by (average power input by the operator).⁴⁷ Again, there may be additional average power inputs that are freely input from the environment, without cost to the operator, but only the operator's input is accounted. We stress that "power input" is

⁴⁷ This is in standard electrical engineering terminology, which is mangled. For a more precise physics statement of (b), COP == (the average rate at which the system dissipates energy in its load to do useful work) / (the average rate at which the operator must furnish energy to be dissipated as work in the input section of the system to make it operate and do its output work).

another of electrical engineering's misnomers, but we use it here because it is universally used in power system engineering.

For a system such as a transducer, which merely changes the form of the energy in some fashion and does not perform work in an external load (the transducer is its own load), we may express the COP as

- a. $COP = (\text{effective energy output}) / (\text{energy input by the operator})$. Here we accent that there may be additional energy inputs to the system from the active environment, and these inputs are "free" and are not input by the operator, so they are not accounted in the COP calculation.
- b. $COP = (\text{average power output}) / (\text{average power input by the operator})$. Again, additional average power inputs may be freely received from the environment, but they are not accounted in the COP calculation.

The "efficiency" E of a system is a ratio less than or equal to 1.0 (or a percentage less than 100%), where E indicates the percentage of the total input energy (from all sources) that is dissipated in the load as useful work. It follows that $(1 - E)$ indicates the percentage of the total input energy that is dissipated in the internal losses in the system, not directly resulting in useful work by the system in its load. So the efficiency E of a system may be expressed as:

- a. $E = (\text{total work output in the load during a representative operational period}) / (\text{total energy input to the system, from all sources, during that period})$.
- b. $E = (\text{average power output in the load}) / (\text{average energy rate of input to the system, from all sources, during that representative operational period})$.

We accent that no system can have an efficiency greater than 100%, for then it would be "creating energy from nothing" {147}. No system can dissipate or convert energy that it does not first receive. The conservation of energy law states that energy can neither be created nor destroyed. This means that *there actually are no energy sources per se, in the sense that the source creates the energy*, even though we use the terms "energy

source" and "source of energy" informally. E.g., Semiz {148} states it this way:

"The very expression 'energy source' is actually a misnomer. As is known since the early days of thermodynamics, and formulated as the first law, energy is conserved in any physical process. Since energy cannot be created or destroyed, nothing can be an energy source, or sink. Devices we call energy sources do not create energy, they convert it from a form not suitable for our needs to a form that is suitable, a form we can do work with."

A medium inefficient system can easily have a $COP > 1.0$, if it receives additional energy from its active environment, and if that extra free energy is sufficient to overcome its internal inefficiency losses. An example is a common windmill, where a very good one may have an efficiency of less than 50% due to friction and drag losses in the gears and wind spillage losses in the blades, etc. Yet the operator himself does not have to input any energy at all, for the windmill to operate continually. In this case, the $COP \gg 1.0$ and approaches infinity, but the efficiency of the windmill is still less than 50%.

Another example is the home heat pump, which may also have an efficiency of less than 50%. When acting as a refrigerator, its theoretical maximum $COP = 8.22$ under nominal conditions {149}, and a well-designed 50%-efficient home heat pump will produce $COP = 4.0$ when conditions are suitable.

On the other hand, if the only net energy input to the system is that energy that the operator inputs, then the $COP < 1.0$. This is a system in equilibrium with respect to any energy exchange with its external environment — *except* with respect to the energy input by the operator (i.e., with respect to its "fueling" by the operator, so to speak) and with respect to the energy subsequently dissipated in the loads and losses. If the system is 100% efficient (has no internal losses or conversion losses at all), its $COP = 1.0$. Almost all real systems do have internal losses, so their efficiency is $E < 100\%$. In that case, the system in equilibrium with its environment, and having $E < 100\%$, will also exhibit $COP < 1.0$

irrevocably. Indeed, the same number will give both the efficiency E and the COP, because numerically they are then the same.⁴⁸

For electromagnetic systems, the state of confusion between efficiency E of the system and the COP of the system is due to one fact. *Numerically* the two are always equal in *equilibrium* systems — and the Lorentz regauging condition enforced by the closed current loop circuit self-enforces the equilibrium condition of the system with respect to its active environment. Because electrical engineers usually have zero experience with $\text{COP} > 1.0$ electrical systems, they tend to loosely and erroneously use the two terms "efficiency" and "COP" as if they meant the same thing. They do not.

Now suppose that we have an open system, far from equilibrium in its energy exchange with its active environment. Suppose that the system's efficiency E is very poor, so that $E = 20\%$. Now suppose that the environment inputs twice as much energy as does the operator. Let the operator's energy input be E_1 . Then the total energy input to the system, from both the operator and the environment, is $3E_1$. The efficiency is only 20%, so the system outputs W , as work in the load, of $W = 0.2(3E_1) = 0.6 E_1$. The COP of the system is the work out divided by the operator's input, which is $\text{COP} = W/E_1$, which is $\text{COP} = 0.6 E_1 / E_1$ which gives $\text{COP} = 0.6$. As can be seen, even though this system receives twice as much additional free energy as what the operator inputs, it is so inefficient that **its COP < 1.0**.

Suppose we have a similar system with the same energy inputs from the operator and from the environment, but now the system's efficiency E is $E = 90\%$. Then the total energy input to the system, from both the operator and the environment, is $3E_1$. The efficiency is 90%, so the system outputs W , as work in the load, of $W = 0.9(3E_1) = 2.7 E_1$. The COP of the system is the work out divided by the operator's input, which is $\text{COP} = W/E_1$, which is $\text{COP} = 2.7 E_1 / E_1$, which gives $\text{COP} = 2.7$. As can be seen, a more efficient system in the same energy input situation, now outputs more work than the energy input by the operator. Energy is conserved at all times; the excess energy for the additional work was in fact freely input

⁴⁸ We emphasize that COP and efficiency are two quite different concepts, however, even when their numerical values are the same. A 6-foot tall man and a 6-foot tall door have the same number for their **height**, but only a fool would consider them the "same thing".

to the system — which is an "open" system far from equilibrium in its exchange with its active environment.

Thus a system far from equilibrium in its energetic exchange with its active environment, is *permitted* to exhibit $COP > 1.0$ even though its efficiency is always less than 100%. On the other hand, if the system is very inefficient and the energy input from the environment is not too great, the system will still exhibit $COP < 1.0$. But the operator will pay less for his energy costs to operate that inefficient system, than he would pay to operate it if he himself had to furnish all the energy input.

Two cautions are emphasized:

(a) First, electrical engineers use the term "power" to mean "energy flow rate without dissipation or change of form", as well as "energy flow dissipation and change of form rate." This is inexact and unfortunate, but it appears ubiquitously throughout the electrical engineering literature. So we are essentially "stuck with it" for the moment. From a rigorous physics point of view, energy flow without divergence or change has absolutely no power, because power is defined as the rate of change of the form of that energy flow — e.g., the rate of dissipation (scattering) of that energy flow, which in physics is a rate at which work is being performed.

(b) Second, it seems that more than half the engineers and scientists — and many textbook authors — do not clearly understand the difference between COP and efficiency, and often interchange these two terms as if they were the same. They are not at all the same, and a great deal of confusion exists in the casual engineering literature because of using them interchangeably. That is why we have clarified them and given some simple explanatory examples, sufficient for our purpose in this book.

2.1.7 COP > 1.0 and the Question of Perpetual Motion

Legitimate scientific researchers attempting to work in open EM systems far from thermodynamic equilibrium are often subjected to rather vicious ad hominem attacks, charging that they are perpetual motion machine addicts and therefore raving lunatics. This of course is not true. We are simply trying to do with Maxwell's "electric fluid" systems what nature already shows us can be done with material fluid systems. We are in fact seeking the equivalent of "electromagnetic heat pump" processes and systems. It is the strident critics who are thoroughly confused and who reveal an immature knowledge of physics and thermodynamics.

As we explained, prior to their Lorentz symmetrical regauging, the Maxwell-Heaviside equations already clearly prescribe and permit $COP > 1.0$ EM systems, including EM power systems. In addition to the present EM systems in equilibrium in their exchange with their active vacuum environment, the non-regauged equations also include Maxwellian systems far from equilibrium in their energetic exchange with an active environment, such as the active vacuum. Classical *equilibrium* thermodynamics — stridently waved as a sacred banner by the critics accusing $COP > 1.0$ researchers of being "perpetual motion nuts" and such EM systems as being "perpetual motion nonsense" — does not even apply to such *disequilibrium* systems! One should simply read the literature of the thermodynamics of such disequilibrium systems {160a-160f}. Or one should read why Prigogine was awarded the Nobel Prize in Chemistry in 1977, for his contributions to such open systems in disequilibrium.

We accent again that, under our new rules where we corrected the thermodynamic definitions of open system and closed system, we are in compliance with general relativity. Further, every EM system must be taken as an open system, since in the supersystem energy (with mass-like changes resulting across the system boundary) is always exchanged between the three supersystem components.

Fortunately there are also rational, reasonable critics such as Angrist {150, 151} where the criticism is properly scientific and not ad hominem, even though still misguided. Usually the rational perpetual motion critic applies the three laws of classical *equilibrium* thermodynamics, to classify "perpetual motion machines" of class 1, 2, and 3 after equilibrium thermodynamics laws 1, 2, and 3. This of itself has no intellectual content for open systems in disequilibrium with their active environment. The classical equilibrium thermodynamics — including laws 1, 2, and 3 interpreted only in terms of the operator's energy input — does not apply to *open systems far from equilibrium* — which are the only systems permitted to exhibit $COP > 1.0$ in the first place. And we insist that all EM systems are open systems far from thermodynamic equilibrium, since every charge is, and all fields and potentials come from those source charges. Indeed, such open disequilibrium systems are *permitted* to violate the laws of classical thermodynamics! As an example, the entropy of such an open disequilibrium system cannot even be computed {152}, and it is less than the entropy of the same system in equilibrium, since the equilibrium state is the state of maximum entropy.

The rational critic then falls upon the horns of a dilemma, by admitting that, yes, such open dissipative systems do exist and do permissibly exhibit

COP>1.0. He then labels these *as, false or fictitious perpetual motion machines* {150, 151}. In short, when such COP>1.0 machines are real and admittedly exist, they are not "*true*" perpetual motion machines but *fictitious* perpetual motion machines. My comment is that they are not perpetual motion machines at all, but permissible disequilibrium machines freely receiving excess energy from their energetic exchange with their active environment. They are no more mysterious than a windmill, a sailboat, a watermill, or a solar cell bank.

One must be precise. A bicycle is a free-energy COP>1.0 machine while going downhill. It is not such at all when going uphill. The difference is that gravitational input of energy aids the bicycle's motion in the downhill case, and opposes it in the uphill case. The active environment gives the system additional energy in one case, and takes energy from the system in the other case. Disequilibrium exchange can cut either way!

It is precisely the EM system far from equilibrium with its active environment — where the environment puts in additional energy — that the serious overunity researcher is seeking. It is a perfectly valid pursuit, even by the standards of the perpetual motion critics, who really should study *both* kinds of thermodynamics, not just *one*. They also should study how Maxwell's equations were curtailed and truncated; one result is that all Maxwellian disequilibrium systems were — and are — discarded *arbitrarily* by the Lorentz symmetrical regauging.

The only criticism one needs to raise vis a vis COP>1.0 and perpetual motion machines is this: If an inert (no hidden internal source) machine receives no net energy from its external active environment, but is in equilibrium in its energetic exchange with that environment,⁴⁹ then

⁴⁹ Here we quibble again and point out that Lorentz's symmetrical regauging actually does require that the system receive and take on excess EM potential energy from its environment (the active vacuum and the local curved spacetime). However, this excess energy can only be received in the form of two injections of field energy, where the fields are equal and opposite. Hence the energy is "bottled up" as a stress potential, with net zero translation force available to it. Since this stress potential energy cannot translate electrons, it cannot do work in an external load. It merely changes the stress of the system itself. The net result is actually a rotation of the frame in which the system exists, away from the "laboratory frame" of the observer. In short, the Lorentz condition establishes a new "equilibrium condition" for the system, by rotating its frame. It also implies that EM energy is continuously received by the system from both the active vacuum and local curved spacetime, in order to maintain the rotated frame and **the** new equilibrium condition. Further this

classical thermodynamics rigorously applies to it and the machine cannot and will not exhibit $COP > 1.0$. However, all EM systems contain charges, and these are indeed "hidden sources" of EM fields and potentials and their energy. *It rigorously follows that, since they contain hidden energy sources, all EM systems are potentially $COP > 1.0$ systems a priori.* Further, *it follows that some ubiquitous design characteristic of the system itself must prevent the system from achieving $COP > 1.0$, since nature does not prevent it.* That characteristic feature is the ubiquitous closed current loop circuit, directing all spent electrons in the external circuit right back through the source dipole in the generator or other primary power source.

It is indeed mandatory that — if at all possible — the inventor or independent researcher *identify* a legitimate source of environmental energy that his purported $COP > 1.0$ device receives and collects, and how it receives it and then uses it to power the loads. That means he should identify where and how his system violates the Lorentz self-regauging condition imposed by the standard closed current loop circuit. If the inventor himself cannot explain it — and this does happen — then someone else must explain it for him. If the machine works under proper independent test and replication, then criticism that no explanation exists for it in normal physics is of no relevance. It is a spur to the theorist to enlarge his horizons and to find the proper physics that *does* explain it.

We stress that we cited the works of Angrist because his voice is reasoned and he does not stoop to name-calling and ad hominem attacks. He also does point out a historical rash of machines that clearly must comply with classical equilibrium thermodynamics, because they have no discernible or stated extra input of energy from their active environment and have no self-asymmetrical regauging. When such machines have no external free input of energy from their active environment, they are systems in equilibrium with their active environment, and cannot exhibit $COP > 1.0$ — exactly as pointed out by Angrist. With such a reasoned critic, a scientific dialog is possible, and his main thrust — that no *equilibrium* system can exhibit $COP > 1.0$ — is quite valid. With the vehement critic, it is already a cur dog fight from the outset and there can be no scientific discussion at all.

The only contention one has with a rational critic, whose criticism is based on classical thermodynamics, is when he then generalizes that *all* EM

continuous input of two energy flows, equal and opposite, does continuous internal work on the Maxwellian system to increase and maintain its stress.

systems fall within this class. That conclusion is a non sequitur, and ignores the entire science of disequilibrium thermodynamics and a vast body of scientific literature and scientific experiments in electrodynamics. When stated for electrodynamic systems, it also ignores the actual documented history of electrodynamics, and ignores Lorentz's *arbitrary discard, from all accountability*, of the Heaviside giant nondiverged energy flow component accompanying every circuit and system. It also ignores Lorenz's and then Lorentz's symmetrical regauging of the Maxwell equations to give new and simple equations easier to solve. This arbitrary regauging did in fact unwitting discard all open disequilibrium Maxwellian systems — precisely those permitted to exhibit $COP > 1.0$.

See again Figure 1-1. The energy entering the circuit is entering it from the surrounding space outside the circuit. Heaviside showed that the energy flow component remaining after the Poynting component is withdrawn is orders of magnitude greater than the Poynting component entering the circuit and powering it. *It can easily be demonstrated that every generator outputs far more EM energy in space surrounding the power line attached to it, than the operator inputs as mechanical energy to the shaft.*⁵⁰

⁵⁰ E.g., just use a gedanken experiment followed by the Bohren {24} experiment as validated by Paul and Fischer {25}. Consider a 100% efficient DC system, powered by a DC generator, using a closed Current loop circuit. All the Poynting energy received by the system appears at first blush to be dissipated in the external load. That is not true, but let us not yet belabor the point. Include the complete circuit loop back through the source dipole in the generator. The back emf voltage across the source dipole between the terminals is precisely equal to the forward emf voltage between the terminals but around the external half-loop. The same current flows through both the forward voltage drop and the reverse voltage repotentialization. So precisely as much energy is dissipated to force the current through the back emf, as is recovered from the load.

Accept the conventional view that the shaft energy input to the generator is transduced into magnetic energy, which is then dissipated to force those charges back through the back emf. Now examine the energy flow in space surrounding the external circuit, using both the Poynting theory and Heaviside's theory. We have accounted for the Poynting diverged component, but we have not accounted for the huge remaining nondiverged Heaviside component. From whence comes this excess remaining energy flow that did not enter the circuit, was not included in the Poynting calculation, and was not expended in the circuit but was just wasted? To prove the excess energy flow really exists, perform the Bohren experiment {24} where the intercepting charges in the circuit are in resonance, and thus "sweep out" a larger geometrical cross section of interception of the impinging energy flow. These charges do sweep beyond the static unit charge cross section conventionally assumed in the definitions of field intensity (e.g., of the fields E and H in the Poynting vector S in $S = (E \times H)$). If the defining unit point charges are in resonance and sweep out a

Heaviside knew this in the 1880s. All the energy flow that is intercepted by the circuit and enters (i.e., the Poynting component) at essentially right angles, hardly even changes the angle of flow of the remaining huge flow of energy surrounding the circuit and missing it. Quoting Heaviside {153} directly:

"It [the energy transfer flow] takes place, in the vicinity of the wire, very nearly parallel to it, with a slight slope towards the wire.... Prof. Poynting, on the other hand, holds a different view, representing the transfer as nearly perpendicular to a wire, i.e., with a slight departure from the vertical. This difference of a quadrant can, I think, only arise from what seems to be a misconception on his part as to the nature of the electric field in the vicinity of a wire supporting electric current. The lines of electric force are nearly perpendicular to the wire. The departure from perpendicularity is usually so small that I have sometimes spoken of them as being perpendicular to it, as they practically are, before I recognized the great physical importance of the slight departure. It causes the convergence of energy into the wire. "

So every electrical power system is rigorously a COP>1.0 "energy gating" system already, if the neglected, enormous Heaviside energy flow through space around the circuit (and missing it and wasted) is re-accounted. In that case, much greater energy pours out of the terminals of every generator, than the feeble amount of mechanical energy we input to the shaft.

We do not have an *energy availability* problem, and we never have had one! Instead, we have an *energy flow interception and collection* problem

greater cross section, then the assumed Poynting vector S , for the static case, changes in magnitude by some ratio k for the resonant case to the vector S_R , so now $S_R = k_1 E \times k_2 H = k_3 (E \times H)$. Since k_3 is just the ratio of the actual geometrical cross section swept out by the charge to the standard geometrical cross section swept out by the static charge, then for a static charge $k_3 = 1.0$, and for a resonant charge $k_3 > 1.0$. Hence the Bohren experiment, with $k_3 = 18$ or so, produces 18 times as much collected (Poynting) energy "out" as we erroneously think we input by normal calculations ignoring the input Heaviside nondiverged component. The Bohren experiment {24} proves the argument; validation by Paul and Fischer {25} appears in the same journal issue.

— and we always have had one, due to the ubiquitous use of the closed current loop circuit.

Texts — e.g., such as by Kraus {154} — do show the Poynting (intercepted and collected) component of the EM energy flow surrounding the power line attached to the generator terminals, but none of them today go into the remaining nondiverged Heaviside component. Each of Kraus' contours {76} of energy flow in space, around those power line conductors, shows *only that part of the energy flow in space that is being drawn into the circuit*. It does not show the remaining huge energy flow that (i) is not intercepted, (ii) does not enter the circuit, and (iii) is wasted. Presently no texts illustrate this Heaviside nondiverged energy flow component, and no text accounts for it except to point out that the Poynting component must be considered to be indefinite, since it can be accompanied by an additional energy flow component. The texts then erroneously conclude that the excess flow can have no physical significance.⁵¹

One can easily prove the existence of additional energy flow to be collected, in addition to the Poynting component. E.g., simply examine the Bohren experiment {155} and its replication by Paul and Fischer {156} — or one can repeat the experiment oneself. The Bohren experiment outputs some 18 times as much energy as is input by normal "Poynting component" calculations alone, because it also intercepts additional energy from the unaccounted and ignored *free* Heaviside input component remaining and not diverged by a *static* unit point charge. Bohren simply places the charge in resonance, so it sweeps out a greater geometrical reaction cross section in the energy flow, thereby penetrating into the free — but arbitrarily discarded and unaccounted — Heaviside component, and intercepting and collecting additional energy. Bohren is perfectly aware that the excess energy caught by the resonant charges comes from the surrounding vacuum. However, he seems quite unaware of Heaviside's

⁵¹ E.g., J. D. Jackson, *Classical Electrodynamics*, Second Edition, Wiley, 1975, p. 237: "...the Poynting vector is arbitrary to the extent that the curl of any vector field can be added to it. Such an added term can, however, have no physical consequences." Jackson errs in stating that the added energy flow vector cannot have any physical consequences. It cannot, of course, unless one catches some of it and uses it to power a load, without using half of the caught energy to destroy the source dipole faster than the load is powered. One of the major applications of it is to use it with Dirac sea negative energy 4-holes in the vacuum, where the holes produce negative energy fields and potentials in surrounding spacetime, acting back upon the system which is the source of the 4-holes to produce practical antigravity.

discovery and cautious statement of the excess energy involved in *every* field-particle interaction, and particularly in electrical circuits.

There are several such "white crows" which are legitimate $COP > 1.0$ EM processes in physics. It only takes one small white crow to prove that not all crows are black. As another example, the papers of Letokhov {157a-157d} are especially recommended. So long as excess energy is received freely from the environment, the system is permitted to be in disequilibrium where $COP > 1.0$.

So far as this author could discover, none of the perpetual motion machine critics have noticed another very simple fact: The conventional electrodynamics they utilize to refute $COP > 1.0$ Maxwellian systems implicitly assumes that the source charge — which is any and every charge in the universe — continuously *creates* and pours out energy in 3-space without any energy input at all. Their own conventional classical electrodynamics contains a "perpetual motion machine assumption" of the most fundamental and grossest kind. The ardent skeptics of overunity EM systems — in using that implicit conventional assumption — are themselves the greatest perpetual motion advocates of all, though perhaps unwittingly. In 2000 we resolved that long-vexing problem⁵² of the source charge {12}.

The more strident critics simply set up the "equilibrium thermodynamics" straw man, then knock it down and attack independent $COP > 1.0$ experimenters with it, erroneously implying that all overunity researchers seek such in an equilibrium system. They fail to notice orthodox science's implied assumption that every charge and every dipole in the universe is already assumed to be a $COP \Rightarrow \text{inf.}$ perpetual motion machine, freely *creating* all that continuous outpouring of energy from nothing. None of the critics have noticed and critiqued this greatest of all perpetual motion assumptions right in their own ranks, without a single exception, and the most ubiquitous. Undoubtedly that is because the scientific community honestly and freely admits that it has not heretofore solved that problem {68}, and also points out that the outpouring of energy is an experimental fact and therefore unquestionable.

The better critics — at least the rational ones such as Angrist — already admit that there exists a class of legitimate "fictitious perpetual motion

⁵² After publication of our paper, we also discovered very powerful support for our solution in quantum field theory. E.g., see F. Mandl and G. Shaw, *Quantum Field Theory*, Wiley, 1984/1993, Chapter 5.

machines" which are powered continuously without the operator inputting the energy. The phrase "fictitious perpetual motion machine" is an attempt to retain the classical thermodynamics straw man, when dealing with the thermodynamics of a system far from equilibrium in its energy exchange with its active environment. That phrase has been a non sequitur since the award of the Nobel Prize to Ilya Prigogine in 1977. We stress again our new use of all EM systems as open systems, in accord with general relativity.

So when rigorously analyzed from the breadth of physics and thermodynamics, and not just from a selected very narrow portion, the entire "perpetual motion" critical literature is inappropriate or — more exactly — is inappropriately focused upon a fictitious or false target. It is simply a classic example of reasoning from a false premise.

Not one such critic seems to have noticed that every generator and battery already pours out more energy than what is input to the shaft, and that it is easily proven experimentally via the thousands of experiments showing negative absorption from the medium. None seems to have bothered to read the original Heaviside, Poynting, and Lorentz papers to see how this startling fact was buried more than a century ago.

Finally, a self-appointed "expert" who does not even know what furnishes the energy to power every electromagnetic circuit, cannot be taken seriously in his "learned criticism" , regardless of what journal publishes it. If he continues to accept the unsolved source charge problem, implying that all charges freely create EM energy from nothing, he is not expert in any facet of powering electromagnetic systems and circuits.

2.1.8 Prescribed Systems Versus Changes to Maxwell's Equations

As we stated, Maxwell's theory {20} was some 20 quaternion-like and vector equations in some 20 unknowns. By discarding the scalar component of the quaternion to retain only the vector subcomponent, and by discarding many of Maxwell's potentials, Heaviside {158} truncated the Maxwell equations to essentially the present familiar set of four vector equations - or in potential form, to two equations with variables unseparated.

While this truncation discarded a great deal of Maxwellian electrodynamics phenomenology, from a thermodynamics view the resulting *Maxwell-Heaviside* equations still contain and prescribe two types of Maxwellian systems:

- (1) systems in equilibrium with their active environment, such as the active vacuum, and
- (2) systems far from equilibrium with their active environment, such as the active vacuum.

Systems in the first class of Maxwell-Heaviside systems — i.e., in equilibrium in their energetic exchange with their active environment — rigorously obey classical equilibrium thermodynamics {159}. No system in that Maxwellian class can output more energy than the operator himself inputs to the system. The greatest coefficient of performance (COP) that these systems can accomplish, is $COP = 1.0$ for a theoretically perfect system without internal losses whatsoever, and thus with 100% efficiency of conversion of their input energy into work in the load. Since any real system has internal losses and thus is less than 100% efficient, the *practical* systems of this first class exhibit $COP < 1.0$.

These Maxwellian systems of the first class are the electrical systems always "understood" by ardent skeptics who proclaim that no other kind of Maxwellian system exists, that therefore no Maxwellian system can exhibit $COP > 1.0$, and that a claim to $COP > 1.0$ is perpetual motion lunacy and not science at all. These fellows often launch scathing and unjustified personal attacks upon any serious researcher trying to work with that second class of permitted Maxwellian systems! It would be scientifically beneficial if these self-appointed defenders of the faith would simply study some more physics and thermodynamics, review the history of Maxwell's theory and how it was altered, and understand the well-established thermodynamics of systems far from equilibrium.

This false charge — that there can be no $COP > 1.0$ EM system because that would violate the laws of physics and the laws of thermodynamics — has been insidiously indoctrinated into generation after generation of physics and electrical engineering students. Today most of our electrical engineers and electrical scientists have absorbed it and believe it without question. Our power-engineering scientists believe it, and so advise the government. Hence our government believes it on the advice of our best scientists, such as the National Academy of Sciences and the National Science Foundation. Our great national laboratories also believe it and are just as mentally conditioned. The universities — especially the electrical engineering departments — also believe it, and provide a mainstream suppression of the sharp young graduate students and post-docs that would otherwise have long ago revised this mess and solved the energy crisis permanently.

Again we are reminded of that first quotation by Einstein, which we included at the beginning of Chapter 1, and which admonished us to ever examine the foundations of our science to root out and correct the errors. We are also reminded of another quote by Tolstoy:

"I know that most men, including those at ease with problems of the greatest complexity, can seldom accept even the simplest and most obvious truth if it be such as would oblige them to admit the falsity of conclusions which they have delighted in explaining to colleagues, which they have proudly taught to others, and which they have woven, thread by thread, into the fabric of their lives. " [Count Leo Nikolaevich Tolstoy].

The second class of Maxwell-Heaviside systems — rigorously prescribed and permitted by Heaviside's truncated Maxwellian theory — is comprised of systems in disequilibrium with their active environment. A system in this class does not obey classical equilibrium thermodynamics. To the contrary, this system obeys the well-known *thermodynamics of systems far from equilibrium* {160a-160f} with their active environment — such as the active vacuum.

Such a system *is permitted to*:

- (i) self-order,
- (ii) self-oscillate or self-rotate,
- (iii) output more energy than the operator himself inputs and thus exhibit $COP > 1.0$ (the excess energy is freely received by the system from its external active environment),
- (iv) power itself and its load simultaneously (all the energy is freely received by the system from its external active environment,⁵³ without any operator energy input being required), and

⁵³ We accent the concept of the supersystem. consisting of three components: (a) the system and its dynamics, considered as in normal electrical engineering (with a flat spacetime and an inactive local vacuum), (b) the active local vacuum and its dynamics, and (c) the active local curvatures of spacetime and their dynamics. All three components of the supersystem interact with each other. In conventional electrical engineering, the assumption in U(1) electrodynamics of a flat local spacetime and equilibrium with the local vacuum exchange eliminates any

- (v) exhibit negentropy, which every charge and every dipole in the universe already does {12, 68}.

Let us now see why Maxwellian EM systems of the second class *are not being designed and built as such*, even though they are permitted by the laws of physics and reinterpreted thermodynamics, and even though they are prescribed in the Maxwell-Heaviside equations before further truncation by Lorentz {161a, 161b}. We may use the Maxwell-Heaviside equations in vacuum, because the energy flow intercepted by the external circuit pours out of the generator terminals and fills all space surrounding the power lines. It is therefore a transmission-reception problem, prior to the "potentialized current-transport" problem in the circuit.

2.2 Lorentz Regauging of the Maxwell-Heaviside Equations

2.2.1 Introductory remarks.

The domain of Lorentz's symmetrically regauged equations is only a small subset of the domain of the Maxwell-Heaviside equations they replace. Indeed, the later Lorentz {161a, 161b} symmetrical regauging discards an entire class of Maxwellian systems permitted by nature and by the Maxwell-Heaviside equations before they are symmetrically regauged.

Lorentz's symmetrically regauged EM equations discard all Maxwell-Heaviside systems that are far from equilibrium in their energetic exchange with the active vacuum. They retain only that subset of the Maxwell-Heaviside theory wherein the system being described is in forced equilibrium {162} in its exchange with its active vacuum environment. Hence the present Lorentz-Maxwell-Heaviside theory, by which EM circuits and electrical power systems are designed, produces only systems in self-forced equilibrium with the active vacuum, *specifically during the symmetrically regauging discharge* of the circuit's excitation energy. The closed current loop circuit in fact discharges half its collected energy to destroy the source dipole in the generator, thereby destroying that dipole's extraction from the vacuum and furnishing of the energy flow pouring out of the terminals. These circuits kill themselves faster than they can power the load, and they use more energy to kill the energy flow from the vacuum than they use to power their load. Hence all present EM systems

disequilibrium of the system with its active environment, hence arbitrarily discards all Maxwellian disequilibrium systems - precisely those that can exhibit $COP > 1.0$.

rigorously conform to classical equilibrium thermodynamics, and exhibit a coefficient of performance (COP) of $\text{COP} < 1.0$ since any real system also has losses {163}.

2.2.2 Technical re-gauging of the Maxwell-Heaviside equations {164}.

For asymmetrical-re-gauging (A-re-gauging) considerations, we are speaking of A-re-gauging the potential energy in and around a circuit. We include not only the Poynting energy flow component that is diverged into the circuit conductors, but also the remaining Heaviside *nondiverged* energy flow in space surrounding the conductors. This means that the energy is in field energy (E-field and B-field) form, both overtly as ordinary EM fields and covertly or "infolded" inside the corresponding scalar potentials {165, 166, 167, 168}, or both. Consequently, we must analyze Maxwell's equations as we would for radiating energy, rather than employ only the $\mathbf{j}\phi$ circuit analysis conventionally utilized, where the collected energy is sluggishly transported by the Slepian vector $\mathbf{j}\phi$. We show in this book that asymmetrical self-re-gauging (ASR) allows permissible overunity operation of electromagnetic engines and devices {169}, if other requirements are fulfilled also.

In Gaussian units, Jackson {170} shows that Maxwell's four equations (vacuum form) can first be reduced to a set of two coupled equations in the (\mathbf{A}, Φ) representation as follows:

$$\nabla^2 \Phi + \frac{1}{c} \frac{\partial}{\partial t} (\nabla \cdot \mathbf{A}) = -4\pi\rho \quad [15]$$

$$\nabla^2 \mathbf{A} - \frac{1}{c^2} \frac{\partial^2 \mathbf{A}}{\partial t^2} - \nabla (\nabla \cdot \mathbf{A} + \frac{1}{c} \frac{\partial \Phi}{\partial t}) = -\frac{4\pi}{c} \mathbf{J} \quad [16]$$

The result is two coupled Maxwell equations rather than four. Jackson shows that potentials \mathbf{A} and Φ in these two equations are arbitrary in a specific sense, since the \mathbf{A} vector can be replaced with $\mathbf{A}' = \mathbf{A} + \nabla\Lambda$, where Λ is a scalar function and $\nabla\Lambda$ is its gradient. The \mathbf{B} field is given by $\mathbf{B} = \nabla \times \mathbf{A}$, so that the new \mathbf{B}' field becomes

$$\mathbf{B}' = \nabla \times (\mathbf{A} + \nabla\Lambda) = \nabla \times \mathbf{A} + \mathbf{0} = \nabla \times \mathbf{A} = \mathbf{B} \quad [17]$$

In other words, the \mathbf{B} field has remained entirely unchanged, even though the magnetic vector potential has been asymmetrically changed. However, if no other change were made, then the electric field \mathbf{E} would have still been changed because of the gradient $\nabla\Lambda$. In that case the net change would be asymmetrical, because one obtained a "free" E-field which could

then do work on the system — either beneficially or detrimentally, depending upon the specific conditions, geometry, and timing. To prevent this excess "free" E-field from appearing, the electrodynamicists simultaneously and asymmetrically regauge (transform) the scalar potential Φ so as to offset the E-field change due to the regauging of equation [15]. In short, they also change Φ to Φ' , where

$$\Phi' = \Phi - \frac{1}{c} \frac{\partial \Lambda}{\partial t} \quad [18]$$

With that additional change, now the net E and B fields remain unchanged {171, 172}, even though both potentials have changed and the fundamental stored energy of the system has changed, as has the stress of the system. Unchanged force fields just mean that only a set of zero-summation forces (a zero-summed stress system) has been utilized to effect the change in potential energy. It also means that the net summation of the two *asymmetrical* regaugings has been entirely *symmetrical* {173}.

Jackson points out that, conventionally, a set of potentials (\mathbf{A} , Φ) is habitually and *arbitrarily* chosen by the electrodynamicists such that

$$\nabla \bullet \mathbf{A} + \frac{1}{c} \frac{\partial \Phi}{\partial t} = 0 \quad [19]$$

This *net symmetrical* regauging operation creates a new and simpler Maxwellian system, with different system stress and different system potential energy. It successfully separates the variables, so that two inhomogeneous wave equations result. This procedure yields a new and simplified system, and the new Maxwell's equations for it are as follows:

$$\nabla^2 \Phi - \frac{1}{c^2} \frac{\partial^2 \Phi}{\partial t^2} = -4\pi\rho \quad [20]$$

$$\nabla^2 \mathbf{A} - \frac{1}{c^2} \frac{\partial^2 \mathbf{A}}{\partial t^2} = -\frac{4\pi}{c} \mathbf{J} \quad [21]$$

The two previously coupled Maxwell equations [15] and [16] (potential form) have been replaced by equations [20] and [21], to leave two much simpler inhomogeneous wave equations, one for Φ and one for \mathbf{A} . These are *new equations for a new system!*

Of course, this arbitrary *net symmetrical* regauging (let us use the term ***S-regauging***) is quite useful for purposes of simplifying the theory and for

easing calculations. But its unquestioning and rather universal usage has arbitrarily eliminated the freedom of the system designer to *asymmetrically* regauge the system's potentials, and *use* the resulting excess free force fields to change the stored energy in the system without the operator performing extra work upon the system. So we advance the condition for violating this S-regauging, violating the exclusion of net A-regauging, and violating the "frozen gauge" process as

$$\nabla \cdot \mathbf{A} + \frac{1}{c} \frac{\partial \Phi}{\partial t} \neq 0 \quad [22]$$

Any regauging of the potentials that complies with equation [22] will *a priori* produce one or more net excess forces in the system, as well as a change in potential energy of the system. By controlling the regauging, the system designer is then able to control where, how, and when these excess forces appear, and whether they enhance the system's operation or hinder it. These net forces can then be used to perform work and dissipate the excess potential energy taken on in the asymmetrical regauging. That is what we do when we ourselves add potential (and potential energy) to an EM system to enable it to do work! *If we always have to asymmetrically regauge the system to get it to do subsequent work, why do we not just let the system asymmetrically regauge itself so we get the input energy freely and also get the resulting work freely?* The gauge freedom axiom in quantum field theory assures us that nature will indeed freely change the potential energy of any system for us, if we but arrange it and permit it.

In short, we have had a gauge freedom principle for some time, which guarantees us that $\text{COP} > 1.0$ EM systems are permitted and possible. Yet we have failed to realize it, or take any advantage of it. So we continue to pay to asymmetrically regauge (potentialized) all electrical power systems, and to insure that we have to continue to do it, we specifically design the systems so they will then re-enforce Lorentz's symmetrical regauging condition.

This is another of those "inexplicable aberrations of the scientific mind" referred to by Nikola Tesla!

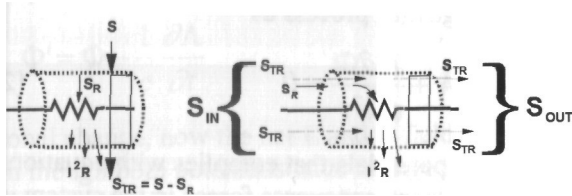
2.2.3 A Humorous Comment but an Exact Analogy

Again see Figure 1-1 in Chapter 1, and see Figure 2-3. In Figure 2-3, we show how Lorentz's integration trick {174a, 174b} discarded the huge nondiverged Heaviside component of energy flow outside the conductor, while retaining the small Poynting component that strikes the surface charges and gets diverged into the conductor to power the electrons. In

justifying his integration trick, Lorentz stated that all the rest of that wasted Heaviside energy flow

See Panofsky & Phillips
Classical Electrodynamics
Magnetism, 2nd edn
Addison Wesley 1962.
p 178-181

The Lorentz procedure arbitrarily discards the enormous Heaviside component that misses the circuit entirely and is wasted. This results in a non sequitur of first magnitude in EM energy flow theory



2-3a. Lorentz surface integration

2-3b. Actual S in and S out.

Figure 2-3 Lorentz's integration trick to discard the enormous Heaviside non-diverged energy flow component

The Heaviside component is often 10 trillion times the Poynting component but is simply wasted in ordinary single-pass energy flow circuits

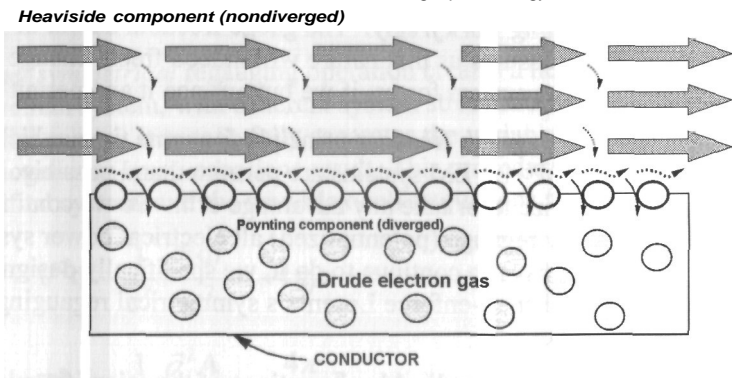


Figure 2-4 Heaviside nondiverged and Poynting diverged energy flow components.

(Figure 2-4) was "physically insignificant" (his term) because it did not strike the circuit, was not intercepted, and did not power anything. Well, Maxwell's theory is a material fluid flow theory, so let us evaluate Lorentz's justification in a fluid flow analogy.

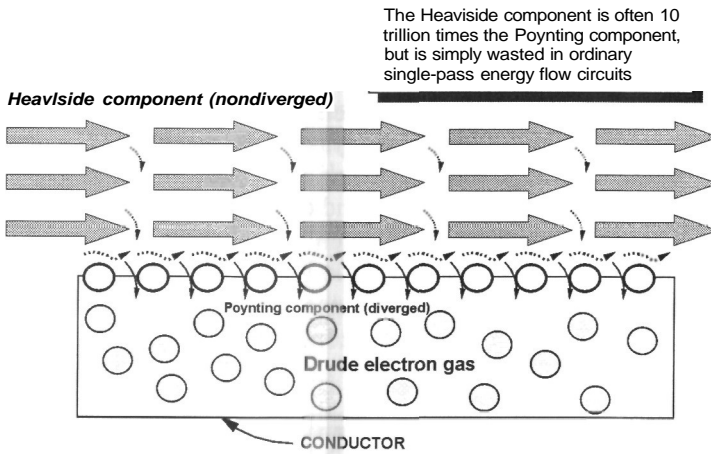


Figure 2-4 Heaviside nondiverged and Poynting diverged energy flow components.

Contrast Lorentz's statement if applied to the ocean wind on a sailing ship, where the wind represents the total energy flow and the ship represents a single Maxwellian system under consideration.

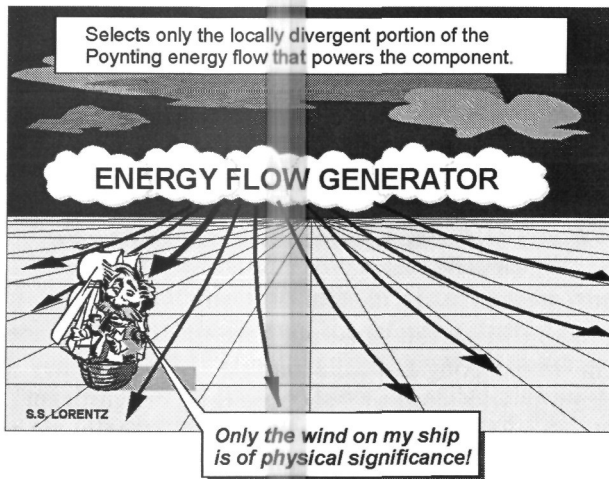


Figure 2-5 Lorentz in his sailing ship in an ocean wind, with no other ships around.

As shown in Figure 2-5, Lorentz's argument is analogous to stating that the huge component of the wind *that does not* strike the ship's sails is "physically insignificant" — in other words, it has no physical use. Now that is true for the single ship under consideration, as shown in Figure 2-5. None of that wind component that misses the ship's sails does anything at all to power *that ship* (that individual system). Hence it is indeed physically insignificant *to that ship itself*. Of course, if we flare the sails wider, the ship will catch more wind and develop more power. That is an analogy to the Bohren experiment, which resonates the charges (the "sails" intercepting the incoming EM energy flow "wind") so that they sweep out a greater geometrical cross section. Hence 18 times as much energy is caught, as when the charges are not resonated (the sails are not flared to a greater area).

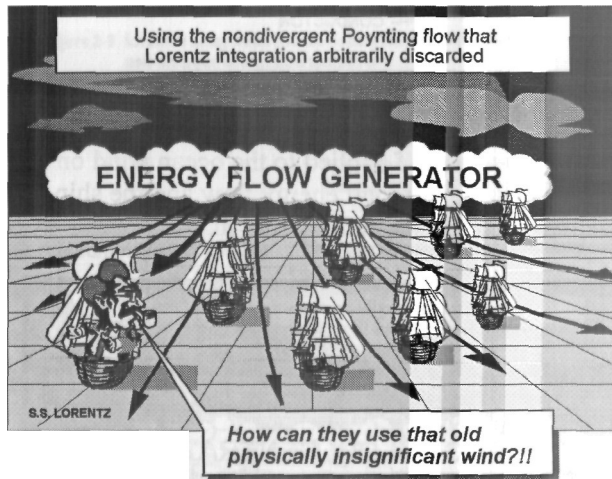


Figure 2 6 Lorentz in his sailing ship in an ocean wind, with many other ships alongside.

However, now see Figure 2-6. If we put some more ships (some more systems) with "intercepting and collecting sails" in there, they will be powered quite well with some of that "physically insignificant" wind. So Lorentz (following earlier work by Ludwig Lorenz) really did advance and impose upon electrodynamics a non sequitur of first rank.

And the wind-fluid analogy helps to "lighten things up" a bit here and inject a little good-natured humor!

2.2.4 Discussion

Equation [22] has now become the first *necessary but not sufficient* principle of asymmetrical self-regauging (ASR) for overunity electromagnetic engines and devices. That is, we are now free to A-regauge in a *nonconservative* field manner, where excess net force fields automatically appear and remain for our use in the system. All that remains is for the designer to:

- (i) evoke "nonconservative" (asymmetrical) regauging in accord with equation [22];
- (ii) have the system assembly in disequilibrium with its energetic external environment, so that the system itself performs this nonconservative A-regauging in some sector or part {175} of its normal operation,
- (iii) insure that any "free force" that is produced and allowed to do work upon the system will do some positive work upon the system, so as to increase its collected energy, and
- (iv) assure that the "free" forces that are otherwise produced by the circuit design (this includes, e.g., the back emf) do not seriously degrade the system (i.e., do not substantially reduce its energy available to dissipate as work in the load). Usually this means that, contrary to the standard closed current loop circuit, the circuit must not dissipate half its collected Poynting energy to dissipate the charges in the source dipole and destroy it. *These four considerations we now advance as the primary or master principles of asymmetrical self-regauging of electromagnetic engines and devices for permissible overunity efficiency.* We will meet additional principles in a later chapter when we discuss what the form of the energy output of an overunity EM system is, and the considerations for close-looping a COP>1.0 EM system into stable disequilibrium and continuous self-powering.

It is understood that the asymmetrical regauging portion of the circuit or system must be a broken symmetry in the energetic exchange between the active vacuum environment and that portion of the system. We exclude, e.g., solar cell-powered systems, windmill-driven generators, etc.

For simplicity, the system designer may wish to A-regauge only one potential, producing a desired "free" force F_1 to work on the system and increase its energy, while allowing any other extraneous force F_2 to appear, but just "bottling up" that additional force F_2 so that it cannot do any work at all on the system and therefore cannot degrade the system's operation. A most useful ASR corollary that immediately suggests itself is to simply A-regauge onto that force operation that normally produces the back-drag in a system or device, to either *eliminate* the back-drag altogether or reverse its algebraic sign so that it becomes an *assisting* force instead of a *hampering* force {176}.

In overunity systems, this becomes a startling and unexpected exercise in novel new phenomenology effected by tempic potential differences, tempic force, etc. It involves not only the system, but also the entire *supersystem* consisting of the physical system, its associated altered local vacuum, and its associated curved local spacetime. See Chapter 9 for our expose of these phenomena, and how one must transduce⁵⁴ the effects of a very novel kind of tempic force back emf, if the $COP > 1.0$ system is to remain in disequilibrium with the active vacuum and thus maintain its stable $COP > 1.0$ operation.

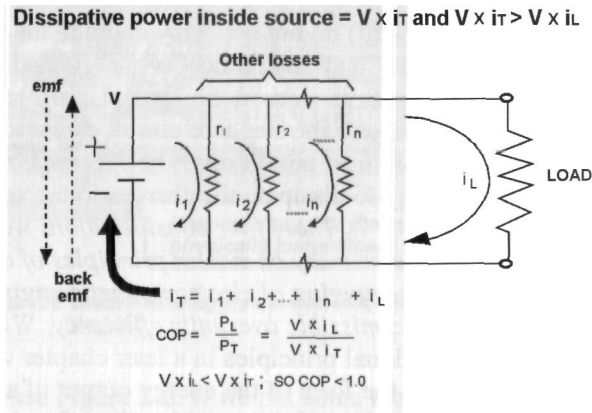


Figure 2-7 Why a conventional closed current loop circuit is limited to $COP < 1.0$.

Again see Figures 2-3 and 2-4, and equations [20] and [21].
Electrodynasticists have previously *assumed away* the capability of work-

⁵⁴ A patent application on the process has been filed by John Bedini and the present author.

free "refueling" of an electromagnetic system directly from the local vacuum {177}. They have deliberately designed their systems *to prevent self-evoking and positively utilizing asymmetrical self-regauging of their own potential energy during system excitation discharge*. (See Figure 2-7).

In fact, by forcibly pumping the ground electrons from the external circuit back up through the primary source dipole in the generator or battery, our closed current loop circuits self-enforce the Lorentz condition and require that precisely half the regauging energy freely intercepted and collected in the external circuit is used to destroy the source dipole providing the regauging energy. This destruction of the energy source is accomplished faster than the external load is powered. Hence all such systems with losses are $COP < 1.0$ systems. For more than 100 years, this "self-destroying, suicidal system" is the only kind of electrical power system our energy scientists and engineers have designed and built. To inject a little humor, we can only describe this in Tesla's words⁵⁵ as "*one of the most remarkable and inexplicable aberrations of the scientific mind which has ever been recorded in history.*"

Thereby electrodynamicists have narrowed the inherent flexibility of the Maxwellian EM gauge theory model to an artificially symmetrized subset of Maxwell-Heaviside-Lorentz equations that utilize a single fixed gauge. This prohibits the free use of the system's vacuum energy freely received by the source dipole's broken symmetry in its violent exchange with the active vacuum. If the system increases its dipolarity (regauges freely), it simultaneously increases the speed at which it destroys the dipolarity! *Maxwell's equations themselves do not require this, and neither does Heaviside's truncation of them into the resulting Maxwell-Heaviside equations. Lorentz's symmetrical regauging of the Maxwell-Heaviside equations does require it.*

The Maxwell-Heaviside theory without Lorentz symmetrical regauging allows regauging asymmetrically to place the system in disequilibrium so that it freely receives and utilizes excess energy from the surrounding vacuum. Then it can again asymmetrically regauge by dissipating that freely received energy in an external load. *The theory specifically does not require destroying the primary source dipole as is done in the arbitrary closed current loop circuit between load and primary source dipole in the generator or battery.*

" Nikola Tesla, "The True Wireless, *Electrical Experimenter*, May 1919.

By arbitrary habit, electrodynamicists have discarded the Maxwell-Heaviside major EM overunity mechanism: *Asymmetrically self-regauging accomplished by the system itself, without requiring external work being done on the system by the operator*, in order to freely gather in and collect excess potential energy in the system from its broken symmetry with its active vacuum environment. In this self-A-regauging, associated *excess net force* does appear, whereupon that excess collected/stored regauging energy can then be used to "drive" the forces against load resistance and system losses to freely power the system and its loads {178}. They have also discarded the major overunity corollary whereby the designer is free to utilize *system self-regauging asymmetrically so that the normal back-drag or back-emfwork — usually done upon the system in its closed current loop configuration to reduce its kinetic energy — vanishes or reverses sign and becomes beneficial work done in the opposite sense, to freely increase the energy of the system.*

The failure to do this is bluntly met with, when one does succeed in producing a $COP \gg 1.0$ system momentarily by suddenly and very powerfully breaking the system's equilibrium in its vacuum energy exchange. Nature then exhibits a very novel kind of Dirac sea hole reaction (powered by tempic force generated in the locally curved spacetime and resulting effects generated in the altered semiconducting vacuum). This reaction sharply jerks the system (or the system plus its external power supply) back into equilibrium and $COP < 1.0$ operation. In Chapter 9, apparently for the first time in the literature⁵⁶ we present this novel mechanism exhibited by nature as a new kind of "tempic back emf phenomenon in systems in disequilibrium. We also explain how to handle the problem and in general how to use it for "freeze-framing" and stabilizing the system's disequilibrium operation in sustained $COP > 1.0$ configuration while powering itself and its load.

All that is required for "self-powering" $COP \gg 1.0$ EM engines directly powered by the vacuum, is that (1) initially the engine must asymmetrically self-regauge to produce $COP \gg 1.0$, and (2) positive *transduced* feedback (from the output) of a very special and previously unknown kind — where negative energy is transformed into normal electron current and energy — must be utilized to its input, in a clamped

⁵⁶ The basis for it, however, is in Dirac's electron theory published in 1930, nearly three quarters of a century ago. See P. A. M. Dirac, "A theory of electrons and protons," *Proceedings of the Royal Society of London, Series A*, 126(801), Jan. 1, 1930, p. 360-365.

and controlled fashion {179}. The clamped positive feedback can be designed and applied, once the fundamental engine is designed for self-regauging and overunity efficiency, and once the novel feedback and transformation requirements are understood and incorporated. The remaining excess output can then be utilized to power loads, while the engine seemingly "powers itself."

We stress, of course, that this system is just analogous to the windmill, and it continuously receives a "free energy wind" from its active environment. The conservation of energy law is obeyed at all times, as are physics and thermodynamics.

In a later chapter we present the concepts and processes for these novel phenomena involved in close-looping a $COP > 1.0$ system for self-powering operation.

2.3 The Suicidal Closed Unitary Current Loop Circuit

The present Lorentz-Maxwell-Heaviside theory, by which EM circuits and electrical power systems are designed, produces only systems in net usable equilibrium with the active vacuum, specifically during the symmetrically regauging discharge of the circuit's excitation energy (Figure 2-7). Hence all present EM systems designed by that model rigorously conform to classical equilibrium thermodynamics, and exhibit a coefficient of performance (COP) of $COP < 1.0$.

Since the Maxwell-Heaviside equations do not restrict the designer to systems in equilibrium with their active environment, some ubiquitous characteristic of the standard circuit approach must be self-enforcing the Lorentz symmetrical condition as far as using any excess free potential energy of the system to freely power loads. That is the closed-loop circuit, as we have discussed. Let us now illustrate what goes on in such a circuit.

Taking into account Figure 2-4, Figure 2-8 shows a modified diagram of what is actually happening between the vacuum and the dipole to power the circuit. Figure 2-9 shows how a pair of conductors constitutes an extended series of parallel dipoles. Once the dipole is formed by dissipating some chemical energy in the battery, the dipole extracts energy from the surrounding vacuum and pours it out of the battery terminals, producing an energy flow filling space around the conductors of the external circuit. Only a very small portion (Figure 2-4) of the very large energy flow is intercepted by the external charges in the conductors, and diverged into the conductors to power up the Drude electrons.

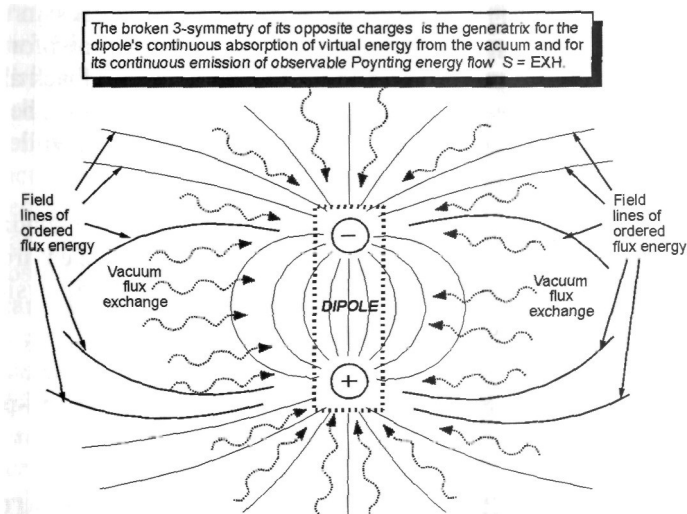


Figure 2-8 Virtual photon flux exchange intensity with the charges of a dipole.

As can be seen from Figure 2-7, half of the energy collected upon the internal electrons to drive them as $j\phi$ is expended as work required to pump the spent electrons from the ground return wire back through the source dipole in the battery. This scatters the charges of the dipole (in this case, by changing the chemistry of the battery plates) and destroys the dipole. The other half of the collected energy is dissipated in the external circuit's losses and in the load.

Then some more chemical energy has to be dissipated by the battery to perform work upon the internal charges and restore the dipole (in this case, to change the plate chemistry of the battery plates). So even if this process is 100% efficient, the battery has to dissipate as much chemical energy as was electrically dissipated upon those former dipole charges to scatter them and destroy the dipole.

In Figure 2-7, we show the small internal resistance of the conductors, as well as the load resistor. Half the energy dissipated by $j\phi$ is expended just to forcibly ram the spent electrons back through the back emf of the source dipole. The other half is expended in the circuit's internal losses and in the load resistance. Therefore, less energy is expended as usable work in the resistive load than is expended to destroy the dipole and cut off the flow of free EM energy from the vacuum.

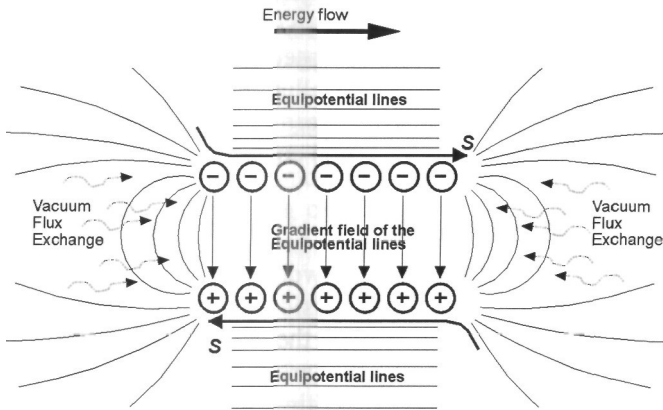


Figure 2-9 Paired conductors as an extended set of dipoles.

The battery has to input as much energy to restore the dipole as was used to destroy it. The battery has to expend at least as much chemical energy as equals half the entire energy originally collected in the external circuit and expended as $\int j(t)\phi(t)dt$. It must expend chemical energy $CE \geq \frac{1}{2} \int j(t)\phi(t)dt$. The energy RE dissipated as work in the load resistor R is $RE < \frac{1}{2} \int j(t)\phi(t)dt$. Thus $CE > RE$, and this system is forced to exhibit

$$COP \circ \frac{RE}{CE} = \frac{< \frac{1}{2} \int j(t)\phi(t)dt}{\frac{1}{2} \int j(t)\phi(t)dt} \text{ } \> COP < 1.0 \quad [23]$$

As can be seen, this system symmetrically regauges itself during its excitation discharge, so that it self-enforces the Lorentz condition during that period. The circuit self-enforces $COP < 1.0$, even though all the energy — both the energy powering the external circuit and also destroying the internal source dipole in the battery to enforce the Lorentz condition during discharge — is freely received from the active vacuum via the broken symmetry of the source dipole,⁵⁷ once established, in its energetic exchange with the active vacuum.

⁵⁷ The broken symmetry of opposite charges is one of the broken symmetries predicted by Lee, {13a} and by Lee, Oehme, and Yang, {13b}. Broken symmetry was proven experimentally in early 1957 by Wu *et al*, {14}. So profound were the implications for physics that the Nobel Prize was awarded to Lee and Yang in latter 1957, the same year! E.g., see T. D. Lee, "Weak Interactions and Nonconservation of Purity," Nobel Lecture, Dec. 11, 1957 in *T. D. Lee, Selected Papers*, Gerald Peinberg, Ed., Birkhauser, Boston, 1986, Vol. 1, p. 32-44.

The problem is that *the source dipole is destroyed faster than the load is powered*, as shown in Figure 2-7. Because of the inexplicable scientific pre-occupation with the conventional closed current loop circuit, the planet and biosphere have been increasingly polluted for more than a century, by burning more hydrocarbons, building more dams, using more nuclear fuel rods, etc. to provide ever more electrical energy.

2.4 In Summary

COP>1.0 operation in EM systems via work-free *asymmetrical* regauging has been inherent in the Maxwell-Heaviside equations for more than a century. Since Lorentz first did so circa the latter 1880s, electrodynamicists have just conveniently and arbitrarily *assumed away* COP>1.0 systems by (i) artificially limiting the theory to only that fraction of Maxwell-Heaviside systems in usable net force field equilibrium in their vacuum exchange during their excitation discharge, and (ii) using the ubiquitous closed current loop circuit to self-enforce the Lorentz symmetry condition during that excitation discharge. In other words, our engineers have only been building systems which self-enforce the overly restricted Lorentz-regauged theory.

Electrodynamicists have never seriously tried to build overunity circuits, nor until recently have they explored the discarded Maxwellian systems by removing the Lorentz regauging condition and examining EM energy from the vacuum.⁵⁸

⁵⁸ Under the directorship of Dr. M.W. Evans, the Alpha Foundation's Institute for Advanced Study (AIAS) has been gradually developing the physics of EM systems far from equilibrium with their active environment (the local active vacuum and local curved spacetime). Some of the papers of interest are: M. W. Evans et al., "Derivation of the Lehnert field equations from gauge theory in vacuum: Space charge and current," *Found. Phys. Lett.*, 13(2), Apr. 2000, p. 179-184; Evans et al., {38b}, {38c}, {113b}, {233a}, {233b}, {233e}; {233g}, {233j}; Evans et al., "Schrodinger Equation with a Higgs Mechanism: Inherent Vacuum Energy," *Found. Phys.* (in review); — "Vacuum Energy Flow and Poynting Theorem from Topology and Gauge Theory," *Physica Scripta* (in review); — "Energy from the Vacuum," *Physica Scripta* (in review); — "Some Notes on Asymmetric Regauging", *J. New Energy* 4(3), Special Issue, Winter 1999, p. 325-326; — "Inconsistencies of the Maxwell-Heaviside Theory of Electrodynamics: The Aharonov-Bohm Effect," *J. New Energy*, 4(3), Special Issue, Winter 1999, p. 236-240; — "Spontaneous Symmetry Breaking as the Source of the Electromagnetic Field," *Found. Phys. Lett.* (in press), A monumental work. *Modern Nonlinear Optics*, Second Edition, 3 vols., ed. M. W. Evans, Wiley, 2001 gives a broad coverage of higher group symmetry electrodynamics and energy from the environment (the local active vacuum and the

Every electrical power system ever built is and has been powered by electrical energy freely extracted from the seething vacuum exchange with the source dipole in the system, due to that dipole's broken symmetry. But the engineers and scientists have designed and built only those electrical systems which self-enforce Lorentz's symmetrical regauging.

The time for energy scientists and engineers to correct this procedure and cease this inane practice is long overdue, following the direction pointed out by the AIAS.

local curved spacetime). Some 60 AIAS papers are published as a Special Issue of *the J, New Energy*, 4(3), Winter 1999. More than 100 AIAS papers are also carried on DoE restricted website <http://www.ott.doe.gov/electromagnetic/>.

Chapter 3

Giant Negentropy, Dark Energy, Spiral Galaxies and Acceleration of the Expanding Universe

"... the discoveries made in 1957 established not only right-left asymmetry, but also the asymmetry of the positive and negative signs of electric charge. In the standard nomenclature, right-left asymmetry is referred to as P violation, or parity nonconservation. The asymmetry between opposite signs of electric charge is called C violation, or charge conjugation violation, or sometimes particle-antiparticle asymmetry. " [T. D. Lee]. {180}

"The ends of a dipole, being oppositely charged, exhibit charge conjugate symmetry violation. An 'isolated' charge, considered with its clustering virtual charges of opposite sign, also exhibits symmetry violation. " [T. E. Bearden, this book, below].

"A generally acceptable, rigorous definition of radiation has not as yet been formulated." ... "The recurring question has been: Why is it that an electric charge radiates but does not absorb light waves despite the fact that the Maxwell equations are invariant under time reversal? " [B. P. Kosyakov]. {181}

"It [the energy transfer/flow] takes place, in the vicinity of the wire, very nearly parallel to it, with a slight slope towards the wire... . Prof Poynting, on the other hand, holds a different view, representing the transfer as nearly perpendicular to a wire, i.e., with a slight departure from the vertical. This difference of a quadrant can, I think, only arise from what seems to be a misconception on his part as to the nature of the electric field in the vicinity of a wire supporting electric current. The lines of electric force are nearly perpendicular to the wire. Their departure from perpendicularity is usually so small that I have sometimes spoken of them as being perpendicular to it, as

they practically are, before I recognized the great physical importance of the slight departure. It causes the convergence of energy into the wire. " [Oliver Heaviside]. {182}

"The funny thing about the dark matter is it doesn't show up in light, X-rays, gamma rays, infrared, ultraviolet, radio waves, or submillimeter. We're running out of places to look for it." [William Keel]. {183}

"... baryonic, ordinary matter — the stuff of stars and of people — makes up just over 4% of the energy and matter in the universe. ... about 30% of the stuff in the universe is dark [unobserved] matter. The remaining two-thirds, theorists believe, is a mysterious 'dark energy' or 'quintessence' — a large-scale antigravity-like effect that is making the universe expand ever faster.... " [Charles Seife]. {184}

"And yet, curiously enough, we do not know exactly what charge is, only what it does. Or, equally significantly, what it does not do." [M. P. Silverman]. {185}

*"**Charge** is the ongoing circulation of EM energy flow between the time and 3-space domains, as seen by the observer. Negative charge is the ongoing absorption of EM energy input from the time domain (from ict), transduction of the absorbed energy into 3-space EM energy, and re-emission of the EM energy in all directions in 3-space. **Positive charge** is the ongoing absorption of EM energy input from 3-space, transduction of the absorbed energy into the time domain, and re-emission of the EM energy in the time domain. If we wish, we may also consider the positive charge as radiating negative energy, while the negative charge radiates positive energy. Once we consider vacuum polarization, we recognize that this circular flow process is involved at each "dipolar point" of the polarized vacuum. "* [T. E. Bearden, this book, below].

"The matter density of the Universe is extremely low. On average there might be one atom per cubic metre of space. The major constituent of the Universe is believed to be some kind 'dark energy', which is pushing the Universe apart. " [Matthew Colless]. {186}

3.1 Broken 3-Symmetry of the Dipole

To recap from Chapters 1 and 2: In 1956, Lee and Yang {187} strongly predicted broken symmetry in physics, suggesting experiments to detect it in the weak interaction. In early 1957, Wu *et al.* {188} experimentally demonstrated broken symmetry, thus furnishing the experimental substantiation of broken parity in the weak interaction. The emergence of broken symmetry was such a dramatic change to the view of physics, that in December of the same year, 1957, Lee and Yang were awarded the Nobel Prize.

One of the asymmetries shown by Lee *et al.* is the asymmetry of opposite charges. That means that a dipole, which consists of slightly separated opposite charges, exhibits broken symmetry in the seething vacuum virtual particle flux. In short, a dipole — any dipole or dipolarity — must absorb or receive virtual photon energy from the active vacuum, integrate at least some of it to observable state, and re-radiate that integrated EM energy in observable form in 3-space.

We stress: *The ends of a dipole, being oppositely charged, exhibit broken symmetry. An 'isolated' charge, considered with its clustering virtual charges of opposite sign, is a set of composite dipoles and also exhibits broken symmetry.*

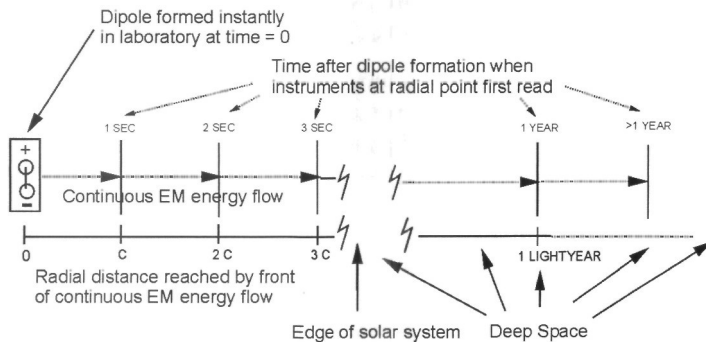


Figure 3-1 The source dipole experiment, demonstrating continuous energy flow.

Let us now consider a gedanken experiment, as shown diagrammatically in Figure 3-1, to illustrate Kosyakov's quotation cited above. At a point in the laboratory corresponding to the origin of a 3-dimensional frame, a dipole is produced instantly by separating charges, such as in a flash-charged capacitor. Along two radial lines in 3-space from that origin, we have

previously placed perfect EM field and potential detectors, at distances ct apart, where $t = 1, 2, 3, 4, n, \dots$ and so on in seconds, with the radials extending across the universe, and where c is the speed of light. We neglect the transient pulse that momentarily occurs at each instrument package, since we are examining steady state conditions.

At the end of one second, the instruments at $t = 1$ instantly read, and those readings remain thereafter. One second later, the instruments at $t = 2$ instantly read, and those readings remain thereafter. And so on with each of the instruments progressively farther from the origin reading at the proper light-time travel, and with all field readings then *remaining continuously* thereafter.

This gedankenexperiment demonstrates that what is emitted from the dipole, from its moment of creation at the origin, is a continuous flow of EM energy in all directions in 3-space.⁵⁹ This energy continuously flows from the dipole, indefinitely or as long as the dipole physically exists. Other than paying once to initially separate the charges and make the dipole, we have neither added nor input any additional energy. Yet energy continues to flow out from the dipole in all directions, unceasingly, as shown by the continued of the reading on each field energy density instrument, once the leading edge of the energy outpour reaches that instrument and passes it by. In short, the experiment shows that it is not a "pulse" that passes each instrument, but a continuous and sustained flow of EM energy, remaining steadily thereafter so long as the dipole remains.

One year after making the dipole, the instruments at one light year distance suddenly read, and their readings remain. *The energy density of a volume of space one light year in radius has now been changed, and that change in spatial energy density continues to spread outwards at light speed.*

⁵⁹ More exactly, what is observed is a spreading change in the energy density and point-like polarization of the vacuum itself, and of the local curvature of spacetime. At each point, once the change of energy density and ST curvature occur, the energy density and ST curvature remain fixed in a new equilibrium condition, steadily fed by the energy radiating from the dipole. See our point made in {181}. The discovery of giant negentropy {12} requires a change in how we view the very process of energy propagating in space. Now it has become a quite different *propagation of energy circulation between time and space domains at each affected point in space.*

Yet there has been no input of *observable 3-space* EM energy flow to the dipole whatsoever, as our instruments also verify. All observable energy flow in 3-space is *outward* from the origin where the dipole is located.⁶⁰

We have shown that the *observable* EM energy flow from a source dipole is not conserved in 3-space, which is consistent with a broken 3-symmetry since symmetry implies conservation. Either we must discard the conservation of energy law altogether, or it must be conserved in 4-space since we have proven the dipole does not conserve energy in 3-space. If we assume that the experiment must conform to the conservation of energy law, then 4-symmetry EM energy flow must exist since 3-symmetry energy flow is broken. The energy steadily pouring out of the dipole in all directions in 3-space must therefore be received by the dipole *charges from the time-domain*,⁶¹ assuming we are working in Minkowski 4-space. In particle physics, this is essentially the same as receiving the energy from the virtual domain, and therefore is consistent with the proven broken symmetry of every dipole and dipolarity.

The energy flow is indeed received from the time domain, as we have argued {189} in a wave manner consistent with (i) quantum field theory as shown by Mandl and Shaw in the photon model {190}, (ii) broken charge conjugation symmetry of particle physics using the virtual photon and observable photon concepts, and (iii) a re-interpretation of Whittaker's decomposition of the scalar potential {191} when applied to the scalar potential between the ends of the dipole {12}.

We state the obvious: A dipole is a Maxwellian system. This gedanken experiment also proves by demonstration that a Maxwellian system — e.g., a dipole — is permitted by the laws of nature, physics, and thermodynamics to output more energy than the operator inputs, since we

⁶⁰ Obviously, we are utilizing the prevailing notion of the flow of energy through 3-space, which is actually a non sequitur. No 3-space observable entity can "move" in 3-space alone; it requires time to move, and so any movement is in 4-space a priori. We previously discussed this and the *dldt* operator being applied by the observation process. But for simplicity, we are using the conventional view here, so the negentropy of the dipole can be easily grasped.

⁶¹ Again, we have stated the positive time case only. In the spreading special 4-circulation, energy appears in 3-space at each point dipole from the time domain (courtesy of the action of the negative charge of the dipole), and then returns from 3-space back to the time domain (courtesy of the action of the positive charge, which is a time-reversal of the action of the negative charge).

input nothing to the source dipole⁶² once we have made it. After paying to produce the dipole initially, the operator has made no other energy input to the dipole at all, yet the dipole will continue to pour out observable energy in 3-space for the next 14 billion years if the dipole remains and is not destroyed. In addition, every positive charge and every negative charge in the universe form a dipole, regardless of the separation distance between them. That dipole is also performing the gedanken experiment process. Every dipolar EM circuit contains innumerable such dipoles — e.g., across "open paths" between the various points in the circuit, as shown by Kron {192}. Kron {193} stated:

"...the missing concept of "open-paths" (the dual of "closed-paths") was discovered, in which currents could be made to flow in branches that lie between any set of two nodes. (Previously - following Maxwell - engineers tied all of their open-paths to a single datum-point, the 'ground'). That discovery of open-paths established a second rectangular transformation matrix... which created 'lamellar' currents... " "A network with the simultaneous presence of both closed and open paths was the answer to the author's years-long search."

By considering all dipoles in the universe, one has in fact finally defined Kron's open path. One has also defined the master mechanism responsible for the incredible EM energy density of the vacuum — the so-called "zero-point EM energy". Overall, every electrical circuit thus has innumerable energy flow broken 3-symmetries in it, with respect to exchange of EM energy flow between the time and 3-space domains. To sum all these broken 3-symmetries to an overall net 3-symmetry during the discharge of the free excitation energy of the circuit, obviously requires some specific macroscopic cohering function in the circuit. Moreover, one exists. Specifically, the closed current loop between the external circuit attached to the generator and the internal source dipole created between the terminals of the generator, is what enforces the circuit's net 3-symmetry and Lorentz symmetrical regauging. That is an arbitrary man-made condition, and not a law of nature, physics, or thermodynamics.

⁶² Or to a charge with its clustering virtual charges of opposite sign, if we redo the experiment with a single "isolated" observable charge and consider it more exactly as a set of composite dipoles, each of which exhibits broken symmetry in the vacuum virtual particle flux.

By our gedanken experiment's demonstration and the existence of innumerable disequilibria between the active environment⁶³ and the system in an ordinary EM circuit, it follows that a Maxwellian circuit must be *capable* of exhibiting a coefficient of performance (COP) of $COP > 1.0$. It is a giant collection of open dissipative systems, far from equilibrium in the vacuum exchange.

That concept of course is contrary to the entire present mindset of electrical engineering and Maxwell-Heaviside-Lorentz classical electrodynamics. Those disciplines merely continue to accept the source charge as if it freely created from nothing all that energy in its associated fields and potentials reaching across the universe. Ironically, so long as the giant negentropy of the common dipole and its disequilibrium with its active environment (the local active vacuum and the local active curvatures of spacetime) are unaccounted, engineers and scientists will continue to produce the inane Lorenz/Lorentz-regauged power systems they produce today and have produced for more than a century. Also, they will continue — wittingly or unwittingly — to implicitly prescribe that every charge and dipole in the universe violates the conservation of energy law and is thus a *perpetuum mobile* of the grossest kind: a system which massively and continuously creates EM energy from nothing.

We now point out something deeper and very important. In modern physics, the *observed* positive charge is regarded as the time reversal of the *observed* negative charge. See Figure 3-2. If the negative charge is responsible for EM energy flow from the time-domain into 3-space, then *as observed* the positive charge must represent a time-reversed situation. We observe time reversal in the charge domain as a parity reversal and a charge reversal, but with the energy remaining positive. In other words, one imagines that one records a process on videotape, and then runs the video backwards to observe the "time-reversed" situation. When observed, both the sign of the positive charge and its direction of motion appear to us to be reversed from the negative case.

⁶³ In paragraph 3.10 and in Chapter 9 we will introduce — more deeply — the notion of the supersystem, consisting of three parts: (1) the system and its dynamics, (2) the active vacuum and its dynamics, and (3) the active spacetime curvatures and their dynamics. All three components of the supersystem interact with each other. In our gedanken experiment, the system (component 1) must receive the excess energy from the system's external environment, which consists of components 2 and 3 of the supersystem.

It follows that the positive charge as observed involves a flow of (positive) energy from 3-space back to the time domain. If we wish, before observation we can accept that "observed positive energy inflow" as an unobserved outward radiation of negative energy. Thus, a dipolarity involves a continuous flow of energy from the time domain into 3-space, and back from 3-space into the time domain (Figure 3-2). The energy flow circuit (circulation) is completed by a remaining energy flow across the dipolarity in the time-domain only, from the positive charge where the energy enters the time domain, to the negative charge where it exits again.⁶⁴

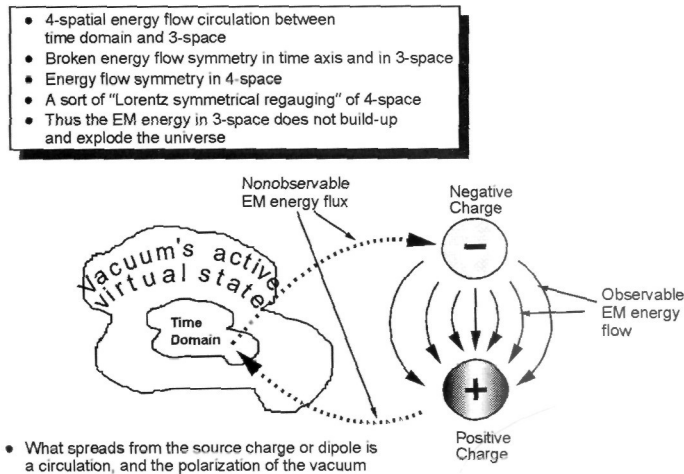


Figure 3-2 Circulation of energy flow in a dipole, between time domain and 3-space.

⁶⁴ Rigorously, we should speak of $+qt$ and $-qt$. Charge q is an observable, and therefore an instant frozen snapshot. No observable exists continuously in time, but instead it recurs continually as the photon interactions — iteratively producing the d/dt (LLLT) = LLL observations — continue. The moment a charge q absorbs a photon, it changes to qt in form. The moment the charge-time qt emits a photon, it changes back to q in form. This incessant change of $q \rightarrow qt \rightarrow q \rightarrow qt \rightarrow \dots$ is continual, at every level of the macroscopic charge, with its entire ensemble of photon interactions, including both virtual and observable photon interactions. As can be seen, the "charge as it persists" and "moves through time" has a rich dynamic substructure essentially ignored in present electrodynamics. It is, however, recognized by leading theoreticians and Nobelists.

However, even each of the clustering virtual charges and each of the differential charges of the observable charge, may be further broken into a central charge and clustering charges of opposite sign, in the modern view of the vacuum and its polarization. Hence, at any level — electron or positron — we actually have a dual and slightly separated bidirectional flow, at least in the observable equilibrium condition. The "positive energy" and positive flow of time is usually associated with "inert" matter with the electrons on the outside, so that the observer observes normal matter through the "forward time" situation mostly. Hence much of the accompanying backwards or time-reversed flow — from the positive charges in the nuclei, etc. — is "buried in the vacuum virtual state" in the Dirac sea and in Dirac sea hole flows.

Indeed, the vast hierarchy of nested structures and nested dynamics in charge as it exists in the vacuum, is recognized in physics, as is the fact that it involves infinite energy. E.g., quoting Nobelist Weinberg {194}:

"[The total energy of the atom]... depends on the bare mass and bare charge of the electron, the mass and charge that appear in the equations of the theory before we start worrying about photon emissions and reabsorptions. But free electrons as well as electrons in atoms are always emitting and reabsorbing photons that affect the electron's mass and electric charge, and so the bare mass and charge are not the same as the measured electron mass and charge that are listed in tables of elementary particles. In fact, in order to account for the observed values (which of course are finite) of the mass and charge of the electron, the bare mass and charge must themselves be infinite. The total energy of the atom is thus the sum of two terms, both infinite: the bare energy that is infinite because it depends on the infinite bare mass and charge, and the energy shift... that is infinite because it receives contributions from virtual photons of unlimited energy."

Here again we have met Kron's "open path" in a new and unrecognized form.

Hopefully we now are in a position to rigorously define charge — or try to — for the first time in physics.⁶⁵ **Charge** is the ongoing circulation of EM energy flow between the time and 3-space domains, as seen by the observer. **Negative charge** is the ongoing absorption of positive EM energy input from the time domain (from ict), transduction of the absorbed energy into positive 3-space EM energy, and re-emission of the EM energy in all directions in 3-space. **Positive charge** is the ongoing absorption of EM energy input from 3-space, transduction of the absorbed energy into the time domain, and re-emission of the EM energy in the time domain. Or contrary-wise, one may regard the positive charge as the ongoing absorption of *negative* EM energy input from the time domain, transduction of the absorbed negative energy into 3-space, and re-emission of the negative EM energy in all directions in 3-space. The negative charge then absorbs the negative EM energy impinging on it from 3-space, and transduces it into negative energy flowing back into the time domain.

Any *overall* curvature of spacetime, as seen by the observer, results in one of the two flows *predominating* as seen by the observer. Usually, at $COP < 1.0$, this Dirac sea hole current does not bother our circuit's operation, but remains confined to the local vacuum. It is often not bothersome or is minor for other than very high COP's. The reason is that, for such moderate and small COP's, most of the Dirac sea hole currents react either with (i) the seething local vacuum virtual particle cauldron, or (ii) the atoms in the material lattice to form lattice holes.

As the COP increases, the fraction of Dirac holes interacting with the lattice to form lattice holes increases. As the COP further increases greatly, a large fraction of the Dirac sea holes do not react with the local vacuum cauldron (they become stable forms in that cauldron) or the lattice, but flow into the input section of the system to react with and "eat" incoming electrons from the external power source.

If the inflow of electrons is insufficient to fill the arriving Dirac sea hole current at the input section, the hole current passes back into the feeder line and into the distant power source, eating electrons all the while. This

⁶⁵ This is still a first order, macroscopic definition. For a more comprehensive statement, one must spell out the hierarchy and dynamics of the virtual state, the participating mass of the charged particle and its generatrix, the operations and dynamics of the d/dt observation operator, etc. We have not yet succeeded in getting all that into a single reasonable but sufficiently short statement!

includes eating electrons in the distant power source, which simply "sees" that it must furnish additional current and voltage (power) toward the distant circuit or system.

In that operational COP region where strong interaction with the lattice occurs, the attachment of the lattice positron (lattice hole) to the mass of the atom or other ion, results in a very sluggish response of the overall ion with EM fields, compared to the response of an electron or a negative energy state electron hole (Dirac sea hole). Hence much of conventional electrical power circuit theory ignores the lattice holes and hole currents which no longer have negative energy because they have reacted and been "observed". Semiconductor designers, however, account for it and handle it in the semiconductor (in a given range of operation) primarily by the use of donor and acceptor materials.

At $COP \gg 1.0$, however, the Dirac sea hole current must be strongly taken into account because it produces substantial and novel new effects in the power system itself. This Dirac sea hole current "flows in reverse" with respect to the circuit — from output back to the input. In short, it flows *through the vacuum* from the output section of a unitary $COP \gg 1.0$ system, back through the middle section of the system, and back into the input section where it "eats" incoming electrons from the external power supply. The power supply thus must furnish electrons to "kill (power the killing of) the Dirac sea hole current arriving in the input section", while still furnishing the necessary amount of additional electrons to power the circuit's losses and loads.

The hole current arriving back in the input section of the unit poses an additional "power system load". These holes must be filled with incoming electrons (which disappear into the Dirac sea hole in the vacuum without radiation, due to the concomitant relaxation or change of the local curvature of spacetime) before any incoming electrons are left to power the circuit in normal fashion. So the hole current appears as a highly undesired extra "load" formed in the input and "eating input power from the external power supply".

We further discuss this situation and how to deal with it, in Chapter 9.

Finally, we propose a formal modification of the concept of "EM energy flow through space" (perhaps the first since its formulation independently by Heaviside and Poynting). The EM energy flow connected with the charge is a circulation of EM energy flow between the time domain and 3-space and back, *as a result of dipolarity*. This 4-circulation flow occurs at every point in 3-space (at every point dipole in the 3-space vacuum).

The formation of an observable charge results in an immediate, continuing, spreading re-organization (polarization) of the polarization of the vacuum virtual particle flux itself. It is this *spreading polarization of the vacuum* — and its accompanying giant negentropy EM energy flow circulation in 4-space connected with the spreading dipolarity and the observable "source" charge — that moves outward in all directions at the speed of light in 3-space from the newly formed charged particle or group of them.

We also define charge itself as that *continuously spreading dipolarity in 3-space*⁶⁶ accompanied by the giant negentropy EM energy flow 4-circulation from the time domain to 3-space and back.

The giant negentropy circulation in 4-space — represented by the spreading vacuum point-polarization and hence broken 3-symmetry — is what (observably) moves out in all directions from the newly formed observable charge. Since we "observe" only the 3-space aspect, we "see" it as the spreading appearance of 3-space EM energy (the polarization change of the vacuum itself) moving in 3-space, because we "see" it as the iteratively observed frames of a motion picture. *As observed*, that is one way of expressing it. As it actually *exists and happens prior to observation*?⁶⁷ the so-called "flow of EM energy in space" is not that at all. It is the radial spread of the appearance of a giant 4-space negentropy EM energy flow circulation between the dipoles formed in the polarization of space. In that process, the special 4-symmetry between time and space is maintained but with broken 3-energy flow symmetry and broken time-energy flow symmetry with respect to the 3-space observer.

⁶⁶ I.e., the spreading partial restructuring and re-organization of the vacuum energy or energy flux.

⁶⁷ The sharp-eyed reader will note that we clearly distinguish between the operation of a "tree falling in the forest" without an observer to see it, and a "tree falling in a forest" as an observer sees it. Without observation, there is no observed tree, no observer, and no "observed falling". Yet there exists the "tree x time", the "observer x time", and the "falling x time" whether or not their observation occurs with its resulting d/dt differentiation operation. One set (the causal set) is 4-spatial, and the other set (the event set after observation) is 3-spatial. The cause is 4-spatial and unobserved, and the effect is 3-spatial and observed. They are not the same, though related by the d/dt observation operator and by the interaction of the 4-space cause with a previous 3-space frozen observation to change it to a new 3-space frozen observation. Note that one can and does have a cause without an effect in any legitimate theory of causality, but not an effect without a cause. The cause only assumes the potential for interaction and observation, whereas the effect assumes that the interaction has occurred, yielding the observation as the effect.

The 4-circulation (giant negentropy) of the EM energy flow "from" or "connected with" a charge, is intimately connected with the spin of the charged particle, since the charged particle spins in both the time domain and in 3-space, as discussed in paragraph 3.3 below. We believe the spin itself is the basic giant negentropy generator.⁶⁸ If that hypothesis is true, then giant negentropy, the circulation of EM energy between time-domain and 3-space and back, broken 3-symmetry and broken time-energy symmetry (as seen by the observer), the flow of EM energy through space (as observed), the nature of charge itself, and polarization of the quantum mechanical vacuum are all just different sides of the same coin.

Without amplification, we state that this giant negentropy outflow process has additional important ramifications in electrodynamics, general relativity, particle physics, and unified field theory. However, we leave further discussion of the subject for a future paper or book and for the advanced theorists.

3.2 Reinterpreting Whittaker's Decomposition of the Scalar Potential

As previously stated, we applied and re-interpreted Whittaker 1903 decomposition of the potential {85} between the ends of the dipole. The scalar potential is actually a harmonic set of bidirectional longitudinal EM wavepairs, where each wavepair consists of an outgoing EM longitudinal EM wave in real 3-space and an incoming EM longitudinal EM wave in the complex plane. Hence we have a new and novel EM energy flow symmetry in 4-space, where (as seen by the observer) the broken 3-symmetry of the dipole has removed the usual arbitrary imposition of an additional condition of 3-space energy flow symmetry as well. Simply making a dipole permissibly breaks the 3-space conservation of energy flow symmetry, and moves to 4-dimensional conservation of energy flow. Both EM energy conservation in 3-space and in the time domain are individually broken, but conservation of energy flow is now upheld between the time-domain and the 3-space domain. In blunt terms, we "consume a little time" to get any EM energy that exists in 3-space.

⁶⁸ We leave to a future sharp young graduate student the business of expressing the angular momentum (spin) of the charged particle as a result of giant negentropy in EM energy flow between the time domain and 3-space. It can probably be done by deeply considering the giant negentropy process for an "isolated" observable charge considered as also containing its clustering set of virtual charges of opposite sign.

The broken symmetry of a source dipole — or of a source charge considered with its clustering virtual charges of opposite sign as a set of dipoles — produces a continuing giant 3-negentropy, as seen by the observer. He only sees the steady 3-space outpouring of energy, and sees that it will continue as long as the dipole or charge remains intact.

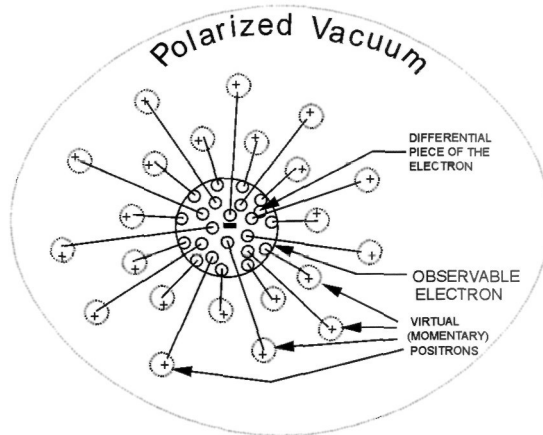


Figure 3-3 Observable electron charge as a set of composite dipoles.

To clarify the "isolated charge" as a set of composite dipoles, see Figure 3-3. There is no such thing as an *isolated* observable charge in 3-space; instead, the observable charge is surrounded by attracted virtual charges of opposite sign in the active vacuum. We take a differential piece of the observable charge and a momentary virtual charge of opposite sign, and call the two a "composite dipole". An observable charge is simply a set of composite dipoles connecting virtual and observable energies and energy flows.

Hence any source charge (classical sense) may be considered such a set of composite dipoles. So any source charge also multiply initiates the broken 3-symmetry and broken t-symmetry in EM energy flow (as interpreted by the observer), but conserves energy flow 4-symmetry between the time domain and the 3-space domain. In 4-space, there is an energy flow circulation from the time domain to 3-space and back to the time domain again.

This special circulation of energy is strikingly similar to, and may be an extension of, Heaviside's unpublished theory of combined electrodynamics and gravity, where he used closed circulation of EM energy as exhibiting

gravitational effects (in modern terms, producing spacetime curvature) {195, 172b.}. This approach or extensions of it may yet have a profound impact on physics, as commented upon by Laithwaite {196}. Certainly Heaviside considered his own energy flow theory. So it appears that he considered the excess energy flow — that "misses" the interaction with the circuit or assumed unit point charge and is not utilized — as producing gravity. That of course would be in perfect agreement with modern general relativity, since any change in the local energy density of vacuum is also a change in the local curvature of spacetime. We have called that Heaviside nondiverged and unaccounted EM energy flow by the label *dark positive energy*. See our further discussion of unaccounted (dark) positive energy in paragraph 3.8 below.

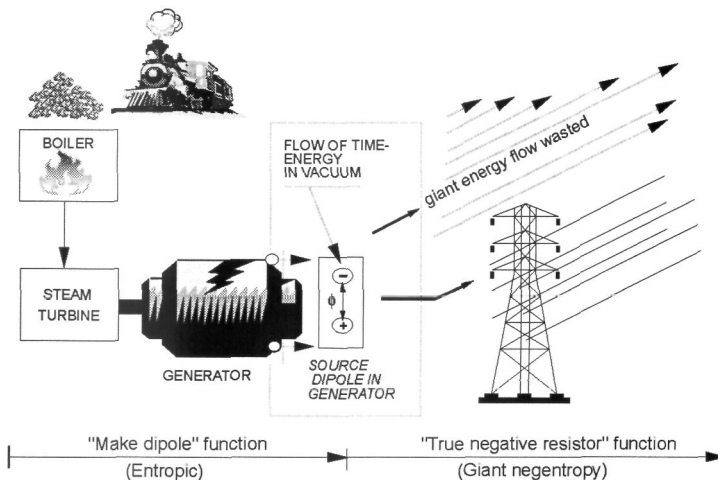


Figure 3-4 Dipole in generator powering circuits, taking energy from the time domain.

See Figure 3-4. This 4-symmetry is a far more fundamental energy flow symmetry than either 3-symmetry or t-symmetry. Both the "isolated charge" and the dipole are open systems far from equilibrium with their external active environment (the active vacuum and the active curvatures of spacetime). They are permitted to perform the five "magical" functions of disequilibrium thermodynamical systems. Such a system can: (i) self-order, (ii) self-oscillate or self-rotate, (iii) output more energy than the operator inputs, (iv) power itself and its loads (the "load" of a source dipole or source charge may be said to be comprised of the associated fields and potentials reaching across all space, and the continuous flow of

energy necessary to maintain those fields and potentials), and (v) exhibit negentropy.

The source charge and the source dipole exhibit all five functions. We often refer to these characteristics of a charge or dipole as its *giant negentropy* functions {197}.

It only takes a single white crow to prove that not all crows are black. Every charge and dipolarity in the universe is already a Maxwellian system far from thermodynamic equilibrium with its local active environment — the very class of Maxwellian systems that Lorenz/Lorentz symmetrical regauging of the Maxwell-Heaviside equations arbitrarily discards. That local environment consists of the local curvatures of spacetime and the local active vacuum. The system together with the two components of its active environment is called the *supersystem*. All three components of the supersystem continuously interact with each other and exchange energy. All is dynamic, continuously. Any appearance of a "static state" in the system is actually an equilibrium condition stabilized in the ongoing supersystem dynamics.

So one does not have to "prove" that Maxwellian systems exhibiting $COP > 1.0$ (even $COP = \infty$) are possible. Every charge and dipolarity in the universe is already just such a Maxwellian system, even though all such systems are erroneously discarded by Lorenz/Lorentz symmetrical regauging. Either one must accept asymmetry and $COP > 1.0$ EM systems in electrodynamics, or one must purge from the theory all the charges and dipoles and all effects from them. That destroys all the charges, all the fields, and all the potentials.

That also destroys electrodynamics itself, as well as chemistry, particle physics, and most of modern science. The arch critic of overunity EM system research would do well to acquaint himself with some additional physics. Either that, or practice what he advocates, and give up all charges and dipoles and all effects from them — including in chemistry, particle physics, materials science, etc. When he holds on to the charges and dipoles while insisting on the impossibility of $COP > 1.0$ Maxwellian systems, his cherished conventional EM theory eats itself by its own tail and becomes an oxymoron.

3.3 How the Dipole Charges Transduce Time Energy

We present a simplified analogy⁶⁹ that allows one to visualize how the dipole transduces the incoming time-like longitudinal EM energy flow into 3-space real EM energy flow for negative charge, or vice versa in the case of positive charge. With a little oversimplification, a charge may be said to spin 720° degrees in one complete rotation. For our purposes, it spins 360° in the imaginary plane (over in *ict*), and then spins 360° in the real plane (in 3-space). Thus the negative charge can absorb the incoming EM energy flow in the complex plane, transduce or "flip" the absorbed EM energy into 3-space to begin its 360 degrees in 3-space, and the excitation can decay during that 3-space spin part of the cycle. The only "variable" in *ict* is the *t*, so any energy flow has to be "by means of the variation of the *t*-variable". We already argued in a previous chapter that time can be treated as highly compressed spatial energy, having the same energy density as mass. So absorbing a very tiny amount of time-energy and transducing (decompressing) it into spatial energy produces enormous spatial energy (*t* multiplied by the factor c^2).

The negative charge absorbs a *little bit* of positive time energy, transduces it into a much larger amount of 3-space excitation energy, and re-emits it in 3-space as an observable, real flow of EM energy radially outward in all directions. The positive charge receives the large amount of 3-spatial EM energy and absorbs it, transduces it back into time-energy (highly compressed energy) and re-emits it in the time domain as a little bit of highly compressed time energy.

Conversely, we may consider that the positive charge absorbs a little bit of negative time energy, transduces it into a much larger amount of negative 3-space excitation energy, and re-emits this negative 3-space energy in all directions in 3-space. That consideration is important in the cold fusion phenomenology, and in fact accounts for the formation of little fleeting "time-reversal zones" in the electrolyte solution where the law of attraction and repulsion of charged particles is momentarily reversed. The omission of the giant negentropy mechanism and the negative energy mechanism from particle physics reaction theory is why there do not exist such nuclear transmutation actions at low spatial energy (but high time energy) in

⁶⁹ For simplification, the analogy treats "spin" of the charged particle as if it really were something like that of a spinning top, at least in its 3-spatial component. However, in physics the entity **spin** is not confined to a flat plane or even to 3-space. **Consequently**, we caution that the analogy is primarily a mnemonic aid.

conventional particle physics. All such permissible reactions have been arbitrarily omitted from the discipline.

For the positron (or any positive charge), we assume that the process is reversed: 3-space energy is continuously absorbed (from the active vacuum exchange) by the positive charge during its 360° spin in 3-space. This 3-space excitation energy is then flipped into the time domain as time-charge or time-energy, as the charge starts its second 360° spin in the time domain. During that latter part of its 720° spin cycle, the spinning charge re-emits the time-charge energy (time-excitation) as a flow of a little bit of very dense EM energy in the time domain.

The effects of these mechanisms in systems of charges in motion are met with as time dilation effects, spacetime curvature effects, frame rotation effects, etc. in relativity theory.

A charge that has received excess EM energy from the time domain is said to be *time-charged* or *time-excited*. Since time-charge or time-energy is c^2 denser than spatial energy, a tiny amount of time-energy excitation or time-charge may be re-emitted as substantial spatial energy over a period of time. In short, the decay of time charging or time-excitation of charged particles can occur slowly and over time. The decay is marked by the presence of longitudinal EM wave radiation, by mysterious ionization phenomena appearing in some Geiger counters depending on their individual time-histories (individual initial time-charging condition), and by excess energy appearing in electrolytes and emitted as heat where such decay of time-charge is occurring.

Usually in ordinary circuits and EM systems the time-charge and time-charge-decay effects are minimal, being offset by their opposites in close adherence to equilibrium. However, when this is not the case and time charging does appreciably occur, then novel phenomena result in those circuits and systems. Such effects have occurred for some time in instruments associated with rigorous electrolyte experiments at U.S. Naval research facilities at China Lake {198}, but the researchers have not recognized the cause. We have pointed out the time-charge and time-decay solution to those novel phenomena, and explained why apparently "identical" instruments need not respond to the stimuli in the same manner {199}. Along the way, we also explained several of the low spatial energy (thus high time-energy) transmutations, including giving the typical reactions producing the excess deuterium, tritium, and alpha particles. We also explain those new nuclear reactions at low spatial energy (but high time-energy) in Chapter 10.

As we stated in Chapter 1, paragraph 1.1.3: In such electrolyte experiments where the palladium electrodes load with concentrations of positive charges on hydrogen ions of one form or another, then in the adjacent solution there can arise fleeting **time-reversal zones**. Such a zone is simply a very tiny volume of fluid in which antiphotons temporarily comprise the majority of the ongoing photon interactions with the local ions in solution in that zone. The result is that the normal (time-forward) law of attraction of unlike charges and repulsion of like charges is reversed; *in the TRZ, like charges attract and unlike charges repel*. This allows two positive ions such as H^+ to be drawn together so tightly that each enters the (reduced) strong force region of the other, forming a quasi-nucleus. When the other ions move to eliminate the TRZ, during the decay of the TRZ the strong force increases more rapidly than the EM force. Hence, the preferred method of decay of the now-excited quasi-nucleus is by quark flipping to allow the quasi-nucleus to become a new nucleus. This nuclear transformation interaction allows the production of the excess deuterium, tritium, and alpha particles.

3.4 Reordering of the Local Vacuum: Giant Negentropy

A giant negentropic reordering of a fraction of the surrounding vacuum's energy is initiated when a dipole or charge is formed. This reordering is deterministic, and is the 4-flow energetic structure shown by Whittaker {85}, slightly reinterpreted, with perfect coordination of the converging EM energy inflow in the complex plane with the outflowing converted real EM energy in 3-space. Hence this negentropic reordering introduces "hidden order" into the vacuum's otherwise disordered energy. This reordering of a fraction of the vacuum's disordered energy also changes the Gibbs statistics assumed in quantum mechanics, replacing it with an "already chaotic" statistics containing hidden order. We propose this as a possible contribution toward resolving the presently unsolved problem of the missing chaos in quantum mechanics {200}.

3.5 Some Implications of Giant Negentropy

Giant negentropy has many envisioned impacts upon physics, such as:

- (a) Allows development and use of negentropic EM circuits (COP>1.0 systems) rather than entropic circuits. Once a broken 3-symmetry with stable 4-symmetry is established (as by forming a dipole), it continues indefinitely unless deliberately destroyed.

- (b) Allows direct negentropic reordering of a practical and usable fraction of the vacuum's energy at will, at any point in the universe, easily and cheaply.
- (c) Provides for electrodynamic engineering of the vacuum energy and of spacetime curvatures clustered in specific templates (the concept of vacuum engines or spacetime curvature engines). This has significant medical applications {387c}.
- (d) Utilizes time as energy (per our previous discussion) and thus allows use of the Whittaker phase conjugate half of the biwave set as an EM energy flow within the flow of time. Observably this translates to the continuous receipt of free time-energy by the formed broken 3-symmetry (e.g., the charge or dipole). Accordingly, the charge or dipole continuously pours out real observable EM energy in 3-space, without any observable EM energy input (time is not observable, and neither is the time-polarized photon alone).
- (e) Allows "burning a little time for fuel", so to speak, in order to transduce it into a very large spatial energy flow, due to the enormous compression of 3-spatial energy represented by time-energy by a factor of c^2 .

So from the giant 3-negentropy discovery, we have arrived at some intriguing findings:

- (a) As is well known in particle physics, the opposite charges of a dipole constitute a broken 3-space symmetry in the violent flux exchange between the active vacuum and the dipole.
- (b) This dipole's broken 3-space symmetry in EM energy flow, provides a relaxation to a more fundamental EM energy flow symmetry between the time domain and 3-space, and therefore in 4-space.
- (c) There is no law of nature or physics that requires 3-symmetry of EM energy flow as an additional condition applied to 4-symmetry of EM energy flow. Instead, 4-symmetry energy flow is more basic, by the hierarchy rule.⁷⁰

⁷⁰ Quoting Steven Weinberg: " *...there is a hierarchy of symmetries; whatever symmetry unites the gravitational and strong nuclear forces with the electroweak*

- (d) The dipole is a practical and very simple means of "breaking" the additional 3-flow symmetry condition in EM energy flow our systems have previously exhibited, and relaxing to the fundamental 4-flow symmetry *without* 3-flow symmetry.
- (e) So long as the dipole statically exists (e.g., imagine an electret suddenly formed, or a charged capacitor with no leakage), real usable EM energy circulation between time and 3-space, at each point in 3-space, will continuously move out from the dipole at light speed in all directions. In the view of the observer, at the same time, reactive EM power (actually, time-energy) will continuously flow into the dipole from the time-domain (the complex plane), and be transduced into real EM power output radially outward in 3-space from the dipole.
- (f) Observably, a dipole or dipolarity and its scalar potential thus comprise a true negative resistor system of the most fundamental kind. The dipole continually receives EM energy in unusable form (reactive power, which cannot perform real work), converts it to usable form (real power, which can perform real work), and outputs it as usable, real EM energy flow (real power) in 3-space. Further, it spreads this "transformation of time-energy into 3-space energy at every dipole point" outward in 3-space in all directions.
- (g) So at its formation the dipole initiates a continuing *giant negentropy* — a progressive reordering of a substantial and usable portion of the vacuum energy {201} that begins with dipole formation and continues. Further, this reordering of vacuum energy flow at every point in space continuously spreads in all directions from the initiation point, at the speed of light. Dipoles in original atoms formed shortly after the beginning of the universe, have been pouring out real EM energy for some 14 to 15 billion years or so (i.e., in the prevailing view; the age of the universe and whether it is expanding are still controversial {754}), and have reordered a fraction of the vacuum's energy, where the magnitude of the re-ordering varies inversely as a function the

forces is broken roughly a hundred million million times more strongly than the symmetry that unifies the weak and electromagnetic interactions. The puzzle of explaining this enormous difference in fundamental energies is therefore known in elementary particle physics today as the hierarchy problem." [Weinberg, *Dreams of a Final Theory*, Vintage Books, Random House, 1993, p. 205],

radial distance from the dipole.⁷¹ This is in fact the solution to the long-vexing problem of the source charge and its associated fields and potentials and their energy, reaching across the universe. The charge together with its associated clustering virtual charges is a set of composite dipoles, hence a multiple *broken 3-symmetry* energy flow system.

- (h) If the dipole is destroyed, the ordering of the vacuum energy ceases, leaving a "separated chunk" of reordered vacuum energy dynamics that continues to expand at the speed of light in all directions, steadily reducing in local intensity as it expands.
- (i) At any very small volume in space, from the dipole dynamics of the universe it follows that a great conglomerate of reordered vacuum flows and fluxes — some continuous, some chopped — is continually passing through that volume. Further, the situation is totally nonlinear, so that direct wave-to-wave interactions occur continuously amongst these energy flows and waves. We hypothesize that this is the actual physical mechanism constituting Puthoff's cosmological feedback mechanism {202}.
- (j) Further, in 1904 Whittaker {203} showed that any EM field or wave pattern can be decomposed into two scalar potential functions. This initiated what is called *superpotential theory*. Each of the two potentials for those functions, of course, decomposes into the same kind of harmonic longitudinal EM wavepairs as shown in Whittaker 1903, plus superposed dynamics. In other words, the interference of scalar {204} potentials — each of which is actually a set of longitudinal EM waves, and not a scalar entity {205} at all, but a *multivectorial* entity — produces EM fields and waves and their dynamics. Hence we hypothesize that the Whittaker interference of the propagating reordered EM energy entities, continuously occurring at any point in space, generates the zero-point EM field energy fluctuations of the vacuum itself. Indeed, an AIAS group paper by Evans *et al.* {206} has already shown that just such "scalar interferometry" produces transverse EM fields and waves in the vacuum at a distance.

⁷¹ The field energy density in the fields produced by the source charge varies inversely as the square of the radial distance. The potential energy density in the potentials produced by it will vary inversely as the distance.

Since energy can neither be created nor destroyed, there really are no true *energy sources* in nature in the sense that they *create* energy and pour it out {207}. Instead, what we call "energy sources" merely convert the energy already there in one form, into another form. All energy sources are no different from a solar cell in the sun, or a windmill in the wind, at least in principle. They are actually energy transducers rather than energy sources. This corresponds well with the conservation of energy law wherein not a single joule of energy can be created or destroyed. Instead, the form of that joule of energy can be continually changed. Every joule of energy present in the universe after its formation is still present, and is still doing joule after joule of work in iterative interactions with transducers that change its form.

A priori, we can measure no real 3-space input of EM energy to the unchanging charge but we can measure real 3-space EM energy pouring from it. Energy must be input to it from the active vacuum in a *nonobservable* form, and converted by it into an *observable* form that is re-emitted, usable, and produces what we call the "fields and potentials" and their energy, associated with that "source charge". As is common usage, we will continue to use the term "source charge" or "source dipole", but with the understanding that we refer to a special kind of *energy transducer*.

When we "make entropy", we must do work. Even so, doing work is not really entropic unless we also lose control of the energy⁷² — whose form was merely changed by doing the work — and thence lose any *further* ability to use that energy (change its form, or transduce it) to do useful work. And when we observe entropy, we also do work in the observing. Some of the erroneous notions about entropy desperately need correcting. E.g., quoting Weinberg {208} for a lay definition of entropy:

"..a certain quantity called entropy: To define entropy, imagine that some of the system's temperature is very slowly raised from absolute zero. The increase in entropy of the system as it receives each small new amount of heat energy is equal to that

⁷² An interesting point is that energy is energy and remains energy. "Disordered" ultimately means "unusable" or "inconvenient" and nothing else. Disordered energy is still energy, and if we do not lose it from the system we can in fact have the **system** automatically reorder it, e.g. by use of simple retroreflection. The entire concept of entropy must be rigorously interpreted in terms of "energy whose reuse is lost", at least by the processes being performed by the system considered. In our view, "entropy" itself is just additional usually "lost" energy to be recovered.

energy divided by the absolute temperature at which the heat is supplied."

"....entropy, which always increases with time in any closed system..."

However, we point out that apparently there exists no completely closed system in the entire universe. In the notion of entropy and the escape of the energy from their "closed" system, thermodynamicists themselves ubiquitously negate the latter premise that entropy in a completely closed system always increases with time. That simply does not follow. The real situation is as follows: (i) Entropy in a half-open system with no allowed external input of energy, but with allowed escape of energy, does decrease with time if the energy of the system decreases with time by escaping.⁷³ Hence the cooling of "hot" water with time, if and only if the excess energy in the system can have a net escape to the (cooler) environment as time passes, (ii) Energy in a completely closed system (closed to both energy and mass), with no input and no output of energy at all, simply remains constant because it is not dissipated; simply apply the conservation of energy law. It may rearrange within, and the subcomponent energies may disorganize with respect to range, but the total energy remains. Entropy actually only deals with the loss of ability to utilize the energy. To wit, the assumed (and apparently true, so far as we can tell) conservation of energy in the present universe is an example. A closed system is in this sense a special case of a system in equilibrium with its active environment.⁷⁴ I.e., any "closed system" is such a special case.

⁷³ In case the reader has not thought of it, until the energy "escapes" it is not dissipating or dissipated from the dissipating "object". A "hot" object is energetically excited but not hot; the *energy dissipated* from it (including from every component within it) is scattering, and hence disruptive and "hot" in its interaction with a test instrument (or one's finger). The thermometer (or any other instrument) is external to the rest of the system (even if imbedded in it). Hence merely to "measure the temperature" is actually to pass energy out of the system into the thermometer (or other instrument), so that the thermometer measures the heat of the dissipating energy that has just escaped from the system. For these and similar reasons, Romer — former editor of *A. J. Phys.* — pointed out that "heat" should not even be used as a noun {84}.

⁷⁴ The concept of energy always requires that one can write "energy of...(X)" and fill in the (X). We usually write the phrase "of...(X)" as "X energy". Thus we write the phrase "energy of heat" as "heat energy," the "energy of the vacuum" as "vacuum energy", and the "energy of the EM entities" as "EM energy". At least in its usage, energy always requires a medium or entity "having" or "exhibiting" the energy. As Feynman pointed out, we really do not know what "energy" per se is.

(iii) In a system closed with respect to output (escape) of energy, but with the system opened only to allow external input of energy, the system energy will increase, simply by the conservation of energy law. That system's entropy will decrease and its negentropy will increase. (Its mass will also increase, and so it violates the thermodynamic misdefinitions of closed system; see Appendix A). It is well known that the entropy of an open system far from equilibrium cannot even be computed! (iv) Energy in an open system where input of energy and escape of energy both occur, may either increase, decrease, or remain constant, depending upon whether the input rate exceeds the output rate, or vice versa, or the energy input and output rate are equal. Therefore such a system can exhibit overall entropy, overall negentropy, or overall equilibrium, (v) Net energy scattering rate (rate of energy escaping the system in disordering fashion) from a hot system determines the observed temperature of that system at the time of observation. The system itself is cold, prior to escape of the energy. The "heat" is due to the interaction of the escaping energy with an external object, in its disordering fashion. Inside the system prior to escape, the energy is ordered hence cold.

A system in equilibrium in its exchange with its active external environment is in a state of maximum entropy *for that specific rate of energy exchange with its environment*. As we will point out in Chapter 9, by deliberately balancing the *system-and-vacuum* exchange with the *system-and-curved spacetime* exchange, so that the two exchanges are equal and opposite at a desired rate of exchange, one may establish (at least in theory) system equilibrium at whatever specific rate of energy exchange is desired.^{75, 76} In this fashion, e.g., an "impossible" molecule normally intensely unstable and decaying in a nanosecond or less, can in fact be stabilized once an appropriate balance between the two opposing energy exchanges with the system is achieved at the required specific rate of energy exchange. This is actually a new Lorentz symmetrical regauging

⁷⁵ This is necessary, e.g., to close-loop a $COP > 1.0$ EM unitary system taking its input energy from the vacuum, as we shall see in Chapter 6.

⁷⁶ The Fogal superluminal transmission system in fact uses a conventional signal input to change this "symmetrical regauging" condition in consonance with the amplitude of the input signal. Thus suddenly Lorentz symmetrical regauging becomes a way to transform a conventional signal into a signal consisting of changes in the stress energy potential of the vacuum. That constitutes a longitudinal EM wave, and so it is not limited by the speed of light. To use this process, a Fogal semiconductor must be used as the modulator in the "transmitter", and another must be used as the demodulator in the "receiver".

condition; change of symmetrical regauging is very useful in this fashion. In this way, a great new chemistry with reactions presently deemed impossible is in the offing, and it is already being developed by at least one U.S. company. We do not name the company, under our tacit agreement with the scientists doing the work.

To operate conventional entropic systems,⁷⁷ first we must input energy to the inert system to force it out of equilibrium and back into excitation (back into an asymmetrically regauged system, violating the Lorentz condition) so that it has some excess energy (and negentropy). Then we allow the decay of the excited system's excess energy to pass through a load and be dissipated from it, doing work for us by powering the load. Conventional systems usually do not recapture the "escaping dissipated energy" but just waste it. *"Dissipating" energy is merely allowing it to escape from the system and from further system control.* Then we brutally force more excitation energy into the system, opening it and breaking its equilibrium to do so. Again we dissipate the system's excitation energy in the load to produce some more work, usually wasting an appreciable fraction of the excitation energy.

In EM systems, it is a little more complex. We continually "switch on" a negentropic flow of EM energy from the vacuum by making a source dipole. In the circuit, we collect a small part of the resulting huge energy flow in space surrounding the circuit conductors. Then we use half the collected energy to destroy the dipole source of the energy flow, while less than half of the collected energy is dissipated in the load (the rest of that second half is dissipated in the external circuit's losses). Hence we must continually restore the source dipole and pay more to do it than we get out in the load as useful work. We make a perfectly good negentropic system, and then forcibly destroy its negentropic ability faster than we power the load and get any use out of it. That's a terrible way to make and use power systems, but it is what has been done for more than a century.

So with our present entropic EM systems (actually our *self-killing negentropic* EM systems) we continually wrestle nature fiercely to the mat, so to speak, by brute force, repeatedly, to bind her into 3-space EM energy

⁷⁷ By "entropic system" we mean a system whose excitation energy decays and is dissipated from the system or at least from its further control, so that the entropy (lost or unusable energy) of the system continually increases until equilibrium (total decay of the excitation energy) is achieved. As can be seen, this also can be used to define entropy and increase in entropy. What is usually unappreciated is that *equilibrium is actually a counterbalance between ongoing entropy and negentropy.*

conservation. All the while, nature protests our continual entropic brutality by providing the Newtonian third law reaction force⁷⁸ back upon our causative wrestler performing the "forcing". To do entropic engineering, we have to continually input 3-space energy to the wrestling mechanism or engine, losing a bit of the input energy in the inefficiencies, and fighting the "back emf", "back mmf", or Newtonian third law reaction that is nature's cry of protest all the while. Those are nature's penalties for imposing a monstrous 3-space EM energy flow symmetry⁷⁹ upon her as an *additional, highly undesired, and highly unnatural condition* added upon her beloved special 4-symmetry energy circulation between the time domain and 3-space.

In short, because we so love entropic engineering and 3-space EM energy flow symmetry, we have to provide the continual input energy to our entropic processes by burning fuel, damming rivers, erecting windmills, building waterwheels, erecting solar cell arrays, building and charging chemical batteries, etc. In the process, we destroy and pollute the biosphere on a giant scale as we rip down forests, strip-mine and drill the earth, pile up thousands of tons of radioactive nuclear wastes —that will be hot for thousands of years — from our power plants and related facilities, and spew streams of pollutants into the atmosphere, the rivers, the oceans, etc. We do all that biosphere destruction because we inexplicably insist upon placing cruel chains on nature by brutally enforcing 3-space energy flow symmetry upon her. In the process, we adamantly require adherence to classical equilibrium thermodynamics (as given a somewhat altered explanation above, and also in Appendix A).

We do not have to do it that way. In avoiding solving the source charge problem for so long (more than a century), we have been extremely

⁷⁸ Note that Newton's third law reaction is implicit in the special negentropic energy flow circulation of the dipole, or of the charge considered as a set of composite dipoles. The same energy that moves into 3-space from the time domain, then returns from 3-space to the time domain, at every point in the 4-circulation. If we consider the positive charge as a "source" of negative energy, then there is a concomitant circulation of negative energy from the time domain to a point in 3-space, and back to the time domain.

⁷⁹ The 3-space symmetry of energy flow equilibrium is actually between the energy we input (from its external environment) to the system, and the energy that escapes from the system back into its external environment, either in its losses or in its loads. As we stated, equilibrium condition is a balance between ongoing entropic and negentropic operations.

backward in our thinking and in our consequent development of entropic engineering technology.

For our dullness, we have had to pay and pay continuously for insisting on doing such atrocious entropic work and forcing nature to do it that way. In so doing, we "tie nature's feet" with that added arbitrary 3-symmetry in energy flow. We ourselves prohibit nature from performing the giant negentropy she so dearly loves and much prefers. We also arbitrarily and *meanly* discard the bountiful electromagnetic energy flow that nature loves to furnish us so freely by her vast preference for giant negentropy. We *meanly* discard nature's bountiful giant negentropy banquet free for the taking, by our vast thirst for giant entropy and doing violence to nature. Because we act like brutes instead of scientists, we destroy nature in spite of nature's continuing attempt to give us all the EM energy we wish, freely except for a little switching cost.

A far better way is to cooperate with nature and "let nature make her beloved copious negentropy" as she yearns to. To do that, we now can see the startlingly simple mechanism. We simply make a little dipole, *once*, entropically. So we have to pay for *making* the dipole, *once*, and we have to do just a little gentle violence to nature, *once*. Then we need do no more violence, if we just leave the dipole intact and do not destroy it. In short, we do have to tap nature gently on the shoulder. We do not have to brutally knock nature down to the mat, repeatedly.

When we make the dipole, we make a little bit of "broken 3-symmetry" in the universe's energy flow. Voila! Nature sings for joy at finally having her feet freed from the shackles of the horrid 3-symmetry energy flow. In great glee, she instantly relaxes into her dearly preferred giant negentropy and 4-symmetry. She instantly sets to re-ordering a substantial and usable

⁸⁰ E.g., so far as I am aware, there have been no funded research programs to discover how to deviate and collect some of the freely flowing energy from a permanent magnet or an electric dipole. Instead, electrodynamics has smugly continued to call it "statics" as if there were no dynamics, and ignored the giant negentropy circulation that is "seen" as the steadily outflowing field energy in 3-space, and erroneously called the "static field". There is no such thing as "statics" in the entire observed universe *a priori*; the very process of observation itself is dynamic. What we see as "static" is continual recurrence of a given condition or state or magnitude, as beautifully pointed out by Van Flandern {628}. One might even say that, not only is nature energetic, nature *is* energy, constantly changing and in motion in innumerable ways at once! One might even define "energy" as the process by which nature both acts and observes its actions, in every form and structure and possibility.

portion of the vacuum energy of the universe, in all directions at the speed of light, spreading her preferred giant negentropy EM 4-energy circulation flow from the dipole toward the ends of the universe at the speed of light. As long as we do not destroy the dipole (the broken 3-symmetry) that gently breaks the 3-symmetry shackles, nature's feet remain freed from brutal 3-space symmetry in EM energy flow. In that case, she delightedly continues to reorganize a portion of the vacuum energy, with the reordering spreading radially outward at the speed of light. Simply making a common dipole or charge⁸¹ sets nature to going about reordering an ever-increasing fraction of the entire vacuum energy of the universe, and continuing indefinitely.

Simultaneously with freeing her from enforced 3-space EM energy flow symmetry, in great gratitude nature pours out an immense real EM energy 3-flow from that little dipole or charge. She will continue to pour it out forever for us, if we do not destroy the dipole or charge.

Instead of the present universal entropic engineering, the smart thing to do is make just a little bit of entropy wisely, using the work we get to break 3-space energy flow symmetry (basically, to make a dipole). *Then leave that mother of all negative resistors and free energy flow generators alone and forever unchanged!* Concentrate on intercepting, extracting, and using the free 3-space energy copiously flowing forth from the giant negentropy, without destroying the dipole that is freely providing it.

3.6 How Circuits Are Powered

Let us now look at the great magnitude of the energy flow that nature gives us from that dipole. We have to get into the subject a bit, because EM energy flow theory has been rather thoroughly confused for more than a century.

First, batteries and generators *do not* use their available internal energy — the shaft energy we input to the generator, or chemical energy available in the battery — to power the external circuit. Instead, each uses its available internal energy {209} to perform work on its own internal charges, forcibly separating the charges to form the *source dipole*.

See again Figure 3-4. *All the hydrocarbons ever burned, all the nuclear fuel rods ever consumed, and all the dams ever built, added not one single watt directly to the power line. All the energy from those activities was*

⁸¹ As we previously explained, a charge is just a set of composite dipoles.

input to the generator shaft after normal losses en route, to provide internal magnetic energy available to the generator. In turn, the generator used that available internal magnetic energy only to do internal work on its own internal charges to force them apart, forming the source dipole connected to the terminals. Generators are energy transducers only; they do not directly power their own external circuits.

Batteries and generators expend their internal energy available to them, to make the source dipole, and for no other purpose! None of their internal energy is used to power their external circuit. It never has been, and it never will be.

Once the source dipole is formed, it does all the hypothesized 4-functions we pointed out previously. It induces the spreading giant negentropic reordering of the vacuum energy, extracts (transduces) EM energy from the continuously reordering vacuum, and pours out from the terminals of the generator (or battery) a vast 3-flow (as observed) of EM field energy along the external circuit. As indicated by Kraus's illustration of the Poynting component {210}, this giant EM energy flow fills all space surrounding the circuit, out to an infinite lateral radius.⁸² The energy flow is generally parallel to the conductors of the circuit. Only a tiny component of this flow — due to the surface charges of the conductors and the little boundary layer of energy flow that slides along the surface of the conductors — strikes the surface charges and gets diverged into the conductors (by the lateral withdrawal of the surface charges — with the "stub" or "base" of their field energies — laterally into the conductors. The electrons move mostly laterally, withdrawing from one side of the conductor surface to the opposite. Only the tiny component of its field vector integrated over that small distance is withdrawn into the conductors to power the electrons. This small amount of "withdrawn" energy is the diverged Poynting component, "collected" by the circuit. It also is the small component then used (dissipated) to power the Drude electrons and the circuit.⁸³ All the rest of that vast EM energy flow in the surrounding

⁸² We accent that Kraus, along with other authors, only shows the 3-space *Poynting component* of that flow; i.e., he shows the very small amount of that external 3-space energy flow that is diverged into the circuit to potentialize the Drude electrons and power the circuit. Kraus *does not* show the remaining Heaviside component that is not diverged.

⁸³ As shown by Kraus, some of the energy flow at the various radial distances from the wire is withdrawn, as the surface electrons and the "stubs" of their near fields precess laterally into the depths of the wire when potentialized. Jackson, *Classical Electrodynamics*, Second Edition, Wiley, 1975, p. 223 also points out the nonlocal

space, that pours forth from the terminals, just misses the circuit entirely. It roars on off into space and is wasted.⁸⁴

The diverged, utilized, and accounted energy flow component — the *Poynting component* — is only a tiny, tiny fraction of the entire giant EM energy flow produced by the source dipole for every circuit.

3.7 The Heaviside Component vs. the Poynting Component

Unless Heaviside and Lorentz did rigorous calculations in a work we have not yet uncovered, we could not find any development of the functions and equations required for computing the numerical ratio of the unaccounted Heaviside "dark energy flow" (*nondiverged* energy flow component that misses the circuit), to the tiny Poynting energy component that strikes the surface charges of the conductors {211} and is diverged into the wires to power the circuit when the surface charges precess laterally into the wire.

Consequently, we performed a very crude "special case" estimation {212} — a back-of-the-envelope type, with highly simplifying assumptions — for a very simple circuit in which one resistor is powered by a DC source. Our crude estimate showed that about 10^{13} times as much EM energy flow *misses* the circuit, is *not diverged*, and is *wasted* — as *strikes* the circuit, gets collected, and then is dissipated in the circuit to power the load and losses. Until electrical physicists re-examine the energy flow theory and

involvement of the transverse current. Quoting: "...the transverse current... extends over all space, even if J is localized." One notes that present electrical power systems concentrate exclusively on the J current, making no attempt to collect and utilize the recognized but rather ignored transverse current.

⁸⁴Note, however, that this Heaviside energy flow component differs from $E \times H$. The Heaviside component is totally *nondiverged* (being actually in curl or swirl form), and since E and H are both *diverged* energy components assumed around an **Interacting** unit point static charge, there is neither E nor H in the electrical engineering sense prior to interaction with charge. So the energy flow in both the Poynting and Heaviside components is in a force-field-free form until intercepted by and interacted with charge. Poynting's component, e.g., assumes only that energy **component** that does interact with charge and get withdrawn into the circuit. **Heaviside's** component assumes only that energy component that does not interact with charge and does not get withdrawn into the circuit.

again recover the Heaviside unaccounted component in it, that brute force estimate will have to suffice as at least an illustrative example.⁸⁵

What does that 10^{13} ratio mean? For a little 1 watt generator of that DC type with that specific size conductors and that specific resistor, the Heaviside unaccounted energy flow component was about *10 trillion watts*, occupying all space surrounding the wire,⁸⁶ if all of it could be intercepted, collected, and used to power loads {213}. But the little circuit was only intercepting and collecting — and using to power loads — about 10^{-13} of the available energy flow surrounding the circuit, *if all* of it could have been intercepted, collected, and used to power loads.⁸⁷

We have never had, and we do not now have, an *EM energy* shortage or problem. We never will have one, due to nature's bounty in providing us with the giant negentropy of the common dipole and of the charge considered as a composite dipole. Instead, we have the two problems that

- (i) only a tiny, tiny component of the available 3-energy flow extracted from the vacuum (decompressed from time-energy) by

⁸⁵ We would very much welcome a much more accurate functional expose by a capable higher group symmetry electrodynamicist!

⁸⁶ We also point out that none of this nondiverged energy flow component is accounted in conventional electrodynamics and electrical engineering (the closest it comes is Jackson's mention of the transverse current over all space), and neither has it been accounted or even investigated by biophysicists seeking to determine the effects of EM radiation and fields upon biological systems. We strongly suspect (and have done a little work on the problem) that these "force-free fields" and neglected excess "strange energy" flows do have interactions throughout the highly nonlinear cells of the body, and can indeed have profound long term effects on long-exposed biological systems. We particularly stress the potential for time-charging and subsequent *combined scalar and longitudinal photon pair* decay of time-charge excitation in the body. Several major areas of electrodynamics — such as the transverse current effects, Heaviside component effects, and internal Whittaker structuring (engines) effects of EM radiation — have not been investigated by the scientific community.

⁸⁷ We accent that time-energy may be regarded as spatial EM energy compressed by the factor c^2 . Hence one second = 9×10^{16} joules of EM spatial energy, if decompressed by time-energy interaction with charge. The crude estimate for one circuit of 10^{13} times as much energy being wasted in the Heaviside energy flow component as is caught and used in the Poynting component, is thus quite reasonable when one recognizes that *all* the EM energy flow appearing in the circuit or outside it actually comes from the time domain, hence constitutes *decompressed time-energy*.

the source dipole and poured out of the terminals of the power source, is caught and used by the circuit, and

- (ii) in the closed current loop circuit, half of that small spatial EM energy component that is intercepted and caught, is used by the circuit only to destroy the source dipole and cut off the free flow of EM energy from the vacuum faster than it powers the load.

We have previously discussed this further in several papers {214}.

One must occasionally keep one's sense of humor. The real problem that the Department of Energy should be working on, with massive resources, is simply the alteration of the closed current loop circuit so that it does not destroy the source dipole faster than it powers the loads. Secondly, they should then be working on how to close-loop the $COP > 1.0$ EM systems that readily emerge from that research. Yet it appears that this fundamental energy problem — and the *only* energy problem — has no conventional work being openly done on it anywhere in the open Western world.⁸⁸

3.8 Dark Positive Energy: The Unaccounted Heaviside Component

Now we restate a deceptively hidden thing: The EM field and potential are defined as the observed effect of the deviation from them by an assumed unit point charge. Then that same field and potential are assumed to be in mass-free space, before the interaction with charged matter. Hence the

⁸⁸ Using the U.S. as an example, the U.S. classified community is highly compartmented, and the real "organization" of a given compartment often consists of laterally connected "same clearance" compartments in multiple outside agencies rather than vertical chain of command through one agency. We accent that some highly compartmented "lateral" classified organizations in the West and elsewhere already have working $COP > 1.0$ systems, and have had them for several decades. Some of these laterals in the U.S. are very dedicated to the duly elected government of the United States, with good national security reasons for the fact that they **"officially do not exist"**. Some are not so dedicated at all, and have their own agendas having little if anything to do with official U.S. government policy. These latter "rogue" laterals often have convenient connections with outside shadowy **groups** of the High Cabal (Churchill's phrase). A similar situation exists in several **other** major foreign nations. Substantial electrodynamic technology has been developed (and weaponized) for decades, in secret, and this technology does not **appear** in the open news, the university texts, or the scientific journals. Such is the case for $COP > 1.0$ EM power systems, which have actually existed in secret for **decades**.

field and potential have each been defined erroneously as both a cause and an effect. This is a gross non sequitur. There is also a total lack of accounting that all EM energy in 3-space comes from the time domain. There is no consideration that every dipolarity and every charge represents a giant circulation of EM energy between time and 3-space. In ensemble, this non sequitur and these omissions are responsible for most of the present formidable foundations problems in electrodynamics.

We submit the following new hypothesis: *The present "definition" of field and potential as a function of interception and divergence by a unit point static charge are only indications of their point intensity, obtained as an estimate after their observed interaction with a unit point static charge.⁸⁹ Thus the actual field and potential contain not only their Poynting components that interact with the unit point charge, but also their Heaviside nondiverged components that do not interact with it. The true "magnitudes" of the massless field and potential prior to interaction with charged mass are many orders of magnitude greater than the magnitudes of their standardized point intensities {215}.*

In short, we propose that *every field and potential, in its interaction with charged mass, produces not only the accounted energy aspects presently calculated by electrodynamicists and astrophysicists, but also contains Heaviside's vast unaccounted "dark positive energy" component presently discarded.* We further propose that this ubiquitous and unaccounted "dark positive EM energy" component in the interactions of the fields and potentials of the spiral galaxies is what is producing the excess gravity that is holding the spiral arms together. We specifically do this in honor of Heaviside, whose unpublished papers clearly establish that he recognized the overwhelming gravitational importance of his extra and unaccounted energy flow component {172a, 172b, 196}.

3.9 A Short History of the Discarding of the Heaviside Dark Energy

3.9.1 Independent Work by Heaviside and Poynting

Let us now see how the enormity of the EM energy flow from the dipolar source was treated in the early electrodynamic theory, and how it is treated in the received view today.

⁸⁹ This is recognized by leading electrodynamicists, but not by most electrical engineers building power systems!

In the 1880s after Maxwell was already deceased, Poynting {216} and Heaviside {217} independently (and rather simultaneously) discovered EM energy flow through space. Before that, the concept did not appear in physics. Poynting {216} published prestigiously, while at first Heaviside published more obscurely {217}, then finally more prestigiously {218, 219}.

With respect to circuits, from the beginning Poynting assumed only that small amount of EM energy flow that enters the circuit from the surrounding space. Here are Poynting's {220} own words:

"This paper describes a hypothesis as to the connexion between current in conductors and the transfer of electric and magnetic inductions in the surrounding field. The hypothesis is suggested by the mode of transfer of energy in the electromagnetic field, resulting from Maxwell's equations investigated in a former paper ("Phil. Trans., " vol. 175, pp. 343-361, 1884). It was there shown that according to Maxwell's electromagnetic theory the energy which is dissipated in the circuit is transferred through the medium, always moving perpendicularly to the plane containing the lines of electric and magnetic intensity, and that it comes into the conductor from the surrounding insulator, not flowing along the wire. "

As can be seen, Poynting considered only the energy flow actually entering the wire, and subsequently being dissipated in the circuit. Hence Poynting never considered the huge EM energy flow component around the circuit that is *not* diverged, *misses* the circuit entirely, *does not* contribute to the energy dissipated by the circuit, and is *wasted*. In short, there is a vast "dark energy flow" associated with every dipolar interaction — a huge energy flow component which Poynting never considered.

Heaviside's theory was an extension of what Poynting had considered, and Heaviside also corrected Poynting as to the direction of flow. Heaviside was fully aware of the enormity of the "dark energy" flow missed by Poynting, but had absolutely no explanation as to where such a startlingly large EM energy flow — pouring from the terminals of every dipole, generator, or battery — could possibly be coming from. Consequently, Heaviside was very cautious in referring to it, usually doing so only obliquely in terms of the angles and components. In Heaviside's {221} own words:

"It [the energy transferflow] takes place, in the vicinity of the wire, very nearly parallel to it, with a slight slope towards the wire... . Prof. Poynting, on the other hand, holds a different view, representing the transfer as nearly perpendicular to a wire, i.e., with a slight departure from the vertical. This difference of a quadrant can, I think, only arise from what seems to be a misconception on his part as to the nature of the electric field in the vicinity of a wire supporting electric current. The lines of electric force are nearly perpendicular to the wire. The departure from perpendicularity is usually so small that I have sometimes spoken of them as being perpendicular to it, as they practically are, before I recognized the great physical importance of the slight departure. It causes the convergence of energy into the wire. "

As can be seen, Heaviside was fully aware that the energy flow diverged into the wire was only a minuscule fraction of the total. He was fully aware that the remaining component was so huge that the energy flow vector remaining — after the divergence of the Poynting component into the circuit — was still almost parallel to the conductors. However, he had no explanation at all of where such an enormous and baffling energy flow could possibly originate.

Had Heaviside strongly stated the enormity of the nondiverged component of the energy flow, he would have been viciously attacked and scientifically discredited as a perpetual motion advocate. His words were measured and cautious, but there is no doubt that he recognized the enormity of the nondiverged EM energy flow component.

We have chosen to call that huge unaccounted component the "Heaviside dark energy component" in his honor, since he actually discovered it. By the word "dark" we mean "unaccounted", which hides it from scientific view. We have also nominated it as the previously unsuspected source of the extra gravity holding the arms of the spiral galaxies together.

3.9.2 Lorentz Disposed of the Problem Rather than Solving It

Lorentz then entered the EM energy flow scene to face the terrible problem so quietly raised by Heaviside. Lorentz understood the presence of the Poynting component, and also of the extra Heaviside component, but could find no explanation for the startling, enormous magnitude of the EM energy pouring out of the terminals of the power source (pouring from the source dipole) {222} if the Heaviside component was accounted. Had

he retained and advanced this enormous dark energy flow component, even the great Lorentz would have been castigated as a perpetual motion advocate who did not accept the law of energy conservation. Even today, when one points out that far more energy is pouring out of the terminals of every generator than the small mechanical energy input to the shaft, one is immediately labeled a raving lunatic — even though the Bohren experiment {24} clearly proves the presence of an extra energy flow component not usually intercepted. It is not difficult to understand how such a bombshell would have been received in the 1880s! At least today, we have particle physics and its broken symmetry of opposite charges, together with its active vacuum, to explain where the excess energy comes from and how.

Unable to *solve* the dark energy flow problem by any rational means, Lorentz found a clever way to *avoid* it. He reasoned that the nondiverged Heaviside component was "physically insignificant" (his term) because it did not even enter the circuit. Since it did nothing of any physical consequences, or so he reasoned, then it could just be discarded.

So Lorentz simply integrated the entire energy flow vector (the vector representing the sum of both the Heaviside nondiverged component and the Poynting diverged component) around an assumed closed surface enclosing any volume of interest {223}. *A priori*, this mathematical procedure discards the dark *Heaviside* energy flow component because of its nondivergence. It retains only the intercepted *Poynting* diverged component that enters the circuit.

A century later, electrodynamicists are still happily avoiding the dark energy flow problem by continuing to use the Lorentz integration procedure {224} to dispose of all but the Poynting component that enters the circuit and is then dissipated by the circuit. As a result, the "Poynting energy flow" has come to be loosely regarded as "the" entire EM energy *Mow*, though electrodynamicists find it necessary to give stringent warnings about it. E.g., Panofsky and Phillips {225} state it this way:

"...only the entire surface integral of N [their notation for the Poynting vector] contributes to the energy balance. Paradoxical results may be obtained if one tries to identify the Poynting vector with the energyflow per unit area at any point."

Most electrodynamicists note the freedom to add a vector — few call it an *energyflow* vector, though that is the type of vector being discussed, and

one must add apples to apples — which has zero divergence. Jones {226} states:

"It is possible to introduce the Poynting vector S , defined by $S = E \times H$, and regard it as the intensity of energy flow at a point. This procedure is open to criticism since we could add to S any vector whose divergence is zero without affecting [the basic integration procedure's result]."

Jackson {227} says it even more plainly, and also uses Lorentz's "no physical significance" argument for disposing of any energy flow vector with a zero divergence. Quoting:

"...the Poynting vector is arbitrary to the extent that the curl of any vector field can be added to it. Such an added term can, however, have no physical consequences."

Any energy flow vector, which is the curl of a vector field, will have zero divergence, by elementary vector algebra. In short, to be pertinent at all, it must be an *energy flow* vector (since energy flow is what $S = E \times H$ is all about. Since the curl of any vector has no divergence *a priori*, then any energy flow vector that is a curl of a vector field will be part of the Heaviside dark energy flow component, rather than part of the Poynting energy flow component. It will also be discarded by Lorentz's closed surface integration.

We refer the reader again to Figures 2-5 and 2-6 in Chapter 2, p. 113-114. Electrodynamicists err in assuming that such a divergent free vector (energy flow) can have no physical consequences. If one inserts *additional intercepting charges* into that formerly nondiverged energy flow component, the charges will immediately diverge some of the formerly nondiverged energy flow around them and hence "collect additional energy". In other words, "divergence" is the result of a physical process, accomplished by intercepting charges. We can easily change "nondiverging" energy to diverging energy, by simply interacting it with charges. We can also "bunch" the energy flow lines closer together (as in some waveguides), thereby increasing the local flow intensity and the concomitant energy collected by each intercepting charge in the densified energy flow stream.

So whether the Heaviside energy flow component is of physical consequence or not, depends on whether or not we "add more sail to the sailboat", or "add more sailboats" before the wind. That is most certainly a

useful physical consequence, and with a little ingenuity we ought to be able to use it to power loads "for free" or nearly so. There are other consequences also, as we used in deriving the negentropy of the dipole or charge. There the input of a non-Poynting energy flow component certainly has universal and physical significance — e.g., to the curving of local spacetime, conditioning the active vacuum, furnishing all the energy to form the EM fields and potentials from their source charges, etc.

Schwarz {228} expresses it this way:

"There will be many opportunities in which the interpretation of $E \times H$ as a rate of flow of energy per unit area will be profitable. In most cases of practical interest, such an interpretation is valid, although it must always be kept in mind that only the integral of S over a closed surface can be physically measured... Just how it is that the connections to the energy source, say a battery, are at the ends of the wire, yet energy flows in through the sides, should be pondered by the reader."

Note carefully that Schwartz recognizes the difference between the observed (deviated or diverged) part of the EM energy flow and the unobserved nondeviated or nondiverged part of it. However, he did not follow it up and apply it back to the basic "definition" of the field and potential as what are diverged from them.

For recommended changes to the Poynting vector, Jones {229} presents many conditions the changed vector must fulfill. Then he falls back on the Lorentz closed surface method again, but without realizing that he therefore (i) first includes both the diverged and nondiverged component, and (ii) invokes a procedure that arbitrarily discards the nondiverged component. In thus disposing of the problem, Jones says:

"It does not seem likely that an expression satisfying all these conditions will be simple.....fortunately, we are rarely concerned with the energy flow at a point. In most applications we need the rate at which energy is crossing a closed surface."

Finally, we note that even today, a debate on what the Poynting vector is or should be, is still politely ongoing. As an example, it has been ongoing for more than 40 years in the *American Journal of Physics* alone as well as in other journals {230a-230i}. One thing is clear: The Poynting vector does not represent the total energy flow at right angles through a square

meter in space surrounding the conductors of the electrical circuit. It is, however, the *component or fraction* of that actual energy flow through the square meter in force-field-free form *that will subsequently be diverged and collected in the circuit in force-field form and dissipated in the circuit loads and losses.*

3.10 The Problem of the Accelerating Expansion of the Universe

As briefly stated earlier, we introduce the notion of the supersystem, consisting of three parts: (i) the system and its dynamics, (ii) the active vacuum and its dynamics, and (iii) the active spacetime curvatures and their dynamics. All three components of the supersystem interact with each other.

In Chapter 9, we explain in some detail how a $COP > 1.0$ EM circuit — and especially a $COP \gg 1.0$ EM circuit — has an induced flow of negative energy (Dirac sea hole current) from the output section of the system, back through the system, and into the input section. Reaching the input section, if the hole flow is not completely filled by incoming electrons, the remaining Dirac hole current will flow on back into the feeder line from the external power supply, and into the distant power supply itself, eating electrons and electron current all the while.

We also explain our reinterpretation of the *unobserved* (non-reacted) Dirac hole with negative energy or negative mass, without time reversal and parity reversal. This dramatically differs from the "as observed" (interacted) Dirac positron with positive mass, and with charge-reversal and parity reversal from the electron. The Dirac hole is "as unobserved and non-reacted" and it is still an *electron* having negative mass and negative energy. The Dirac positron with positive mass, opposite charge, and opposite direction is "as observed and reacted with charged matter". The unobserved Dirac hole is the "cause" of an observational interaction; the Dirac positron is the "effect" of an observational interaction. The two are very different because the cause differs from the effect. Here again, the confusion of cause and effect has had very detrimental consequences in the use of Dirac's electron theory.

Very powerful astronomical phenomena, such as giant astronomical explosions of great energy, involve $COP > 1.0$ and $COP \gg 1.0$ processes, particularly when the unaccounted Heaviside energy flow is accounted for every field and potential interaction with charged mass. Hence all such phenomena also provide very powerful "explosions" of negative energy

(Dirac sea holes moving outward in the vacuum). The negative energy is the equivalent of negative mass, so long as it is unobserved.

So there is a "dark negative energy explosion" in the Dirac Sea vacuum, accompanying every large astronomical explosion seen through our telescopes and other sensors. This accompanying dark negative energy explosion has not been accounted in astrophysics until now.

We thus live in an astronomical universe of neglected "giant dark negative energy explosions" as well as one of accounted "giant positive energy explosions".

The dark (unaccounted) negative energy radiating outward in the vacuum from gamma bursts, x-ray bursts, etc. produces antigravity. The spreading negative energy, moving at light speed, is a change to the vacuum itself, which also interacts upon spacetime to negatively curve it, producing negative gravity. For those energetic processes of COP sufficiently greater than one, the processes produce more antigravity than gravity. As of this writing, we are in fact filing a patent application on this method of performing and producing antigravity, and it will be filed before this book is published.

Over the 14 billion or so years of the observed universe, the dark negative energy content of spacetime has been slowly changing by the results of giant astronomical explosions and other such processes producing negative energy radiated outward into the Dirac sea vacuum. Slowly the vacuum itself has undergone transformation from the perfect Dirac sea with all holes filled by particles, to a vacuum where there is a slowly growing fraction of negative energy (negative mass) unobserved Dirac sea holes.

Thus, slowly the antigravity generated by the gradual altering of "space" (the vacuum) itself has been growing for some 14 billion years. At some point in the past, the excess antigravity effect accumulating in space reached the equal of the "outside" gravity acting upon energetic explosive astronomical phenomena. From that point in time, the antigravity effect has been increasing slowly. The result is that the present violently explosive astronomical phenomena, by adding a sudden and sharp increase in their external space antigravity, produce acceleration away from all positive mass and positive energy phenomena. Hence astronomers now observe the acceleration of the expanding (positive energy/positive mass) universe, instead of the previously expected slowing (due to positive gravity) of the expanding universe (conventional view).

The antigravity-producing phenomena have not been openly investigated in Western science because Western science has arbitrarily discarded $COP > 1.0$ EM systems, primarily with the Lorentz regauging of the Maxwell-Heaviside equations. Hence, Western science has not experimentally studied the type of system that produces the effect in the first place.

On the other hand, it is possible to directly investigate the antigravity-producing phenomenology on the laboratory bench, by utilizing overunity EM systems with very high COP (e.g., $COP = 10^6$ or more). The Sweet experiments {231} did in fact produce such phenomenology on the laboratory bench, but these experiments were privately performed under proprietary conditions {232}. We discuss the Sweet experiments and device in a later chapter.

In science, such experiments are quite properly deemed interesting but anecdotal until replicated independently. Similar experiments should certainly be repeated by the scientific community, using various interactions (some given in this book) that develop $COP > 1.0$. The problem is nowhere near as difficult as hot fusion, but it has not been tackled and overcome because of (1) the prevailing and erroneous scientific mindset against $COP > 1.0$ electromagnetic processes, and (2) the present "kill" of the supersystem and its effects in the standard U(1) electrodynamics model.

In Chapter 8 we further discuss the antigravity effect in practical or potentially practical systems where $COP \gg 1.0$.

3.11 In Conclusion

In this Chapter, we have stressed what we believe to be a great new principle of giant negentropy, leading to direct and easy extraction of EM energy from the vacuum in copious quantities. That principle is that nature retains *her preferred 4-symmetry* of EM energy flow, while breaking 3-symmetry of EM energy flow and the symmetry of EM time-energy flow on the fourth axis. It is implemented by making a common dipole or charge.

The electrical energy problem is *not* due to any difficulty in inducing giant and indefinitely continuing EM energy flows from the vacuum! The easiest thing in the world is to extract EM energy — any amount, anywhere, anytime — from the seething vacuum, by making a simple dipolarity. The problem is only in then intercepting and collecting some of the energy to dissipate in loads, and doing it *without* using half the collected energy to

destroy the dipole producing the energy, faster than the loads are powered. In other parts of this book we have given some of the many mechanisms that can be applied to attack this "power the load without killing the source dipole" problem, and have also included such in papers in the literature {233a-233u}.

We have pointed out the implications of the new principle of negentropy in EM energy flow, and how all our circuits and electrical power systems actually use it but then are designed so as to kill the negentropic process's potential for self-powering electrical power systems.

Presently we are told by the conventional scientific community that the dream of freely extracting EM energy from the vacuum, and using it to efficiently and easily power our electrical needs cleanly, is either a fool's concept of perpetual motion, or the science of the next century. It is neither; it is good physics, and it is already *present and misused* in all our electrical power systems and circuits — and always has been. Unlimited electrical energy from the vacuum is here and now, if we but overcome the prevailing mindset and grasp it.

We have argued that all electrical loads and circuits are now and always have been powered by just such EM energy extracted directly from the vacuum by the giant negentropy principle, evoked by the source dipole. We have removed the artificial and erroneous notion that batteries and generators provide some of their available 3-space internal energy to the external circuit. Instead, we have emphasized that batteries and generators dissipate their available energy to form and then continually reform their source dipole, and nothing else. Once their source dipolarity is formed, a battery or a generator is nothing but an energy gate, gating and transducing enormous EM energy from the vacuum. We only have to keep inputting energy to keep reforming the dipole that our external circuit is designed to destroy faster than the load is powered.

In dealing with the function of the dipole in extracting the EM energy from the vacuum and pouring it out to power the circuit, we have shown errors in present energy flow theory and how they came to be made. We also indicated the enormous magnitude of the EM energy flow actually **extracted** and present with every conventional circuit, but wasted and **arbitrarily** removed from accountability. Some processes for intercepting, **collecting**, and using additional amounts of this available Heavyside "dark EM energy" flow component, surrounding every circuit, have been mentioned, and references have been given to other papers more fully discussing such processes. In a previous paper {234} we have proposed

that the Heaviside dark energy, accompanying all EM field-charge interactions, is responsible for the excess gravity observed to be holding the spiral arms of those distant spiral galaxies intact — in short, we have proposed an unaccounted Heaviside *dark positive energy* solution to the well-known *dark matter* problem in astrophysics.

The ordinary closed current loop circuit inherently yields a system $COP < 1.0$, because it destroys its source dipoles faster than it powers the load. Indeed, the circuit self-enforces the Lorentz symmetrical regauging condition during discharge of its free excitation (potential) energy.

In addition, we have presented an hypothesis to explain that negative energy (negative mass) created in the Dirac sea vacuum by giant astronomical explosion phenomena produces the excess antigravity in the space surrounding those entities that is accelerating the expansion of the universe. We have also indicated how this hypothesis can be investigated and tested on the bench. We have provided one experiment whose results did support the hypothesis.

The present world energy crisis is real and increasing, while at the same time the availability of oil is beginning to decrease and oil becomes more costly.⁹⁰ Unless a substantial fraction of the "electricity from oil" curve is shifted to "electricity from the vacuum" rather quickly, the economic collapse of the Western world, followed by concomitant collapse of other economies, may ensue within a surprisingly few years, and even within the present decade.

⁹⁰ As this was first being written in Dec. 2001, there was a temporary relief in the oil crisis, due to the sudden decrease in travel, air traffic, etc. after the terrorist attack on Washington and New York on September 11, 2001. As the present war on terrorism has continued, the MidEast is now heating up toward another war, and oil prices are again trying to climb. Iraq, Iran, and Libya called for an oil embargo on the United States, for example, which would almost immediately plunge the nation into an oil crisis. Meanwhile, should effective terrorist attacks occur upon the highly vulnerable energy distribution infrastructure of the United States and other allied nations, the oil crisis will again emerge catastrophically and almost immediately thereafter. It is held off for now, only because Russia under Putin is seeking U.S. financial assistance to further develop its rich oilfields. When OPEC votes to curtail production and then curtails it, Russia opens the spigot and keeps the prices down. Putin is seeking to become a trusted U.S. oil partner, in the role long played by Saudi Arabia but now declining due to perceived Saudi payments to terrorist organizations and reluctance to close down terrorist activities in their own country. So in a strange way, a new alliance between the U.S. and Russia has prevented the oil and energy prices from escalating right through the roof.

We believe that a transfer of much of the "electricity from oil" curve to an "electricity from the vacuum" curve can be quickly accomplished, if the government and the scientific community can be induced to move with full priority and vigor in the directions indicated in this book. However, to get that done, it apparently will be done over the writhing bodies of our leading scientific organizations, literally dragging the organizations to face the proven fact of giant negentropy of every charge and dipole in the universe over their strenuous objections.

As a major objective, we fervently hope that undergraduate students, graduate students, post-doctoral scientists, other scientists, engineers, and environmentalists will interest themselves in these new principles and viewpoints. We have called attention to the new electrodynamics pioneered by AIAS, Evans, Sachs, Barrett, Lehnert, and others, and indicated the capability of this emerging electrodynamics to model this new *energy from the vacuum* functioning.

It has been said that no idea is accepted until its time has come. We strongly believe that the time for cheap, clean extraction of electrical energy from the vacuum is an idea whose time has arrived. Hopefully our efforts in this book will at least conceptually show the interested reader the outline and course that energy from the vacuum can and will take in the scientific community and in the world at large.

We accent again that modeling the extraction of EM energy from the vacuum demands the use of higher symmetry electrodynamics, particularly a theoretical model capable of expressing the interactions of the three components of the supersystem. Barrett and Grimes {235} said it beautifully:

"In the case of electromagnetism, the theory was first simplified before being frozen. Maxwell expressed electromagnetism in the algebra of quaternions and made the electromagnetic potential the centerpiece of his theory. In 1881 Heaviside replaced the electromagnetic potential field by force fields as the centerpiece of electromagnetic theory. According to him, the electromagnetic potential field was arbitrary and needed to be "assassinated" (sic). A few years later there was a great debate between Heaviside and Tait about the relative merits of vector analysis and quaternions. The result was the realization that there was no need for the greater physical insights provided by quaternions if the theory was purely local, and vector analysis became commonplace.

The vast applications of electromagnetic theory since then were made using vector analysis. Although generations of very effective students were trained using vector analysis, more might be learned physically by returning, if not to quaternions, to other mathematical formulations in certain well-defined circumstances. As examples, since the time when the theoretical design of electromagnetism was frozen, gauge theory has been invented and brought to maturity and topology and geometry have been introduced to field theory. Although most persons view their subject matter through the filter of the mathematical tools in which they are trained, the best mathematical techniques for a specific analysis depend upon the best match between the algebraic logic and the underpinning physical dynamics of a theoretical system. "

The problems we face today are ever more demanding of the necessary EM change pointed out by Barrett and Grimes, along with many others. Let us hope their words are heeded. Given rapid development of higher group symmetry electrodynamics models, we shall very rapidly see the solutions to many previously intractable human problems — including cheap clean energy from the vacuum, understanding and directly using antigravity as well as gravity, a revolutionary new medical therapy, a new chemistry and biochemistry, and a new appreciation for the electromagnetic interactions of mind and matter.

Let us hope this new scientific revolution comes swiftly.

Chapter 4

Setting the Stage for Understanding Overunity Power Systems

[Dissipative structures] *"This leads precisely to a distinction between 'equilibrium structures' [which may be understood in terms of classical equilibrium thermodynamics] and 'dissipative structures'. The latter are formed and maintained through the exchange of energy and matter in non-equilibrium conditions. "*[I. Prigogine] {236} [Internal brackets added for clarity.]

[The energy in space itself] *"What might appear to be empty space is, therefore, a seething ferment of virtual particles. A vacuum is not inert and featureless, but alive with throbbing energy and vitality. A 'real' particle such as an electron must always be viewed against this background of frenetic activity. When an electron moves through space, it is actually swimming in a sea of ghost particles of all varieties — virtual leptons, quarks, and messengers, entangled in a complex melee. The presence of the electron will distort this irreducible vacuum activity, and the distortion in turn reacts back on the electron. Even at rest, an electron is not at rest: it is being continually assaulted by all manner of other particles from the vacuum. "*[Paul Davies] {237}

[Modernizing the fluid analogy of EM]. *The intensity of the vacuum virtual particle flux may be treated as the intensity of a potential, thus by analogy corresponding to pressure in a fluid. Polarity (charge) is a process for establishing a change in the intensity of the vacuum potential — and thus a change in the ambient pressure of the vacuum fluid. Difference between vacuum pressures at two separated points creates a force upon any charge placed between those two points. Just as a differential in pressure between points in a fluid induces currents, a differential in vacuum pressure induces energy flow currents in the vacuum fluid, which are called 'fields'. All*

EM circuits, charges, potentials, and forces in electrodynamics involve altering the vacuum to include altering its pressure and thereby producing the forces that the resulting pressure gradients (fields) induce upon charges. All observable EM energy in space is EM energy intercepted and collected on charges, and it comes from the vacuum via these fundamental vacuum-engineering dynamics." [T. E. Bearden, private communication to a colleague, 2001].

[Impact of EM energy from the vacuum.] *"If they [quantum fluctuations of vacuum] can be [tapped], the impact upon our civilization will be incalculable. Oil, coal, nuclear, hydropower, would become obsolete — and so would many of our worries about environmental pollution."* *"Don't sell your oil shares yet — but don't be surprised if the world again witnesses the four stages of response to any new and revolutionary development: 1. It's crazy! 2. It may be possible — so what? 3. I said it was a good idea all along. 4. I thought of it first."* [Arthur C. Clarke] {238}.

[Broken symmetry of opposite charges.] *"Since nonobservables imply symmetry, any discovery of asymmetry must imply some observable. The experiment of Wu, Ambler, Hayward, Hoppes and Hudson... established the asymmetry between the positive and negative signs of electricity."* [T. D. Lee] {239}.

[On implications of asymmetry of opposite charges of a dipole.] *"In particle physics, the proven asymmetry of opposite charges establishes that the source dipole — with opposite charges on each end — is a broken symmetry in the violent virtual photon flux of vacuum. The dipole charges constantly receive and absorb virtual photon energy from the seething vacuum, and re-emit that excitation energy. By the very definition of broken symmetry, some of this absorbed virtual energy must be integrated into observable 3-space EM energy, and emitted by the dipole in observable form, in all directions in 3-space. Hence there is a rigorous basis for the source dipole extracting virtual EM energy from the vacuum, integrating it, and continuously pouring it out in*

observable and usable EM energy form. It has been in particle physics since 1957, being certified by the award of the Nobel Prize to Lee and Yang in that year. " [T. E. Bearden, private communication to a colleague, 1995.]

[On powering an electromagnetic circuit] "In the United States there is not now, and there never has been, a single electrical engineering department, professor, or textbook that knows and teaches what directly powers an electromagnetic circuit. Neither is it in any publication of the National Academy of Sciences, National Science Foundation, National Academy of Engineering, Department of Energy, or the great national laboratories. Yet the proof that every circuit is powered by EM energy extracted directly from the vacuum has been in particle physics for 45 years, since the award of the Nobel Prize to Lee and Yang in 1957, following the experimental proof by Wu et al. earlier that same year. " [T. E. Bearden, private correspondence, 2002].

4.1 Introduction

In this chapter, we present a selection of potential overunity notions, some inventions, and some experiments. Its purpose is to show some of the more relevant work that has been done, and hopefully to stimulate new thinking by the interested reader. Much of the work addressed is by other inventors and scientists, and we give an appropriate commentary from our viewpoint. Not all the concepts presented can be clearly explained, though some can and are. This is not intended to be a "kit of parts" or an "assembly instructions" type of presentation. For that, the interested researcher will have to rely on his or her own ingenuity and lots of bench experiments, because no such "kit of parts with instructions" for COP > 1.0 electrical power systems exists at present {240, 241}.

Because of the broken symmetry of its opposite charges, we do know that any dipolarity — such as a permanent magnet, a charged flat-plate capacitor, an electret, or a simple EM scalar potential — continuously pours out EM energy circulation extracted from the vacuum. E.g., see Figure 4-1, which shows a very simple "free energy generator" that will generate a flow of EM energy indefinitely, even by ordinary U(1) electrodynamics theory (by standard Poynting theory). E.g., quoting Buchwald {242}:

"[Poynting's result] implies that a charged capacitor in a constant magnetic field which is not parallel to the electric field is the seat of energy flows even though all macroscopic phenomena are static."

This is easily seen by applying the standard Poynting formula, $S = E \times H$. With the H-field of the magnet at right angles to the E-field of the capacitor or electret, the Poynting flow of energy S is maximized and orthogonal to E and to H .

The problem is not in extracting energy - even enormous energy — from the vacuum. The problem is collecting and using the energy to power loads, without destroying the source dipole.

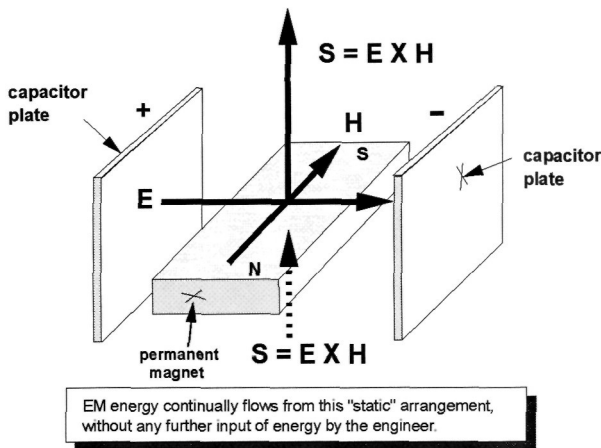


Figure 4-1 Poynting generator providing endless EM energy flow from the vacuum.

Buchwald errs, e.g., in assuming the macroscopic phenomena are static. They are not; they are highly dynamic in the same sense that a perfect macroscopic whirlpool in a river, seemingly static, nonetheless involves a continuous flow of water through it and a continuous dynamics. So far as can be observed, it appears there is no such thing as a truly "static" object. As an example, just to "exist" an object must "travel through time", which is itself a special kind of dynamics in the time domain.

A beautiful explanation of what is meant by "static" is given by Van Flandern⁹¹:

"To retain causality, we must distinguish two distinct meanings of the term 'static'. One meaning is unchanging in the sense of no moving parts. The other meaning is sameness from moment to moment by continual replacement of all moving parts. We can visualize this difference by thinking of a waterfall. A frozen waterfall is static in the first sense, and a flowing waterfall is static in the second sense. Both are essentially the same at every moment, yet the latter has moving parts capable of transferring momentum, and is made of entities that propagate. "

Now suppose that the capacitor in Figure 4-1 is rotated until E and H are either parallel or anti-parallel. In that case, the Poynting theory predicts zero EM energy flow. That is an incomplete assessment; it means that there is no overt field energy flow. There is, however, still quite a lot of covert or "infolded" field energy flow ongoing anyway, inside the static fields E and H themselves.⁹² To see this, we first turn to the static potentials.

Between the charged plates of the capacitor or electret, there exists an electrostatic scalar potential ϕ . Between the polar ends of the permanent magnet, there exists a magnetostatic scalar potential Φ . We may independently decompose both ϕ and Φ via Whittaker decomposition {243}, applying a necessary correction {244} to Whittaker's interpretation. Then in all space surrounding the two dipoles, we have a hidden harmonic set of bidirectional longitudinal EM wavepair flows of energy comprising each of the static potentials ϕ and Φ filling all space⁹³ around the assembly in Figure 4-1. Each of those potentials ϕ and Φ is formed of a combination of scalar (time-polarized) and longitudinal photon pairs, as strongly argued

⁹¹ Tom Van Flandern, "The speed of gravity — what the experiments say," *Phys. Lett. A.*, Vol. 250, Dec. 21, 1998, p. 8-9.

⁹² Indeed, by the asymmetry of its opposite charges, each of the dipoles is **continuously** pouring out EM energy extracted from the seething vacuum.

⁹³ In the conventional view. We corrected that view in {12}, to agree with quantum field theory and to use a *cause and effect* instead of the *two effects* used by Whittaker.

by Mandl and Shaw {245} and as previously discussed in an earlier chapter. Further, each of the "static" fields can be decomposed into two scalar potential functions, as shown in 1904 by Whittaker {246}. Then each of the base scalar potentials further decomposes into the set of time-polarized EM wave and longitudinal EM wave pairs. The result is that every "static" field or potential in the universe is actually a set of longitudinal EM wave dynamics.

Further, in each coupled Whittaker wavepair as reinterpreted, there is perfect correlation between the time-domain EM energy wave (scalar or time-polarized EM wave) and the 3-space longitudinal EM wave. So even a "static" EM field, such as from the permanent magnet and from the charged capacitor or electret, does involve an enormous number of hidden internal EM energy flows in longitudinal and scalar EM waveform.⁹⁴

⁹⁴ One of the great omissions of modern Western electrodynamics is the failure to follow up on direct engineering of this "vast, internal, infolded, far more fundamental" scalar and longitudinal electrodynamics hidden inside all present overt EM potentials and transverse EM fields and waves. Russian secret weapon scientists under the former KGB called this internal electrodynamics the "information content of the field" and have strongly weaponized it. A deception plan has been used to successfully convince the West that the Russians are speaking only of conventional spectral analysis. Use of this internal EM structuring, in the form of longitudinal or scalar wave interferometry, formed the first giant superweapons deployed by the former Soviet Union in 1963. To see a proof that ordinary EM fields and waves and potentials can be formed at a distance, *arising out of the local spacetime in the interference zone*, see M. W. Evans et al., {79}. Longitudinal EM waves easily pass through the entire earth and ocean relatively undiminished, since mass is mostly empty space filled with fields, potentials, and waves — i.e., filled with incredible numbers and bundles and dynamics of longitudinal and scalar EM waves. Mass is thus a great superhighway for the passage of longitudinal EM waves, and longitudinal interferometry can be performed right through the earth and ocean, on the other side of the earth from the transmitters. Such interferometers can also easily focus inside the earth or beneath the surface of the ocean. Hence in April 1963 the first giant Soviet LW interferometer deployed was used to kill the U.S.S. Thresher beneath the ocean, off the East Coast of the U.S. Intense production of EM signals — emerging everywhere in the space in that underwater interference zone placed around the submarine — filled the sub and its electronic controls. This jammed the electronic controls of the sub, rendering it helpless. The hapless sub then sank to crush depth and imploded. The signatures are clearly present in the jamming and cessation of multiple electronic systems functioning in the sub's surface companion, the U.S.S. Skylark (which was in a sort of surrounding "splatter" zone and survived because it was not individually targeted). Today at least 10 nations have scalar or longitudinal wave interferometer weapons, to one extent or another, other nations are working on them, and the Yakuza also has them. These were apparently the weapons

Ultimately there is no frozen waterfall, but only the dynamic waterfall always reappearing the same but filled with dynamic movement and energy flow.

These latter EM energy flows *infolded inside* the scalar potentials and the **fields** exist for a single charged capacitor or electret alone, or a single magnet alone. They also exist for any two points in a circuit that have differing electrical or magnetic potentials with respect to the ambient vacuum potential (energy density). This latter fact, of course, was part of the secret of Kron's *open path*. Indeed, every dipolarity in the universe — between any two potentials or any two differing charges anywhere — is an open path and an energy flow source. E.g., quoting Kron {247}:

"...the missing concept of "open-paths" (the dual of "closed-paths") was discovered, in which currents could be made to flow in branches that lie between any set of two nodes. (Previously—following Maxwell—engineers tied all of their open-paths to a single datum-point, the 'ground'). That discovery of open-paths established a second rectangular transformation matrix... which created 'lamellar' currents... " "A network with the simultaneous presence of both closed and open paths was the answer to the author's years-long search. "

As can be seen, Kron had discovered how to create currents — *currents could be made to flow* — in individual branches between any two nodes in **the** circuit, physically connected or not. We point out that deliberate use of Kron's "open path" in a network circuit constitutes a strong violation of **the** standard closed current loop circuit's self-enforcement of the Lorenz/Lorentz symmetrical regauging condition. Hence it is a magnificent method for achieving COP>1.0 circuits. It is the belief of this

confirmed in 1997 by Secretary of Defense Cohen in these words: *"Others are engaging even in an eco-type of terrorism whereby they can alter the climate, set off earthquakes, volcanoes remotely through the use of electromagnetic waves... So*

there are plenty of ingenious minds out there that are at work finding ways in which they can wreak terror upon other nations...It's real, and that's the reason why we have to intensify our efforts." [Secretary of Defense William Cohen at an April 1997 DoD counterterrorism conference sponsored by former Senator Sam Nunn. Quoted from DoDNews Briefing, Secretary of Defense William S. Cohen, Q&A at the Conference on Terrorism, Weapons of Mass Destruction, and U.S. Strategy, University of Georgia, Athens, Apr. 28, 1997.]. As the reader can see, the Cold War **was** not so "cold" after all. This mere "tip of the iceberg" should also give the reader a little more insight as to why a war on terrorism is so necessary to all civilized nations.

author that such "open path" functioning in his patented circuits was part of Tesla's secret, though he did not think of it in those terms. However, Tesla's ability to shuttle potential energy independently in his circuits — invisible to a tensor analysis — was rigorously shown by Barrett {124}. Barrett extended the method and obtained two patents in the field of communications {286a, 286b}.

Thus the $COP > 1.0$ problem *is not* in the part or function (the dipole or the charge) that extracts real EM energy flow from the vacuum. That is extraordinarily simple and straightforward. Engineers and scientists have been using it for two centuries without understanding what they were doing. Every charge, dipole, charged capacitor, electret, and permanent magnet already continuously extracts EM energy from the vacuum. The two-fold $COP > 1.0$ problem is in (i) *separately intercepting and catching (in an external circuit) some of the copious free flowing energy from the "extractor"*, and then (ii) *separately dissipating that collected energy in an external load without killing the "extractor" itself* — or at least only killing it more slowly than the load is powered. The most elegant way to violate the closed current loop circuit is with Kron's open path, typified by Tesla/Barrett potential energy shuttling. Since vector and tensor analysis will not even show it or model it, then a higher group symmetry electrodynamics is imperative in modeling $COP > 1.0$ EM systems and their functions. Much of that work remains to be done.

Our main purpose in this chapter is to point out some selected efforts and approaches by scientists, engineers, and inventors. We will give a brief description and a few details, and leave it to the researcher for further experimentation and reflection. Hopefully, knowing what some others have tried and the results they achieved will prove helpful to the serious researcher.

We also strongly encourage the reader to again read this section after studying Chapter 9. In any $COP > 1.0$ system, the excess energy must come from the "active environment". The active environment of an EM system consists of (i) the active vacuum and its interactions and dynamics, and (ii) the active local spacetime curvatures and their interactions and dynamics. Contrary to naive belief and the received view, overunity electrical power systems — particularly very high COP systems — are neither simple nor easy, but are extraordinarily difficult and highly nonlinear even when their appearance is deceptively simple. Chapter 9 will give a brief expose of some of the difficulties for higher COP systems. There we will refer again to the intricate circuit analysis work of Gabriel Kron {248}, to Dirac sea electron theory {249} both prior to observation and after observation, and

to the need for higher group symmetry $O(3)$ electrodynamics by Evans {250} which is a subset {251} of the electromagnetics used in the unified field theory of Sachs {252}.

Chapter 9 indicates how mathematically complex these systems really are, even when they appear deceptively simple. The phenomenology is highly complex, and it has not yet been scientifically explored because of the erroneous received view that $COP > 1.0$ EM systems are not permitted by Maxwell's theory or the laws of physics. That is a non sequitur. More exactly, *they are not permitted in that equilibrium class of Maxwellian systems described and selected by Lorentz's arbitrary symmetrizing of the Maxwell-Heaviside equations, following their previous symmetrizing by Ludwig Valentin Lorenz* {253}. Prior to applying the Lorenz-Lorentz symmetrical regauging, the Heaviside equations — which in field form are already a truncation to four vector equations of Maxwell's 20 quaternion-like equations — do prescribe both disequilibrium $COP > 1.0$ and equilibrium $COP < 1.0$ Maxwellian systems. The variables are not separated (potential formation) and the equations are difficult to solve, usually requiring numerical methods. With Heaviside's truncation and Lorenz-Lorentz regauging applied, the resulting "special case" equations — now for only that class of $COP < 1.0$ Maxwellian systems that receive and use no net input from their active environment — continue to be used because closed analytical solutions can usually be had and numerical methods can be largely avoided.⁹⁵

So with tongue in cheek, we humorously remark that $COP > 1.0$ electrical power systems have not been developed or known because the early scientists were a bit lazy and wished to avoid ubiquitous use of numerical methods. These days, with computers, proper math programs, and sharp

⁹⁵ **For** some reason, electrodynamicists ignore the fact that the Lorenz regauging does assume two *additional* equal and opposite energy exchanges of the system with its external active environment, but carefully selected so that all the excess energy received in the system is purely in the form of a stress potential. Hence this energy continually does internal work on the system to produce additional stress, but cannot translate electrons through an external load to power it. Also, this regauging condition represents an effective rotation of the frame of the described system out of **the** laboratory frame. To then argue that this severely altered system (increased

stress, constant additional internal work being done on the system, frame rotation, altered potential energy) is the same system prior to Lorenz regauging, and that **such a** system is not receiving excess energy from its active vacuum environment, is naive in the extreme and a non sequitur.

graduate students to easily crunch the numbers, there is no longer any reason for continued arbitrary discard of Maxwellian $COP > 1.0$ systems.

For such reasons, no legitimate theory of $COP > 1.0$ EM power systems has been developed, except for light shed by Prigogine {254a-254f} and others {255a-255c} as to the necessary active environment, disequilibrium nature, and disequilibrium thermodynamics of $COP > 1.0$ systems. Further, the energy flow theory (Poynting's theory) has not been further extended to include the Whittaker decompositions {243, 246} as should long ago have been done. Neither has it been extended to account for the arbitrarily discarded giant Heaviside nondiverged energy flow component.

The researcher should be aware that the energy input to a system is always in the voltage⁹⁶ (the *potential*; one input volt of potential will cause one joule of energy to be collected upon each interacting unit point electric charge in the system; one volt of drop in potential results when one joule of collected energy is dissipated per unit point collecting charge in the system.). The fields and their energy are functions of the potentials and their energy, not the other way round. After potentialization of the circuit, the subsequent movement of the potentialized Drude electrons, as current in the system, is connected with (and part of) the *dissipation* from the circuit of previously collected/intercepted energy from the vacuum.

4.2 Demonstration Gedanken Experiment

4.2.1 Work and Energy

Doing work is defined as *changing the form of energy*. No energy is lost per se when work is done; the energy is only changed from one form to

⁹⁶ The reason is that all 3-space EM energy — in the circuit or elsewhere — must come from the time domain to each 3-space point and return from that point to the time domain. The scalar potential (voltage) actually is an ongoing process whereby, for any interacting charge, energy in the time-domain and energy in 3-space are functionally combined in that 4-circulation at every point dipole in space. In quantum field theory, e.g. as shown by Mandl and Shaw {19}, the *combination* of the time-polarized photon and the longitudinal photon in 3-space is observed as the instantaneous scalar potential, but neither photon is *individually* observable. We comment that an "observable" 3-space potential is the result of an iterative set of d/dt differentiations of the ongoing "combination" of scalar (time-polarized) photons having their energy oscillations in the time domain, with longitudinal photons having their energy oscillations in 3-space along their line of motion. Hence each d/dt differentiation of the ongoing 4-space combination yields the instantaneous 3-space potential. Cumulating, one has the ordinary 3-space potential or "voltage" of macro electrodynamics.

another. All the energy since the beginning of the universe is still present,⁹⁷ and it is still repeatedly changing its form to do work, over and over. The point is, a single initial joule of energy can be "used" (changed in form) to do more than one joule of work, if multiple changes of form occur serially. *One joule of energy changing its form gives one joule of work, only if a single and total change of form of that joule of energy occurs and then no further change of form occurs.* If the joule changes form once, a joule of work is done and a joule of energy still remains in a second form. If this second form of the joule of energy is not lost, but is retained and then changed in form, a second joule of work is performed and there is still a joule of energy left in different form. And so on. Tricking a system to self-induce multiple iterative form changes of each joule of input energy (or at least of some fraction of each input joule), without losing the energy after each change of form, is one way of providing $COP > 1.0$ in a system.

Remember that COP (coefficient of performance) is best defined as *the usable work output obtained, divided by the EM energy that the operator inputs*. Since "usable work output" is just usable "change of form of the energy", it can be seen that multiple changes of form of every joule of energy input by the operator can lead to $COP > 1.0$.

This illustrates that one must be careful in applying the law of conservation of energy. For a thorough analysis, several features must be identified and accounted: (i) The flow of the energy impinging upon the collection, (ii) the collector itself and the type of collection process utilized, (iii) the linear or nonlinear operation of the collection/collecting process, (iv) the dissipation process used to dissipate the collecting mechanism, (v) what happens to the energy flow that was collected and then its collection "dissipated", (vi) what type of energy flow was collected, and then its collecting "dissipated", (vii) what happens to the collector after the dissipation interaction, (viii) what happens to the energy in different form after each previous change of form, (ix) whether single-pass or multiple-pass of the energy flow is used, (x) whether single collection or multiple collecting is used, and (xi) the effects of any nonsymmetrical regauging of a local component or region (e.g., as in simply

⁹⁷ However, "present" means in spacetime, not just in 3-space. The EM energy we think of as being in 3-space is macroscopically in continuous circulation from the time domain to 3-space and back to the time domain. Microscopically it is in *continual* circulation.

increasing one of the potentials of the region) that in turn acts as a free energy flow.

See again Figure 2-4 in Chapter 2. In general, the available energy flow surrounding a circuit will be far greater than the intercepted and collected energy in that circuit, particularly in a "single pass" collection — i.e., where the impinging energy only passes once. In analyzing a system or circuit, one must be very careful to ascertain whether the system utilizes any mechanisms to enhance and increase the energy collection fraction. If it does, then a necessary (but not sufficient) criterion for $COP > 1.0$ has been identified in the system. Letokhov's negative absorption of the medium (i.e., excess energy emission) {256} and Bohren's experiment {257} are examples. Bohren's experiment is easily replicated by any nonlinear optics lab, and outputs 18 times as much energy as the conventionally calculated energy input.⁹⁸

If the impinging Heaviside nondiverged component of the energy flow beyond the collecting/collector is rerouted and passed back to impinge again in the system — even on another collector or other collectors — this must also be taken into account.

Conventionally, the "magnitude" of the fields⁹⁹ E and H in the Poynting (collected) energy flow $S = E \times H$ are "defined" by the collection from the fields by an assumed unit point static charge at each point in space. In short, the conventional fields have already been "defined" as a standard linear collection upon standard charged *mass*, *from the field entities as they*

⁹⁸ Energy conservation is not violated! Instead, the conventional calculation assumes a static intercepting unit point charge, which has the minimum reaction cross section in the stream of bidirectional longitudinal EM energy flows comprising the potential, etc. By placing the intercepting charged particles into particle resonance, the particles' reaction cross section is increased because each resonating charge sweeps out a greater geometrical cross sectional area. Hence the charges collect more energy from the energy flow comprising any "field" (actually field intensity) or "potential" (actually potential intensity) than is assumed in the standard input energy calculation. In short, Bohren's experiment takes advantage of that arbitrarily discarded Heaviside energy flow component that remains and is present but not considered in the conventional Poynting calculation and field intensity calculation. The experiment in fact proves the existence of the unaccounted but ubiquitous giant Heaviside nondiverged EM energy flow.

⁹⁹ At best, the 3-space point intensity of each 4-space field is so defined, for a forthcoming reaction with unit point static charge, and where the forthcoming reaction does not involve lingering time - charging but only simple time-excitation followed by full decay of the time-excitation via normal photon emission.

exist in 4-space prior to interception and collection, and where the collector itself is absolutely fixed and "static". So nonlinearity in energy flow collection — by additional disruption of the impinging energy flow induced by the dynamics of the collector itself— may easily increase the "reaction cross section" of the collector. The static reaction cross section of a unit point static coulomb and the dynamic reaction of a unit point resonant coulomb may differ appreciably.

Without stating it this clearly, Bohren has shown that the interaction cross section for a single-pass collection by one static particle may be increased by a factor of 18 in a given example, *by inducing resonance and thus increasing the "collection" dynamics of the collecting particle* in the impinging S-flow {257}. The work has been independently substantiated by Paul and Fischer {258}. It also is a direct proof of the existence of Heaviside's neglected nondivergent energy flow component surrounding every field and charge interaction.

So indeed there are $COP > 1.0$ EM processes in the literature. The Heaviside component also pouring from the terminals of every generator and battery, already proves that *every generator and battery ever made already was and is a $COP > 1.0$ energy transducer, because far more energy pours from the terminals of the generator and battery than the shaft energy input to the generator or the chemical energy dissipated in the battery*.

4.2.2 Extending the Work-Energy Theorem

The standard work-energy theorem in mechanics may be conventionally stated as: *The change in the kinetic energy of a particle is equal to the net work done on the particle by the net force acting upon it*. As in any "model", here there are assumptions that are seldom taken into account. First, the collected/collecting kinetic energy of a particle is due to its increased interaction rate with the vacuum flux, because of its acceleration through that flux.¹⁰⁰ In mechanics the increase in flux interaction (and

¹⁰⁰ As we cover elsewhere in this book, any charge (which, together with its clustering virtual charges of opposite sign is a dipolarity) is a broken symmetry in the fierce flux of the vacuum. This means that every charge in the universe absorbs virtual energy from the vacuum, coherently integrates some of it into observable energy, and pours out that observable energy in all directions. The negative charge **does** that for positive energy; the positive charge does it for negative energy. The latter can be better interpreted as the return of positive observable energy from space to the positive charge, thence disintegration of that positive energy back to virtual energy, and subsequent re-radiation of that virtual energy back to the vacuum. One **can** in fact model the **Bohren** experiment in terms of the extra vacuum flux

hence "Newtonian 3rd law resistance" is just treated as a sort of resistance to acceleration, and known as *inertia*.¹⁰¹ The actual energy of the vacuum flux interaction rate is a function of the square of the particle velocity through that flux — hence the formula $K = 1/2 mv^2$ for the kinetic energy K of a mass m moving through the flux of space at velocity v .

Relativistically, the mass of the particle is moving through the ambient potential flux, or we may view it from the particle's frame of reference where the ambient potential flux is moving through the particle but interacting with it. Only a single pass of the flux impinges upon the "particle collector", so there is only a "single-pass" type of energy collection ongoing.

All energy in the vacuum exists in "vacuum flux" or "change in vacuum flux" form. There is no force in the vacuum, although there is polarization that will produce a force upon a charge when one is introduced. The force occurs only after the "change in vacuum flux" that we call a field is interacting with a mass. The force is *already* a change to the mass, a priori, since mass is a part of force by $F = d/dt (mv)$. If energy is then added by a AK energy flux (usually mistakenly called a force) performing work upon mass m , this constitutes an additional energy flux or flow impinging on the

encountered and transduced by the resonant charge, as compared to flux encountered and transduced by the static charge. In the same vacuum flux density, a resonant charged particle will intercept and absorb more virtual photon energy than the same particle in static condition. Hence its broken symmetry will convert more absorbed virtual photon energy into real observable emitted photon energy.

¹⁰¹ If one wishes to understand that inertial reaction, here is how it works. Consider the virtual charges of the vacuum as an analog to the Drude electron gas in a conductor. At the instant an observable charge starts to move, it is momentarily affecting all the surrounding virtual charges — an enormous number, which are initially repelling and attracting it in all directions intensely. To move, the observable particle must create a change in that entire participating virtual particle "gas". Just as the Drude electron gas, the vacuum "gas" of virtual charges has a certain relaxation time constant. So a finite time delay occurs before the vacuum gas relaxes and movement of the observable charge occurs. As the relaxation continues apace, the particle being acted on by a force accelerates. Even mass with a net charge of zero is filled with charges, and even the neutrons in the atoms are continuously changing into protons and back, etc. So all mass continually exists in the "charge and charge-changing" state. Inertia is in fact due to the relaxation time curve of the vacuum virtual charges "gas". We dealt crudely with this in Bearden, "Quiton/Perceptron Physics," NTIS Report AD-763-210, 1973, p. 11; hopefully a far better treatment will eventually be undertaken by qualified higher group symmetry electrodynamicists.

particle, imposing an additional "energy collecting" and gradient across the mass. Rigorously, the dynamic system comprised of the dK gradient coupled to the particle, and interacting with it, identically is a force.¹⁰² Depending upon the situation, it may accelerate or decelerate the particle, or change its direction, or a combination. This is summarized in the usual work-energy formula

$$W = K_f - K_i = \Delta K \quad [4-1]$$

where the work W that was done is given by the change dK in kinetic energy of the particle from its initial kinetic energy K_i to its final kinetic energy K_f .

In applying the conservation of energy law, usually physicists utilize either the work-energy theorem or an approach closely paralleling it. This application is valid in any linear single-pass collection situation. It may not be valid — and usually isn't — for a multi-pass, multicollection system where the same energy, changed in form to accomplish work in a single reaction, is then changed in form iteratively, again and again, in the same system or material. In such case, one joule of input energy can and will

¹⁰² We stress again that the hoary old mechanics, some four centuries old, is seriously in error in assuming a separate force acting on a separate mass. That remains an inexplicable non sequitur in modern physics, in its very foundations. We call attention to how classical electrodynamicists' wrestle with the problem. E.g., quoting Jackson, *Classical Electrodynamics*, 2nd edition, Wiley, 1975, p. 28: "...the thing that eventually gets measured is a force..." "At the moment, the electric field can be defined as the force per unit charge acting at a given point. It is a vector function of position, denoted by E ." Our comment is that the "definition" is in error, including the use of the word "field" for "field intensity", when field and its intensity are two entirely different things. A proper definition should be stated as "...the observable electric field intensity can be defined as the force per unit static charge and mass, existing at a given point in an interacting gradient of the virtual particle flux of the vacuum, as inferred from the changes induced upon the unit static charge and mass." The field intensity is a vector function of position, charged mass, and vacuum virtual particle flux gradient. The standard definition substitutes an effect (of collection) for a cause (prior to collection), and this error is widespread through physics, from mechanics to electrodynamics and on into particle physics. On p. 249, Jackson shows how the electrodynamicists largely capitulate and continue to promulgate the substitution of effect for cause. Quoting: "Most classical electrodynamicists continue to adhere to the notion that the EM force field exists as such in the vacuum, but do admit that physically measurable quantities such as force somehow involve the product of charge and field." We comment that actually mass is a component of force, as shown by $F = d/dt(mv)$.

accomplish multiple joules of work in and on the system. So for our purposes we must modify the work-energy theorem to give

$$W = \lambda (K_f - K_i) = \Delta k \quad [4-2]$$

where λ is the averaged energy collection fraction, adjusted for multipass, multicollection and also for asymmetrical self-regauging (self-increase of the potential in, and hence the energy flow from, one or more regions of the active system's source). In formula 4-2, K_f and K_i and Δk still refer to single-pass collection only.

In the new work-energy theorem, $\lambda = 1.0$ for that vast number of conventional cases that have successfully utilized the conventional form of the theorem. These are almost always single-pass, single collection systems. The new $COP > 1.0$ systems have deliberately enhanced energy collection — and hence multiple *energy collection and work amplification*¹⁰³ — such as multi-pass collection. For these $COP > 1.0$ systems, the expanded work-energy theorem form applies and in general $\lambda > 1.0$. In an ideal $COP > 1.0$ system, $\lambda \gg 1.0$. In some versions of the Patterson Power Cell[®], for example, $\lambda = 1200$. In the Sweet device (discussed later), a very high value of λ resulted, so that $\lambda = 1.5 \times 10^6$. We sometimes refer to λ as the *energy amplification factor*, *energy collection fraction*, *Poynting amplification*, *collection amplification*, etc. Bohren and others have referred to it indirectly as the *interaction cross section*, the *resonance absorption cross section*, and the *negative absorption cross section*.

Again, we strongly iterate that *there is no conservation of work law in physics!* When energy is input to a system, acts on it, and is "dissipated" by a change of its form (doing work), the "dissipated" energy is still

¹⁰³ There is no "conservation of work" law in physics or thermodynamics. It is energy that must be conserved. A single change in form of K joules of energy gives an equal number of K joules of work done upon the interacting mass system. However, there remains an equal number of joules available, just in a different form. If that second K joules of energy is then changed in form again and not allowed to escape from the system, an additional K joules of work is performed in the system, without the operator having added any extra input energy. And so on, until the inefficiency of the system and some inevitable losses allow all the "recycling" energy to escape from the system. We strongly believe that ignition, quenching, and re-ignition phenomena such as in gamma ray bursters and x-ray bursters are due to exactly such processes where iterative change of form of each initial joule of energy occurs.

available after the work (change of the energy's form) is accomplished. However, usually by "dissipated" energy we mean energy that has permanently left the system (or a component in the system) and cannot be recovered and used by the system. The original input energy is not work, because it did not undergo any change of form prior to interaction with the system to change its form. So one does not do "work" as input, which is a non sequitur. Any work accomplished in the input section of a system is due to inefficiencies of the system,^{104, 105} usually allowing extra change in form of some of the energy in non-useful processes called "input losses". As we stated, it is quite possible for a single joule of original input energy to perform many joules of work. During the subsequent billions of years following the formation of the observable universe and the energy in it, every joule of the primordial energy is still here. And every joule of it has been steadily performing joule after joule of work since then. Further, it has continually been recycled between 3-space and the time domain and back, and is continually being so recycled today.

Suppose input energy to a system has been dissipated (changed its form) once, doing work (single change of form of energy) in the system. If the dissipated energy in a different form is then recovered or partially recovered — without escaping the system — to change its form yet again in the system and produce additional useful work, that system is

¹⁰⁴ Almost always due to a negative feedback mechanism such as Newton's third law, self-regauging symmetry, the closed current loop circuit, inertia as due to a self-regauging 4-symmetry, etc.

¹⁰⁵ E.g., a transformer would be an overunity system, because the current in its primary is separate from the current in its secondary, if these two currents were completely decoupled and independent. In that case, the transformer would simply propagate and "couple" or pass energy emitted from primary to the receiving secondary, without back-coupling. However, the closed current loop in the secondary, routing all spent electrons in the secondary back through the back mmf of the secondary coil, produces a back-field coupling interaction with the primary, and this "back mmf/back emf" coupling requires energy dissipation in the primary section to overcome. In short, the transformer is designed so that the secondary lights the primary to a draw and the designer loses. With some losses and inefficiencies in the device, that makes the transformer a COP<1.0 device (unless free external energy is received in the input). The interested reader might extract several hints and suggestions in this book, passim, of things that overunity researchers have tried in their search to break up the back-coupling of a transformer. The simplest way, of course, would be to place a true negative resistor shunt across the secondary, so that part of the secondary current does not return back through the primary.

considered to be an open system far from single-dissipation equilibrium with its external environment.¹⁰⁶ In that case, instead of the first dissipation simply "returning" the energy to the external environment, the energy is recovered by another change in form (which may simply be a change in direction in the internal environment). The thermodynamics of an open system far from equilibrium with its active environment applies, whether that "environment" is internal or external to the system. It is "external" to the subcomponent of the system forcing the "local change of form" of the energy.

4.2.3 Gedanken Experiment: Multicollection by Regenerative Feedback

After a $COP > 1.0$ collecting process with subsequent proper discharge of the energy, more work output as "dissipation of the collected-energy" exists than the energy being input by the operator or experimenter. By regenerative, clamped, carefully controlled positive feedback of a portion of the output *positive* energy¹⁰⁷ to the system input, the system can be converted to a self-powered (self-asymmetrically-regauging) system that powers both itself and its loads. However, see Chapter 9 for special considerations of the Dirac sea hole current and excess negative energy that arises for $COP \gg 1.0$ EM systems. Positive clamped feedback will fail dramatically for any $COP \gg 1.0$ EM system, and for many $COP > 1.0$ systems it will also fail unless conversion of negative energy — arriving at the input section — to positive energy is accomplished.

To ease visualization of the energy multicollection process, consider a gedanken experiment iteratively retroreflecting a steady small EM energy input. Particularly see Figure 4-2.

¹⁰⁶ The vacuum environment is also "internally" penetrating throughout any macroscopic system, to the finest level! So the notion of separated "external" and "internal" environments requires strong qualification in any system engaged in iterative, work-amplifying interaction with its local vacuum.

¹⁰⁷ The output may contain appreciable negative energy as well as positive energy, however. In that case, in the feedback loop the negative energy must be transduced into positive energy by regauging, else it will appear in the input section of the system as an extra system load there in the input itself. It will "eat" incoming electrons from the external power supply, so that the external power supply has to power this "extra load" in the input section as well as powering the normal system load presented. This reduces the system COP to $COP < 1.0$.

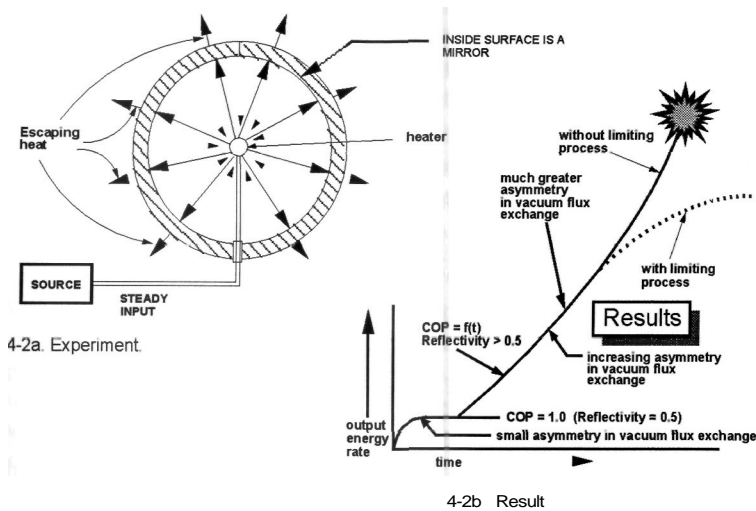


Figure 4-2 Heater wire in a hollow sphere with certain retroreflectivity properties.

As shown, a heater-emitter is placed inside a closed hollow sphere, through a tiny hole for the two wires connecting the heater wire into the external power supply (the external power supply is not shown). The heater emitter is 100% efficient; any joule of energy absorbed by it is re-radiated by it. One joule of energy (one watt of steady "input power" — conventional electrical engineering terminology where rate of work and rate of energy flow are confused!) is furnished from the power supply to the heater element inside the sphere. The inside of the sphere is coated with a substance that acts as a phase conjugate mirror (PCM) reflector with, say, 0.5 reflection coefficient. In other words, when scattered photons are emitted from the wire in all directions, they strike the inner surface of the sphere. Half are retroreflected precisely back to the spot on the resistor from whence they came, where they are absorbed and "re-collected" to further heat the resistor, causing emission of additional photons from it. The other half of the absorbed photons on the inner surface of the sphere diffuse through the cylinder walls as heat, and escape as heat radiation from the sphere to the outside world.

If that sphere's operation could be maintained intact and stable, without change of the physical characteristics and mechanism, then the buildup of energy in the heater wire inside the cavity — and the buildup of the energy being emitted from the outside of the sphere — would be ever increasing. It would increase without bounds as time passed. Wait a short time, and

the sphere would be outputting 10 watts of power while one would still be inputting one watt. Later, the sphere would be outputting 1,000 watts of power, while one would still be inputting one watt. And so on. Indeed, the rise in energy density of the output would be asymptotic, and would increase toward infinity. The only limitation as to the energy output for a steady 1 joule per second input, would be the limit at which the mechanism goes unstable and changes occur to dampen and curtail the process.

Before the reader objects on conservation of energy grounds, one should realize that this rise in the energy density inside the sphere is an example of iterative regauging. The principle of *gauge freedom* — one of the axioms of quantum field theory and well established — assures us that *the potential energy of a system can be changed at will, and freely.*¹⁰⁸ What the gauge freedom principle does *not* state is a *mechanism for providing the additional potential energy and a source for it* — nor do the quantum field theorists and electrodynamicists. Without such a source and mechanism specified, the conventional gauge freedom principle assumes total violation of the conservation of energy law.

¹⁰⁸ Conventional scientists are almost always very careful to regauge symmetrically, so that the two excess force fields that result are equal and opposite, and sum to a net zero resultant field. That "zero-summed system" comprises a stress potential *a priori*. So such symmetrical regauging alters the stress in the system and alters its potential energy, but only in the form of additional stress energy. There is no *net* force and "force field energy" that can be used to dissipate that additional free stress energy in an external load, thereby doing free work. This regauging is a purely arbitrary practice by the electrodynamicists. We are far more interested in "asymmetrical regauging", where only one potential is freely changed or the two are changed unequally, resulting in a *net nonzero force field* that can then be dissipated in an external load to perform free work. Only by asymmetrically regauging an otherwise inert system can usable field energy be added and any work then be done by it anyway. In conventional systems, we do the "asymmetrical regauging" by adding the voltage (potential difference). As current flows with dissipation of energy from the circuit in the loads and losses, the system is able to develop "power" and thus do work in the external load. Unfortunately, the electrodynamicists are still obsessed with symmetry, so they ubiquitously employ in all electrical power systems the closed current loop circuit. This guarantees that the circuit will kill its source dipole (the source of the potential and potential energy generated from the virtual flux of the vacuum by the broken symmetry of the opposite charges of the dipole) faster than it powers its load. That way, lovely symmetry is maintained, beautiful free energy and negentropy are avoided and tossed away, and ugly pollution and destruction of the biosphere continues worldwide to fulfill the ever-increasing and insatiable thirst for electrical power.

In our supersystem view, the gauge freedom mechanism providing the energy is straightforward: the excess energy is freely supplied from disequilibrium in the active vacuum interaction with the system and in the disequilibrium represented by the local curved spacetime. Since a change in system potential energy is also a free change in spacetime curvature, then it follows that simply changing the potential energy of the local vacuum (the vacuum is also an electromagnetic system!) and of the local curvatures of spacetime is also "for free", or it can be. One does not have to perform work oneself upon spacetime to curve it! The mere *presence* of a spatial energy change — including a free potential energy change allowed by gauge freedom — is sufficient to freely curve spacetime also. That is a real energy change, because any curvature of spacetime acts back upon mass. Higher group symmetry electrodynamics does indeed include vacuum energy and energy current {259a-259c}, and it is possible to extract useful EM energy from the vacuum.

But back to our sphere, where the internal potential energy of the sphere is rising asymptotically without bound.

In the real world, of course, the reflection coefficients and the materials characteristics will change as the energy density changes, the sphere will heat, etc., and these changes will start damping the perfection of the retroreflection process to limit it to some finite plateau value which may be a $COP > 1.0$ or $COP \gg 1.0$ condition. Or, the materials will melt or soften so that the sphere ruptures and explodes, sharply quenching the process entirely and emitting a violent burst of energy to signal the disruption of the localization of the process.

Nonetheless, a successful real bench experiment similar to this should be possible with some tinkering, and it should readily yield $COP > 1.0$, after one waits for build-up and stabilization at some level. We would hope that a sharp young graduate student may eventually prepare a doctoral thesis on this experiment or a variant. The principle is demonstrable.

Similar buildups by regenerative feedback and multiple collections by the collectors do appear to occur in nature, up to and including such phenomena as gamma ray bursts, x-ray bursts, etc. These occur in some systems such as exploding gases (and in some cases, even in the upper atmosphere of the Earth). In such a system, the "physical particles in suspension in space" do move and continually disrupt the geometry for the increasing buildup, resulting in decay of the process after a time delay.

However, there is a finite time during which the movement of the particles is still insufficient to appreciably break the geometry and cause

quenching.¹⁰⁹ During this "nearly linear stage", the build-up applies and the energy density very rapidly increases. Build-up occurs and continues while the relaxation time of the initial countering symmetry-restoring mechanism for the old or former state or condition (the initial reaction) is occurring. A well-known conventional example is the Lenz law reaction. Then as the geometry changes significantly, a rapid damping of the energy density increase occurs, quenching the asymptotic rise and "discharging" or "decaying" back to a less-than maximum condition. However, the decay position or state (in the quenched condition) will be different from the initial condition before asymptotic rise (regauging) set in. The system usually will have itself absorbed and collected additional potential energy, and so it will be "hotter" or more energetic. This is often called the "afterglow". In the simple case, parts of the system will be in greater motion (more energetic).

An intermediate plateau can appear as quenching occurs and it can stabilize. However, if no stable plateau is reached during the damping, then further rapid quenching and a rapid reduction of the increased energy density occurs as the geometry changes become decisive and break the asymmetric self-regauging. Thus the "damping" of the process may yield a plateau of steady $COP \gg 1.0$ operation, or it may simply go immediately into full catastrophic quenching and decline back to some lesser level of $COP > 1.0$ operation, but still more energetic than the beginning condition. The latter case produces a sort of "afterglow" -- observed in the gamma ray bursters, e.g. — of increased energy density from the beginning of the quenched phenomenon. Indeed, in that new system of more energetic gases or particles, once the new state is stable, continuing regenerative feedback versus the new geometry can then reinitiate or "re-ignite" another "burster" followed by subsequent quenching. And so on.

We submit that the gamma ray bursters fit this schema and are consistent with it. So do the phenomena observed in intensely scattering photoactive media on the nonlinear optical laboratory bench. We hypothesize that the gamma ray burster and similar violent burst emission phenomena are generated by this mechanism or a similar version of it.

¹⁰⁹ Regardless of what we call it or what it has been conventionally named, any impulsive, explosive process involves at least momentary broken symmetry, resulting in instant and countering broken symmetry. Then a relaxation time passes, and the countering broken symmetry is dissipated by change of the system to a new potential energy state, the new dynamics state, etc.

Figure 4-3 diagrammatically shows a proposed range of such "excess energy" emissions due to this regenerative positive feedback and multiple collection mechanism. As can be seen, this may place our view of very powerful astrophysical emission phenomena in a completely different light, arranged energetically by the length of the initial "nearly linear" phase of exponential increase. There is a scale of stability levels up to just before the Big Bang itself [260]. A so-called Big Bang, of course, would result when the "containment" ability of 4-space itself is breached, resulting in a rupture of 4-space and a consequent violent blow-out into n -space (where $n > 4$), with a very rapid "false vacuum" created *outside* the blow-out region and pumping itself up by asymmetrical self-regauging in a "new" 4-space. When a new stability level is reached outside the blowout hole from the spawning 4-space, it represents an outside "new" 4-space and a new, infant 4-spatial expanding 4-universe, freshly born.

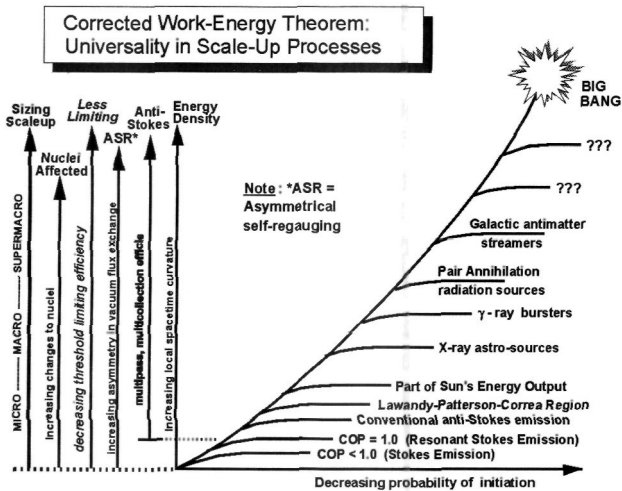


Figure 4-3 COP > 1.0 stability levels for the asymmetrical self regauging process invoked by multipass and multicollection of same energy.

So from inside the spawning universe, the burster phenomenon would be so great as to "burst" 4-space, producing a sort of "super black hole" as seen by the spawning universe. We hypothesize that the asymmetrical self-regauging mechanism produces a great burst of EM energy in its universe if a stability plateau is reached that is below the threshold of 4-space rupturing. If such a stability plateau is not reached, the asymptotic rise in local spatial energy density increases until the primary 4-space ruptures to

produce a "blowout" seen from the old universe as a sort of black hole. There is a sort of "white hole" in the new universe being spawned on the other side of the blowout. This white hole and its associated phenomena produce the birth of another 4-universe outside the original spawning 4-universe. At least we propose that as a hypothesis.

We propose that this could be a legitimate process for the birth of multiple 4-space universes in the infinite-dimensional cosmos.¹¹⁰ It has an added advantage of accommodating the vexing question of "What existed before the beginning of time (in this universe)???" The answer then would be, *"The existence of time in another universe that birthed this one."* We emphasize our interpretation of time as just a special form of EM energy, and not at all a "mysterious river down which we float helplessly as if in a drifting boat in the river's current."

4.3 Iterative Retroreflection and Collection in a Circuit

The normal circuit attached to a generator or other external power supply is the "external" portion of the overall closed current loop circuit passing back through, and including, the source dipole in the power supply. In a DC external circuit, we may consider that the energy flow pours forth steadily from the terminals of the generator (from the dipolarity between them) into space surrounding the external circuit. Since the external conductors act as a sort of guide, this *transmitted* external energy flow is generally parallel to the external conductors.

The external circuit further acts as a *receiver*. The surface charges and their fields intercept and interact with some of the transmitted energy flowing parallel to the conductors and outside them. This interaction diverts a component of that passing energy flow into the conductors, powering the Drude electrons. This powers the external circuit. The nondiverted component of the passing energy flow — usually much larger — escapes on out into space beyond the external circuit. According to Heaviside's energy flow theory {261}, this escaping nondiverged energy flow may be interpreted to exist in closed circulations.¹¹¹ Laithwaite

¹¹⁰ After all, a "dimension" ultimately is just a fundamental variable in a physics model or, in other words, a "degree of freedom" in mathematical modeling. We may construct any number of dimensions we desire, merely by assigning a sufficient number of variables, including both overt variables and hidden variables, etc.

¹¹¹ We point out the interesting possibility of re-interpreting this "closed circulation" Heaviside component as the giant negentropic circulation of EM energy from the

{172b} has specifically commented upon the potential importance of this aspect of Heaviside's theory.

As we shall later address, Heaviside worked out but never published a draft theory of gravitational effects from this extra escaping energy flow {262}. Interestingly, since Lorentz's integration of the energy flow vector around a closed surface surrounding any volume element of interest, the discarding of this "excess nondiverged energy flow" has been ignored by electrodynamicists, and it has been ignored by gravitational theorists.

Consider a theoretically "perfect" generator, loss free. Consider the presence of the Heaviside nondiverged component emerging from the generator terminals — and filling all space around the external circuit. That is the part of the energy outside the circuit that is not caught and processed by the circuit, but is just wasted. By definition, in this "perfect" situation the magnitude of the Poynting or "caught" component of energy flow will precisely equal the magnitude of the mechanical energy input flow (rate) to the generator.¹¹²

But the presence of the additional huge Heaviside component rigorously means that far more energy pours from the terminals of every battery and generator than the amount of mechanical energy the operator inputs as shaft horsepower. This easily demonstrated fact — e.g., proven by the Bohren experiment {24} — continues to meet with a resounding silence from electrodynamicists and physicists, and particularly from those dogmatic skeptics so keen on defending the classical thermodynamics of closed or equilibrium systems as if they also applied to open systems far from equilibrium in their exchange with their active environment. We refer particularly to the dogmatists so supremely confident that $COP > 1.0$ EM systems are prohibited by the laws of thermodynamics. These stalwart fellows would thus exclude every charge (and its associated fields and potentials) in the universe, were they logical and speaking scientifically. So they strangle at the gnat of $COP = 4$, and swallow $COP = \infty$ while proclaiming that $COP > 1.0$ EM systems cannot exist.

The dogmatists have achieved a major nefarious goal, however. They have silenced most inquiry into such matters by electrical engineering

time-domain to the negative charge, to 3-space, to the positive charge, and back to **the** lime-domain. To our knowledge, that has not been examined.

¹¹² That is merely a statement of the Lorentz symmetry condition self-enforced by the closed current loop circuit itself.

professors, young graduate students, and young postdoctoral scientists. They have glorified classical equilibrium thermodynamics into a religion rather than the partial and imperfect model it really is. They are directly responsible for the continuing rape and pillaging of the planet's resources, pollution of the biosphere, global warming, and the increasing death of species. They are indirectly responsible for the deaths of more human beings than Hitler, Mao, and Stalin combined. Most of the blame for environmental pollution problems concerned with power and electricity is squarely at their feet. Sadly, the environmentalists seeking to save this planet and biosphere have not yet recognized the true nature of the scientific Taliban that has generated the environmental problem. In tolerating its own scientific "terrorism", the scientific community seriously aborts much of the scientific method.

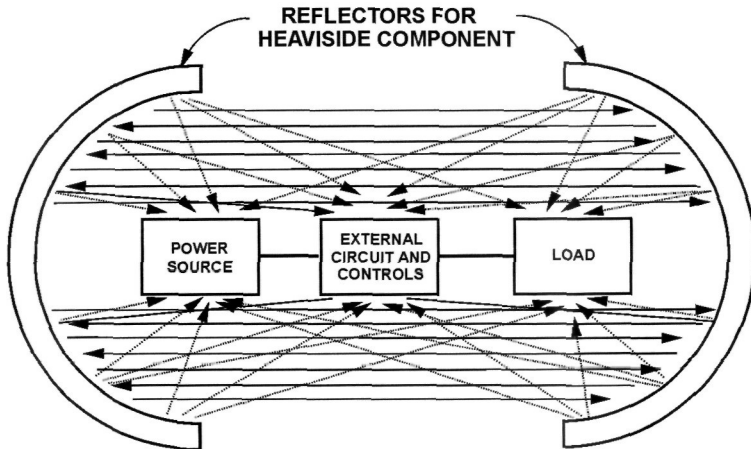


Figure 4-4 Iterative retroreflection of the "passed" Heaviside component back and forth across a circuit -- thematic.

See Figure 4-4. The neglected large nondiverged energy flow component need not be wasted. As an example, part of it can be captured and used, by applying near-field antenna techniques and such methods as Bohren's resonance increase of the intercepting charge's reaction cross section.¹¹³ It is possible to intercept part of that excess energy that is there and available. E.g., even after it passes on by the immediate circuit, the Heaviside energy flow component can be intercepted beyond the circuit

¹¹³ Or other methods we cannot yet divulge because of patent situation.

and retroreflected back across the same circuit again. In this way — at least in theory — extra Poynting energy can be collected and recollectd by the same external circuit for a single given input energy.

In essence, such an "iterative, multi-collecting circuit" is now fed with transmitted energy from multiple (iterative) paths simultaneously. This is *physically doable*,¹¹⁴ but it is not a simple procedure, and antenna theory and especially near-field antenna theory must be utilized as well as focused retroreflection techniques. To directly model it, higher group symmetry electrodynamics (such as quaternion EM, $O(3)$ EM, etc.) must be used. Precisely such phenomena are met in modern experiments in intensely scattering optical materials {263a-263b, 264a-264b} and in Bohren-type experiments where more energy is collected than the operator has input via standard calculations {257, 258}.

4.4 Tesla's Iterative Retroreflection Work

4.4.1 Tesla's Single Wire Circuit

See Figure 4-5, which diagrammatically shows one of Tesla's developments, which used a retroreflective single wire circuit between two large separated capacitances. This was the basic approach used in his magnifying transmitter and in several other circuits. Here the dipolarity exists between two accumulators, one at each end of a long conductive path with a load in the middle. AC operation is used, by setting up oscillation end-to-end along the "single wire" circuit, from accumulator to accumulator. Even so, no overunity operation will be experienced unless passive retroreflection of the normally wasted Heaviside component of each energy flow "passage" occurs back from each receiving end, so to speak {265}. That is possible if specialized dielectric material and construction is used in the end capacitors.

¹¹⁴E.g., some of Tesla's actual patented circuits do it, but that part of their **functioning** is not described by any vector or tensor analysis. However, a higher **group** symmetry electrodynamics analysis of the circuits will indeed show the effect clearly as a "shuttling" of potential (regauging) around the circuit at will. E.g., see T. W. Barrett, {124, 286a, 286b}.

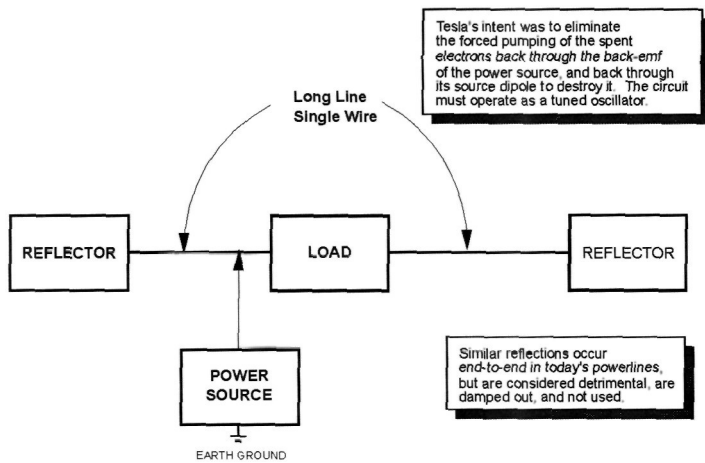


Figure 4 5 Tesla's iteratively retroreflective single wire circuit.

Further, it may usually be necessary to place the individual charges comprising the "current surging to and fro" into particle resonance at either the frequency being transmitted or some subharmonic of it. This schema is doable, but it is difficult and most everything affects it, including even the impurities in the conductors.

4.4.2 Strain to Stress Potential Energy Transduction

See Figure 4-6. This is a diagrammatic representation of a fundamental "strain-to-stress" transduction mechanism we believe was involved in Tesla's "single wire circuit" (i.e., his iterative retroreflecting circuit).

At each end of the circuit, the electrons are "trapped" in the open outside end. Hence when EM energy rushes to the capacitor on one end of the circuit, the forward emf tries to strain the dielectric from the inner plate toward the outer plate. However, the trapped electrons in the outer open wire cannot move, so they produce an equal back-emf and back force trying to strain the dielectric from the outer plate to the inner plate. The result is that the translational field "strain" energy (dipolar charging) is transduced into stress potential (monopolar charging) energy. Electrons try to strain the dielectric from the inner plate toward the outside with a "forward emf so as to charge the capacitor normally, while the trapped external electrons simply push back the other way, exerting a back emf force that is equal and opposite to the straining force from the forward emf and simultaneously tries to "charge" the capacitor in the opposite direction.

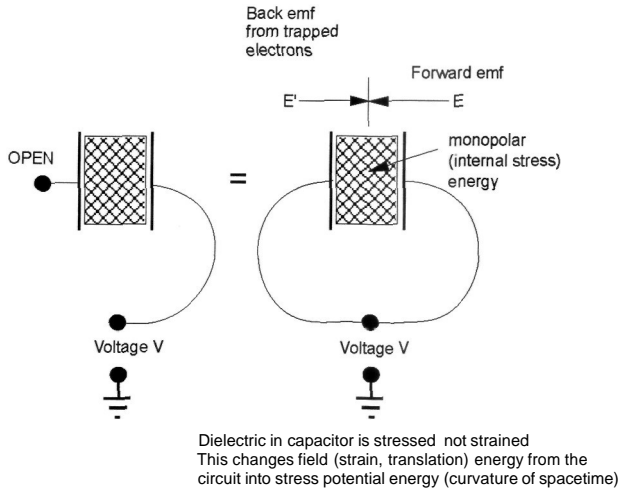


Figure 4-6 Transaction of translational field energy into stress potential energy.

Here is the importance of the "vector zero resultant" stress (monopolar) charging that occurs: The input EM strain field energy familiar in dipolar charging of a capacitor is converted to a dielectric stress (monopolar) potential for monopolar charging. This changes *translational* field energy (external energy) into *stress potential* energy (internal energy), adding an equal amount of back-emf translational field energy in so doing. In short, the charging captures an equal amount of charging energy from its external environment — in this case, from the back emf of the trapped external electrons in the outside open wire. This is one way to capture and use the back emf energy normally reducing the energy available.

We point out that this is charging the capacitor by *Lorentz's symmetrical regauging*, and it represents a rotation of the frame of the capacitor itself out of the laboratory frame. As is well known, the trapped energy of a capacitor in a rotated frame is not the same as the energy of the same capacitor in the nonrotated lab frame.

The single-wire system destroys the symmetry-enforcing function of a closed-current-loop circuit conventionally used. In short, it does not return **the** "spent electrons" from the ground return line back through the source dipole of the outside power source, so it does not use half the collected energy in the circuit to destroy the source dipole and its extraction of EM **energy** from the vacuum (to destroy its broken symmetry). Because it

retains the broken symmetry, Tesla's single wire system is an open system far from thermodynamic equilibrium with its active vacuum environment. It is thus permitted to exhibit those five magic functions of such open dissipative systems: (1) self-ordering, (2) self oscillation or self-rotation, (3) outputting more energy than the operator inputs, (4) self-powering of itself and its load, and (5) exhibiting negentropy.

4.4.3 Potential Energy Shuttling in a Circuit

The net result is to "shuttle" the (stress) potential energy back and forth in the circuit, between the ends. See Figure 4-7. When this stress potential energy shuttling is done at the natural (or tuned) resonant frequency of that single wire circuit as an oscillator, the monopolar charge transfer is optimized and amplified by the resonance effect, with an increase in the energy being shuttled. It is this type of Tesla single wire circuit that can in theory exhibit $COP > 1.0$.

Tesla's single wire system also forces the change of energy between internal energy and external energy. A deeper analysis will also involve Dirac sea hole current effects as well as lifting of electrons from the Dirac Sea and combination of unobservable Dirac sea holes and electrons without radiation. However, we leave that for the advanced theorists. A taste of it is included in Chapter 9.

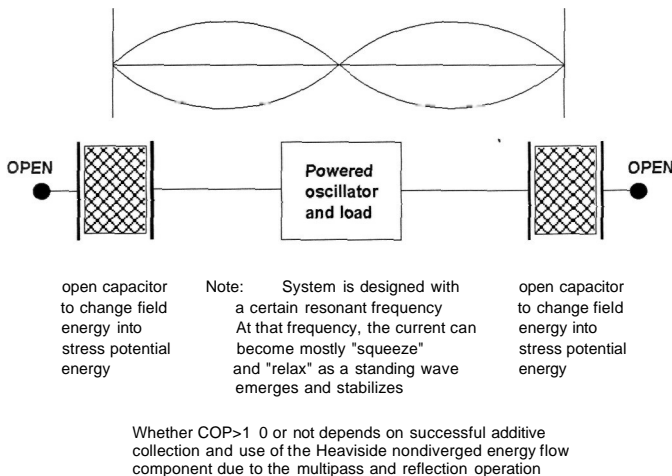


Figure 4-7 Tesla's resonant single wire circuit operation.

But is there any evidence for this "shuttling" of the monopolar potential in Tesla's circuits? Yes, there is, and indeed some of Tesla's patented circuits

do exhibit such energy shuttling in them, as rigorously shown by Barrett {124, 286a, 286b}.

4.4.4 Other Considerations

For $COP \gg 1.0$ systems and some $COP > 1.0$ systems, the concepts of Chapter 9 must also be applied, since the system outputs not only positive energy but also negative energy. The negative energy — in the form of Dirac sea hole current — then sweeps back through the system from its output section to its input section. At various places, these "vacuum holes" eat electrons (as on atoms, causing ionization).¹¹⁵ In short, the Dirac sea holes are converted to more normal lattice holes, and thus can be dealt with in the same fashion as semiconductor designers handle lattice hole problems inside their semiconductor designs. Positron (hole) effects are well known in materials science, and are increasingly being used in actual systems such as the antimatter (positron beam) microscope {266a-266b}.

We accent that a simple LC oscillating circuit does not produce $COP > 1.0$ of itself. If, however, the charges in the currents surging to and fro are in particle resonance at the "feed frequency", then they will "sweep out" a greater geometrical cross sectional area to intercept additional Heaviside energy flow existing outside the normal "static charge" Poynting energy flow. This is similar to the "intercepting resonant particles" process utilized by Bohren {257}, and it allows output of more EM energy than the operator inputs *in the calculated Poynting component* of his own input energy flow. It *does not* output more EM energy than the operator inputs in the sum of his Poynting input component and his Heaviside input component.

The real energy conservation law is that the input energy from all sources and of all types must equal the output energy of all types, where by

¹¹⁵ The union of a Dirac hole (4-space negative energy electron before observation) and a positive energy electron before observation, can occur without radiation. The two curvatures of spacetime involved are equal and opposite, so they just get **replaced** by a flat spacetime, which involves a filled Dirac sea (all the holes filled with electrons). In short, the energy can go into changing the stationary local double **recurvature** of local spacetime, by a sort of "superposition of two spacetime curvatures", to give a net flat spacetime, rather than dynamically radiating EM energy away at the speed of light. However, if either of the two interacting particles has been observed, this is not the case and standard pair annihilation will be observed. The point is that particles in their unobserved *mt* state rather than their observed *m* state, can interact without observation, similar to the way that wave-to-wave interaction occurs in nonlinear optics.

"output" we mean output as useful energy and output as loss or non-useful energy.

So conservation of energy flow is not violated, because one also inputs an additional *Heaviside nondiverged* component, unknown to Bohren. Circa the 1880s or early 1890s, Lorentz arbitrarily discarded it from accountability. One does not have to "pay" for that *nondiverged* and *unaccounted* input energy flow component. Except in continually applying Lorentz's integration trick to discard it, the nondiverged Heaviside component has been almost totally neglected in the textbooks since Lorentz arbitrarily discarded it back there circa the late 1880s. However, it is roughly dealt with in near field antenna theory, sometimes under the topic of "Poynting energy bunching". In the near field, e.g., there also may be a substantial *longitudinal* E-field component. One region may be oscillating back and forth along the flow direction, while the region in quadrature may be flowing in only one direction.

By causing the intercepting charges themselves to resonate and sweep out a greater reaction cross section in an energy flow, the normal definitions of "field intensity" and "potential intensity" are no longer true, because their reaction intensity to a unit point *static* charge has been used as their stated "magnitude". The conventional definition is only for an indication of the *intensity* of the energy flows comprising the field and potential. With the unit point *resonant* intercepting charge rather than the assumed *static* charge, the reaction cross section for the same charge increases, and so the "apparent magnitude of the (intercepted) field intensity" also increases beyond what is in the textbook. So far as I am aware, there is no previous precise term associated with this phenomenon, except to lump it in the euphemism of "negative absorption of the medium" or "negative resonance absorption of the medium" in certain materials {267}. It is more nearly a Poynting energy amplification process, since the "intercepted" or Poynting component of the energy flow is increased. Thus it can be a mechanism for $COP > 1.0$, if the closed current loop circuit's use of half the collected energy in the circuit to kill the source dipole is also defeated.

Nonetheless, energy bunching or Poynting component amplification by altering the reaction cross section function of the intercepting particle is a legitimate way to provide excess "free" energy input for $COP > 1.0$ EM power systems.

4.5 Perspective on Tesla vs. Marconi

Tesla was neither deluded nor mistaken, though some electrodynamicists have mistakenly considered him in that light. On the other hand, Jackson — one of the leading electrodynamicists of our time — pays Tesla a significant compliment as follows {268}.

"In U.S. patent no. 787,412 (April 18, 1905), reprinted in Nikola Tesla, Lectures and Patents and Articles. Nikola Tesla Museum, Beograd, Yugoslavia (1956), this remarkable genius clearly outlines the idea of the earth as a resonating circuit (he did not know of the ionosphere), estimates the lowest resonant frequency as 6 Hz (close to the 6.6 Hz for a perfectly conducting sphere), and describes generation and detection of these low-frequency waves. I thank V. L. Fitch for this fascinating piece of history."

We also point out that many present science texts err by continuing to credit Marconi with the *discovery* of radio, although he certainly did much to pioneer it and received a Nobel Prize in 1909. Hertz must be given credit for the first deliberate signal transmission per se, during the period 1886-1888. As his transmitting antenna, Hertz used an end-loaded dipole with a gap, and as his receiver he used a resonant square loop antenna with a gap {269}. Sparks produced at the gap in his transmission antenna resulted in sparks appearing at the gap in his receiving antenna.

Marconi became obsessed with Hertz's results nearly a decade later, and in mid-December 1901 Marconi announced the reception of signals at St. John's, Newfoundland that were transmitted across the Atlantic from Cornwall, England. He later recorded radio signals transmitted around the Earth, and began regular trans-Atlantic message service in 1903.

Marconi's patent {270}, however, was eventually overturned by U.S. Supreme Court decision {271}, because Tesla's patents (and demonstrations) substantially preceded it. Tesla also demonstrated radio transmission before Marconi, and Marconi actually used a modified Tesla circuit in his famed transmission in 1901. Nonetheless, this is not to detract from Marconi's accomplishments; he definitely put "wireless communications" on the map. It is simply to give *discoverer of radio* credit where credit is due.

Tesla was also closer to the truth of the form of an EM wave in space than are modern electrical engineering and most electrodynamics texts. In the present book we have stated that what exists in 3-space as the so-called "transverse EM wave" are actually longitudinal EM waves and functions

of them, with the energy entering each 3-space point from the accompanying time-polarized (conjugate) EM wave at that point (i.e., from the time domain) and emerging in 3-space in the form of a longitudinal EM wave, in 1:1 correspondence.¹¹⁶ This is followed by a return of the energy from 3-space back to the time domain. This "circulation" from the time domain to 3-space and back to the time domain occurs at every point dipole in 3-space. Only the presence and combination of both the time-polarized photon and the longitudinal photon at each point in an EM wave makes the wave "observable", when we translate into wave phenomena the photon phenomena pointed out by Mandl and Shaw {19}. What spreads as EM energy flow in space (from a source charge) is the local polarization of the vacuum, associated with this giant negentropy circulation from time to the negative charge, to the positive charge, and back to time.

The notion of the transverse EM wave flowing through space is an artifact of the ubiquitous *substitution of the effect for the cause* in Maxwellian electrodynamics. E.g., a completely erroneous "definition" of the causal field (as it exists in space prior to interaction with charged mass) is given as the *effect of its interaction with a ubiquitously assumed unit point charge at every point in space where the field is present*. This in fact substitutes the effect (existing *after* the interaction) for the cause existing *prior to* the interaction. That of course is a gross non sequitur.

We give a concrete example from the first edition of a standard dictionary of physics and mathematics {272}:

"electric field... 1. one of the fundamental fields in nature, causing a charged body to be attracted to or repelled by other charged bodies; associated with an electromagnetic wave or a changing magnetic field. 2. Specifically, the electric force per unit test charge."

¹¹⁶ Later we shall deal a little further with how EM energy iteratively recurs statically in 3-space and propagates dynamically and continuously in 4-space, in more detail. The solution to the long-vexing particle-wave duality is the process of observation. Before observation, an entity is dynamic and continuous in spacetime, not 3-space. After observation (by emission of a photon), it is a momentary frozen 3-snapshot (particle) at a single instant of time. At the next immediate instant, a photon is absorbed, reconverting the "static snapshot" into a dynamic 4-entity again. Since observation (photon emission) and de-observation (photon absorption) iterates at extremely high rate, the entity and each tiniest part of it oscillate back and forth between being a frozen 3-entity (particle) and a dynamic 4-entity (wave).

In the first definition, the field is given as the "cause" of the interaction that exists between like and unlike charges. In the second definition, the field is given as the effect — of the interaction with a test charge — of *something undefined* as the cause.

An entirely different "definition" is given by Gray and Isaacs {273}:

"electricfield ... The space surrounding an electric charge within which it is capable of exerting a perceptible force on another electric charge."

Here it is defined as simply the space around an electric charge, and not really the cause or effect of anything, unless that local spacetime has been curved (which it has).

Not to belabor the point, this sort of thing led Feynman to "define" the EM field in this fashion {274}:

*"...the existence of the positive charge, in some sense, distorts, or creates a **"condition"** in space, so that when we put the negative charge in, it feels a force. This potentiality for producing a force is called an electric field. "*

So Feynman made the electric field a *condition in space* surrounding a charge, where the condition can produce (has a potentiality for producing) a force on another charge. He also was aware that force is an effect of the reaction of the causal field with charged mass, in the following statement {275}:

"...in dealing with force the tacit assumption is always made that the force is equal to zero unless some physical body is present... One of the most important characteristics of force is that it has a material origin..."

In Maxwell's theory, the electron, atom, and nucleus had not yet been discovered, and electricity was considered a thin material fluid, flowing in a wire (hence the name "currents") much like water through a pipe. The surrounding space was considered filled with a thin material fluid called the luminiferous ether. A very rough notion existed that the "shaking" of the ether disturbance coming in to an antenna would disturb or perturb the electric fluid in the wire directly. Hence, if one "measured" a transverse oscillation of the electric fluid in the wire due to this "detection", it conclusively "proved" that the incoming ether-perturbations were also transverse. On that notion — together with Faraday's notion that "field lines" were taut physical strings, so that "field perturbations" were naught

but plucked oscillations of these taut strings — the entire notion of the transverse EM force field wave in space was created.

It really is not that way, as is easily shown with modern re-examination of what happens in the receiving wire, considering the Drude electron gas {276} and electron drift velocity. Today we know that the electrons move *longitudinally* down the wire only with a small drift velocity (usually a few inches per hour), while the signal (field) races longitudinally down the wire at essentially light speed or nearly so.

The electrons are longitudinally constrained in the wire because of the vast number of electrons ahead of them that tend to repel their longitudinal movement. The electrons are far less constrained laterally in the wire. However, each electron is also spinning, and its 3-space performance may be compared to a spinning gyro, whose spin axes are now longitudinal restrained. Accordingly, the electrons readily *precess laterally* in the wire¹¹⁷ when perturbed *longitudinally* by the incoming longitudinal 3-space components of the "wave in vacuum" — by gyroscope precession theory. The electrons at the surface layer of the wire are somewhat less constrained longitudinally, and they "slip" a little down the wire in each oscillation, accounting for the very slow electron longitudinal drift velocity.

Accordingly, one of the most important dynamics of the circuit is the dynamics of the surface charges, as pointed out by electrodynamicists {277}.

If the incoming waves were true lateral waves, there would be no longitudinal force component on the laterally precessing electrons, and coherent current would not flow longitudinally in the wire at all. Instead, one would just get some longitudinal to and fro noise in the coherent lateral motions of the electrons, due to electron collisions.

¹¹⁷ It is this lateral precession movement of the electrons that is "detected" in most of our instruments. To the early electrodynamicists prior to the discovery of the electron, this detected lateral motion was considered the "shaking of the material electric fluid" in the detecting wire. It was thought that the incoming "electric fluid" from space also had to be material (in the material ether) and transverse, because otherwise the oscillations from space could not have mechanically transferred their "lateral oscillation" to the electric fluid in the wire. Faraday's "material lines of force" concept and the notion that EM disturbances (waves) were simply the mechanical pluckings of these taut strings which also involved similar "material ether" concepts.

Nonetheless, it seems we are stuck with the ubiquitous transverse EM wave model. For more than 100 years, scientists have universally substituted effect for cause in the case of much of electrodynamics — as in the continuing substitution of what is *diverged from* the field and potential at each point in them, by an assumed static point charge, as being the magnitude of the field or potential itself at that point. At best, what is diverged from the field or potential is an indication of the point intensity of the energy flows comprising the field or potential at each point, and in the case of the field, of the prevailing direction.

So electrodynamics is still riddled with that nearly all-pervasive error, and it seems it will likely never be corrected. The leaders of the scientific community do not seem to wish it done and will not allow it to be funded. In short, the community is so comfortable with that grave error that it will almost defend it to the death. The so-called transverse EM wave in 3-space has come to be accepted as if it were a law of nature.

Occasionally a journal will point out the terrible non sequitur in the prevailing notion of the EM wave in space as a "plane wave of oscillating orthogonal E and H fields along the x- and y- axes moving at light speed in the z- axis direction." Romer, former editor of *American Journal of Physics*, provides a prime example {278}. Romer takes to task:

"...that dreadful diagram purporting to show the electric and magnetic fields of a plane wave, as a function of position (and/or time?) that besmirch the pages of almost every introductory book. ...it is a horrible diagram. 'Misleading' would be too kind a word; 'wrong' is more accurate. " "...perhaps then, for historical interest, [we should] find out how that diagram came to contaminate our literature in the first place. "

At any rate, once we understand how the real EM wave exists in space, then we can sympathize with Tesla's view of it from the following {279}:

"Tesla upholds the startling theory formulated by him long ago, that the radio transmitters as now used, do not emit Hertz waves, as commonly believed, but waves of sound... He says that a Hertz wave can only be possible in a solid ether, but he has demonstrated already in 1897 that the ether is a gas, which can only transmit waves of sound; that is such as are propagated by alternate compressions and rarefactions of the medium in which transverse waves are absolutely impossible."

In Tesla's own words {280}:

"...I showed that the universal medium is a gaseous body in which only longitudinal pulses can be propagated, involving alternating compressions and expansions similar to those produced by sound waves in the air. Thus, a wireless transmitter does not emit Hertz waves which are a myth, but sound waves in the ether, behaving in every respect like those in the air, except that, owing to the great elastic force and extremely small density of the medium, their speed is that of light."

From quantum field theory, the instantaneous scalar potential in space is actually a coupling of a scalar photon and a longitudinal photon {19}. The only EM component in 3-space is that longitudinal photon.¹¹⁸

Transforming to wave language, Tesla appears to have been correct in his view of the longitudinal form of the EM wave in 3-space, whereas all the texts are still wrong even today.¹¹⁹ However, Tesla was also noted for grandiose pronouncements, a trait which certainly did not endear him to the struggling electrodynamicists of the time, even when he was correct and they were wrong. An example is the following {281}:

"The Hertz wave theory of wireless transmission may be kept up for a while, but I do not hesitate to say that in a short time it will be recognized as one of the most remarkable and inexplicable aberrations of the scientific mind which has ever been recorded in history."

Unfortunately, in electrodynamics we are still stuck with that "most remarkable and inexplicable aberration" today, and we will remain stuck with it until the leaders of the scientific community (such as the National Academy of Sciences and National Science Foundation) recognize it and fund a complete overhaul of the foundations of classical electrodynamics, which is so sorely needed. On the other hand, *one should not hold one's breath while waiting for the mountain to come to Muhammad! One might as well ask the stars to fall from the sky as to ask the leaders of the scientific community to correct the serious foundations errors in physics and especially in electrodynamics.*

¹¹⁸ Hence it is not surprising that all EM in 3-space decomposes into bundles of longitudinal EM waves and their dynamics, as shown by Whittaker {85, 91b}.

¹¹⁹ However, Tesla did not appear to realize the involvement of time-energy transduction to longitudinal KM 3-space wave energy and vice versa.

4.6 Conclusion

Hopefully we have set the stage for our next chapter, where we will be advancing mechanisms and approaches that have been tried by a variety of researchers. Several of these researchers have indeed produced $COP > 1.0$ devices and processes. However, at this writing none of the devices produced by these inventors and researchers are in production and on the market. As we mentioned in Chapters 1 and 2, there are very powerful forces that have been applied to prevent such development.

Briefly, such suppression has resulted due to one or more of the following:

- (a) Sheer greed by the group that gathers around the inventor/researcher, including multiple competing investors and/or "backers". Often a struggle for control develops, and the project is decimated in the process. In many cases a legal struggle also develops, with the result that the legal status of the invention may be fouled beyond repair.
- (b) Naivete on the part of the inventor and his surrounding group. The inventor needs the frequent advice of a patent attorney, a regular corporate attorney, a person familiar with research and development projects and procedures, a person expert in testing (particularly with sophisticated multichannel digital oscilloscopes which gather multiple channels of data simultaneously and integrate under the curve, an accountant, and a person skilled in negotiation with potential investors and backers. Most inventors do not have access to all that, or only have access to it after much of the die has been cast and serious mistakes have been made.
- (c) Animosity and fierce attack from the scientific community and self-appointed "defenders of the faith". Few inventors are prepared for the onslaught that awaits them if they succeed in producing a genuine $COP > 1.0$ electrical system. Slander and libel are just part of it. An inventor or researcher caught up in always trying to defend himself against vicious ad hominem attack is an inventor successfully deviated from his work. The family also often suffers.
- (d) Just now, after the Enron fiasco much of America is becoming aware that powerful organizations often pull out all the stops in a blind pursuit for money and power. Of course they have done so for a very long time; this is nothing new. The inexperienced inventor or researcher is ill prepared for the fact that portions of

government organizations,¹²⁰ national labs, universities, etc. may be precisely that way also! U.S. government laboratories also file patents; check it out! Check out Fullerton's defense of his patent rights for his ultrawideband communication system work.

The people in any large organization form a bell-shaped distribution curve. About 9% of that curve represents folks who have — to put it mildly — little ethics when it comes to position, power, and money. Some of these 9% fellows will go to quite some length to twist the patent or part of it or control of it away from an inventor. An inventor who has never heard of "march-in" rights (a neat little "theft" phrase favored by DARPA, for example) is often an easy mark. Government agencies will be on an interesting invention and its hapless naive inventor like vultures on a fat calf. They dangle some money and a contract to "assist the inventor to get his invention developed". There is a little clause in the fine print of the contract where the government reserves "march-in" rights. This is a hidden bombshell that really says the government — *anytime it wishes* — can just unilaterally declare that the funded inventor isn't getting the invention to market fast enough, so a single bureaucrat just *seizes it* — in the name of the government, of course. Anyone who has been in serious aerospace contracting very long is also aware of the deals between a few government fellows who control award of the funds, and their "favored contractor". If enough business is steered to the contractor by the government person, it is implicitly understood that when the government fellow retires, he goes to work for that company with a Vice President position, lucrative salary, and a fat stock option. It's easy to become an instant millionaire or multimillionaire that way. A small percentage of government contracts are actually contaminated in such a hidden fashion. The universities usually are much more open and blatant, and just put

¹²⁰ Interestingly, the government is not allowed to copyright its own publications by federal servants. Neither should the government be allowed to patent its own inventions by federal servants and federal agencies. This has set up direct conflict in the federal funding channels for the taxpayers' funds intended for independent research, providing a wonderful opportunity for hanky panky by that lower 9% of the people comprising any large group. By the bell-shaped distribution curve, those comprising that 9% will rise to the opportunity. They are manipulative, greedy, and some are immoral and self-serving. Partially coupled with a similar low "bad apple percentage" in the contracting game, this enables many travesties in the name of federal research and development with respect to patents and misdirection of funds.

in a clause that says, "All patents revert to the university!" Also, the inventor must be aware of the difference between "nondisclosure" and "non-circumvention". Just try getting the latter clause from a university, or either clause from a government agency (yes there are rules for "proprietary information", and they are widely violated). Non-circumvention means the outfit agrees not to change a coil or something, and go and patent your invention. Nondisclosure means they just agree not to talk or write about it openly.

- (e) And yes, in addition to these many "petty" little conspiracies, there really is a *great* conspiracy — in fact, there are many of them. Churchill just referred to the entire set of conspiring cartels as the "High Cabal". This is a loose-knit set of extraordinarily wealthy cartels that between them control much of the financial power of the world. You can only find the principals behind a couple of hundred interlocking corporations, if you penetrate deeply enough. Much of their great financial income comes from the control of energy at its various levels, through a net of interlocking corporations. Something like \$2 trillion dollars per year is their "take" from energy worldwide. Oil plays a great role in that. These "high cabal" fellows make or break nations financially, as is almost being done to Argentina as this is being written. They also have been stopping COP>1.0 electrical power systems since shortly after the turn of the century, using whatever means are necessary — fair or foul. That is why we still are burning oil, coal, and natural gas, and why our automobiles and trucks run off gasoline and diesel, and not off free electrical energy from the vacuum. The high cabal intends to keep it that way. Some of the major primary means of "stopping" an invention have been as follows:

- a. Manipulation and improper use of the law (Gray's production line was shut down by law officers before his engines could roll off there and onto the market).
- b. Involving the unsuspecting inventor in drug charges by planting drugs on his property surreptitiously, then secretly notifying the drug enforcement officials who suddenly raid the premises and discover the narcotics, resulting in the inventor going to jail since he has been caught "red-handed".

- c. Threatening the inventor's life and the lives of his family, to frighten him away from what he is doing.
- d. Arranging a fatal accident for the inventor, such as a fatal auto accident, a fall from a high place, or drowning.
- e. Assassination (hit men are fairly simple to hire; a good one is a bit more difficult to hire but is doable. A good hit man might assume a disguise and fake a robbery, shooting and killing the target in the "robbery". In an extreme case, he just fires at a distance with a professional sniper rifle that is silenced. A variation is the use of a "throwaway" assassin, a fellow who has been deeply conditioned by very harsh methods, to deeply involve his autonomic nervous system. He can be spotted by the "glaring eyes" effect of autonomic nervous system involvement. This fellow is only marginally functional in real life, and requires a handler. He also must "fixate" for some minutes (usually from 20 to 30) on the target, by staring at him for a period. Then — say, the next day — while the target is at lunch in a public restaurant, the throwaway walks in, walks straight to the target, and empties a pistol in him at point blank range. He remains there until the police arrive and arrest him. He is immune even to torture; nothing can be gotten out of him, even by electrical shocks on his genitals. There are two levels of throwaways; that is the older and less functional version produced by very harsh means. The more modern version is without the glaring eyes with white showing above the iris; this fellow is more functional, fixates very quickly (couple minutes to five minutes), and can operate without the close immediate presence of the handler.
- f. Making the inventor an offer he "cannot refuse", in the old Mafia sense. In the latter, nicely dressed persons come to the inventor's house, meet with him, and offer him a large sum of money to quit what he is doing for the rest of his life. The going sum varies between \$5 million and \$10 million, usually. The offer is real and it cannot be refused; either the inventor accepts it, or he and all his family are dead when these gentlemen leave the premises. If the inventor refuses anyway, he and his family are killed.

Usually the bodies also just "disappear" and are never found or heard from again.

- g. These days, variations are used such as a careful crash of another auto into the back of the inventor's car so he is really shaken up badly but not seriously hurt. He goes to the hospital for checkup, in case of concussion etc. Everything is seemingly okay, but he is kept overnight for observation. That night he is given a hypodermic of air in his veins. Next morning his family receives a call that the inventor has suffered seizures from an apparent concussion after all, and is fighting for his life. If he doesn't die, he becomes a human vegetable. Piece of cake.
- h. Then there's the ice dart dipped in curare. The curare paralyzes the muscles of the heart and lungs; the inventor goes down in convulsive floundering, gasping and unable to breathe or to pump blood. He expires very quickly. The curare breaks down in the body, the ice melts, and you have a fellow the medics find died of convulsive heart seizure, etc. Works like a charm. This is an adapted "dirty spooks" trick, adapted from those branches of the intelligence communities of the world that specialize in assassinations.
- i. Use of "gaming", which was originally developed to influence or change the behavior of foreign leaders. Imagine writing a scenario, as for a movie. Only you have the deep psychological profile of the targeted individual. You also have the deep psychological profiles of quite a few other individuals who have "knee-jerk" reactions in a certain direction useful to you in your games (in your scenarios). These are called "agents of influence" since, to get them into interacting with the target, only a phone call or other contact need be made and a stimulus given, and they are off and running, self-powered and going after that target with their knee-jerk response. So very sophisticated computers are used, the scenario (intended plot of events to happen) is prepared (the artificial intelligence programs will even give the probabilities of success of all the variants), and a recommended scenario variant is derived and accepted. Then the controller has one or more agents working **for** him that contact the players (the agents of

influence). They get their phone calls or stimuli, react in predictable fashion, and come pell-mell at the inventor, interacting all over the board with him. The range of games is enormous, from stock schemes to lawsuits to infiltrating agents of influence into the internal organization of the inventor to money laundering, etc. The controller follows the progress, and only once in awhile makes slight adjustments (may need to trigger other agents of influence, send in one actual agent, etc.). Over the last 20 years, the gaming has become very expert. So many games can be launched against a single inventor that he usually is finished or nullified by one of them, eventually. Having been gamed over 200 times in the last two decades, I plan to write a book one day on the subject of the games and what to watch for.

- j. Finally, here is a sad and disconcerting rule, usually true. If you gather six persons together that you have known for years or even all your life, and they are the nucleus of the organization around you, watch what happens when success occurs and you really do pull EM energy from the vacuum and power loads, lights, etc. One-sixth of the population, seeing that, will shortly contract a very strange malady known as "gold fever". It is not just an *obsession*; instead it becomes an all-consuming *possession* almost in the biblical sense. An individual possessed by gold fever would kill his own grandmother to try to gain control of that system. If one or more of these "gold fever" transformations occur, that sets the group into profound conflict and vicious infighting, on every front. You get sabotage of equipment, sabotage of demonstrations, stealing of equipment, legal shenanigans, just name it. This has destroyed many groups. It will destroy many more.
- k. A variation is to send in a special agent who penetrates the group and becomes a member. Indeed, the high cabal has certain persons who specialize in just such penetration and are specialists at setting up disruption. They have had plenty of practice, and are very good at their trade. The identities of some of these "special agents" would surprise the casual observer. The so-called "overunity community"

is rather strongly penetrated and misdirected by a number of such special agents, in addition to a greater number of agents of influence.

1. Finally, the technical knowledge of most inventors and researchers in this field has been largely limited to ordinary electrical engineering and electronics. This means that the inventor often forms his own lexicon and way of thinking about how he does the "magic" COP>1.0. It may be difficult or impossible to connect the way he thinks back to legitimate physics. Further, most of the COP>1.0 community, the majority of electrical engineers, and nearly half the physicists do not understand the technical difference between the *efficiency* of a power system and its *coefficient of performance*. We have insured that the reader of this book will know the precise difference — it's even in our glossary! Further, the entire group around the inventor, and the inventor himself, may not have a clear understanding of the source of the extra energy, the mechanism by which it is obtained, or even the difference between a system in equilibrium with its active vacuum environment and one in disequilibrium with it. Most engineers and a great number of scientists also are still unaware of the dramatic difference between the thermodynamics of equilibrium systems and the thermodynamics of disequilibrium systems. Many have no notion of what the active vacuum is or does. So the inventor may actually be able to build the device himself, but may later err and actually build it away from COP>1.0 with further development.
- m. Another problem can be measurement. Sometimes very simple errors — such as "measuring" highly nonlinear, spiky signals with an RMS meter, or using an inferior oscilloscope, or using inferior probes with good oscilloscopes, tricks a relatively inexperienced inventor himself into believing his unit achieves COP>1.0 when it doesn't. Also, some standard engineers will insist on calorimetry, which is inappropriate for COP>1.0 EM systems since they output a mix of both positive and negative energy. The positive energy will heat the calorimeter fluid and the negative energy will cool it

simultaneously, and the "expert measurer" will always measure the difference and thus $COP < 1.0$ with his calorimeter (unless the inventor is a rare one who has also transduced the negative energy fraction of his output into positive energy). Yet the conventional engineer or scientist — who has never seen negative EM energy or a $COP > 1.0$ EM system in his life — will be so confident from his "positive energy only" thinking that he will be completely convinced that a real $COP > 1.0$ system, measured with a calorimeter to show net positive energy $COP < 1.0$, is *actually* a $COP < 1.0$ system instead of the error in measurement that it is. One of the purposes of this book is to try to explain such things and get a better procedure and protocol made available for the testing.

- n. Finally, there are a few actual charlatans who deliberately deceive both the group around them (if it's sufficiently naïve) and naïve investors and backers. E.g., if one builds a huge starter motor (very high current, very high torque, cannot run long without burning up!) and puts it in an automobile, then fills the back of the automobile full of batteries, that beast will draw 400 amps and leap across the pavement or warehouse floor with an agility one is shocked to see. Then if the inventor is always "having difficulty with his controller unit", and "everything will be fine once the controller problem is licked" or some such, many small and naïve investors will leap to invest their life savings eagerly. There are many other scams also, and unfortunately every experimental field, with great financial promise if successful, does attract them. Here the old adage is best: If it is just too good to be true, it probably isn't. One should insist on a technical explanation of the source of the excess energy, the mechanism by which it is taken from the environment, how asymmetrical self-regauging of the circuit occurs, etc. If these questions cannot be answered, the inventor himself does not know what he is doing. At best, he cannot explain it; or he may just be honestly mistaken. In the worst case, the inventor knows it is not genuine, but is deliberately deceiving the investors. So my advice would be to first assess the scientific level of the understanding of the inventor group. Then get an independent test of the

device or see one done properly. Then decide whether what you have seen and heard is real or not.

- o. Meanwhile, there are from time to time legitimate COP>1.0 systems initially developed. The place where all of them have failed is where the inventor group seeks to obtain the appreciable financing (something like 30 million dollars is required these days) to complete the phenomenology experiments, modeling, scale-up factor determination, and prototyping before a production model can be built. To date, every one of the legitimate COP>1.0 systems has foundered and failed right at that sheer vertical cliff. Our own MEG system is at that cliff at the moment, so that cliff is very near and dear to the hearts of the five of us who have struggled so long and invented the MEG. Time will tell whether we succeed where all the others have failed, or whether we also just get defeated by the cliff. As of this writing, we have not yet obtained the necessary capitalization. But we are giving it our very best try, and we believe we will win it eventually.

Chapter 5

Selected Approaches to Overunity Power Systems

[On point-contact transistors]. *"First, the theory underlying their function is imperfectly understood even after almost a century..., and second, they involve active metal-semiconductor contacts of a highly specialized nature. ...The manufacturing process is deceptively simple, but since much of it involves the empirical know-how of the fabricator, the true variables are almost impossible to isolate or study. ... although the very nature of these units limits them to small power capabilities, the concept of small-signal behavior, in the sense of the term when applied to junction devices, is meaningless, since there is no region of operation wherein equilibrium or theoretical performance is observed. Point-contact devices may therefore be described as sharply nonlinear under all operating conditions."* [William B. Burford III and H. Grey Verner] {282}.

5.1 Introduction

In this chapter we present a selection of potential overunity notions, inventions, and experiments by various inventors and researchers. Its purpose is to show some of the more relevant work that has been done, and hopefully to stimulate new thinking by the interested reader. It is not intended to be all-inclusive, but merely representative. Most of the work addressed is by other inventors and scientists, and we give an appropriate commentary from our viewpoint as best we understand the invention and the process used. Not all the concepts presented can be clearly explained, though some can and are.

This is not intended to be a "kit of parts" or an assembly instructions type of presentation. For that, the interested researcher will have to rely on his or her own ingenuity and lots of bench experiments, because no such "kit of parts with instructions" for COP>1.0 electrical power systems exists at present {283,284}.

5.2 Tesla's Shuttling of Potential Energy and Barrett's Extension

See Figures 4-4 and 4-5 in Chapter 4. In his patented circuits, Tesla accomplished the novel function of "shuttling" the potential itself (and therefore potential energy) around in the circuit at will. This startling function accomplished by Tesla is impossible to see in a conventional vector or tensor analysis of his patented circuits, but it is clearly evident in a higher symmetry EM analysis of them. So it does not appear in the conventional texts, which use vectors or tensors for their circuit analyses. Barrett, one of the leading higher group symmetry electrodynamicists and also one of the pioneers of ultrawideband radar, utilized quaternion electrodynamic analysis to clearly show this novel effect in Tesla's actual circuits {285}. Thus, Tesla was able to produce and move around asymmetrical self-regauging in his circuits, wherever he wished. That has been totally missed by scientists prior to Barrett's revealing analysis.

Barrett then went on to extend Tesla's basic mechanism and employ it for communication and radar purposes, obtaining two patents {286a-b}.

It would appear that use of such shuttling techniques is probably applicable to reducing the back emf in conventional nonshuttling circuits, leading to new $COP > 1.0$ mechanisms. The definitive answer remains to be determined by some future researcher.

5.3 Moray's Radiant Energy Device

One of the remarkable examples of a successful $COP > 1.0$ system was the radiant energy system of Dr. T. Henry Moray of Salt Lake City, prior to World War II. Figure 5-1- shows Dr. Moray and his final 50 kW unit, powering an assembly of light bulbs {287}. The device weighed 55 pounds, used an antenna connected as a "signal input" from the ether, but needed no input of electrical energy by the operator in order to achieve its steady power output.

As shown in Figure 5-2 and Figure 5-3, the various Moray tubes were complex in structure. In addition to various grids, they usually contained (in quadrature) three or more amorphous semiconductor pellets pressed in large presses and sintered with locked-in stresses. One points out the presence of optical effects including phase conjugation, possible use of the built-in stress as a sort of self-pumping and mild self-amplification, possible iterative feedforward and feedback loops due to iterative phase conjugation, collecting of additional energy from the usually nondiverged

Heaviside component via the iterative reverberation of energy, and non-interfering fields in quadrature.

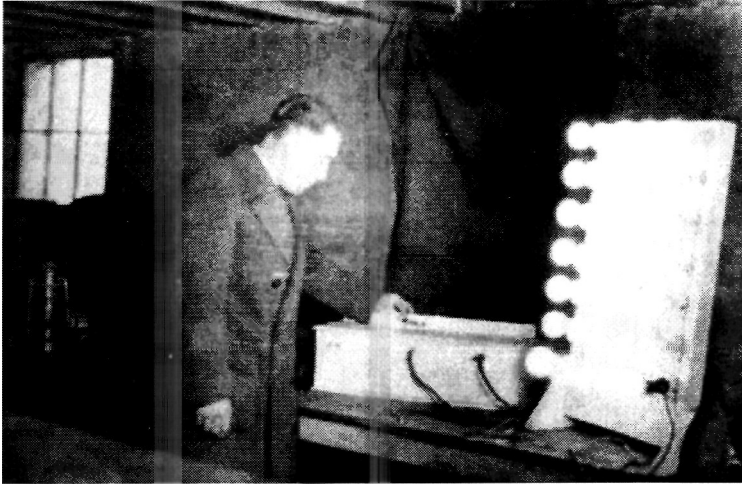


Figure 5-1 T.Henry Moray's 50-kW unit.

The blown quartz tube envelope, in the dark of an enclosure, is open to the passage of infrared (heat) and ultraviolet, which spans a harmonic interval. This allows the passage *of difference* frequencies as sine waves without breakup, even in a nonlinear isotropic environment. Moray stated unequivocally that the tubes would not work unless the envelopes were made of blown quartz. The pellets (shielded from outside light) would nonetheless receive IR input from the ambient temperature, and probably triggered at least weak UV due to the radioactive decay continuously ongoing in the semiconductors. We point out that the UV band is roughly twice the frequency of the IR band, so the "difference frequency" is roughly the IR band itself. In short, it may be that "difference frequency" IR is thus processed in Moray tubes in much more sophisticated fashion than has previously been suspected, including in a self-amplifying (regenerative) manner.

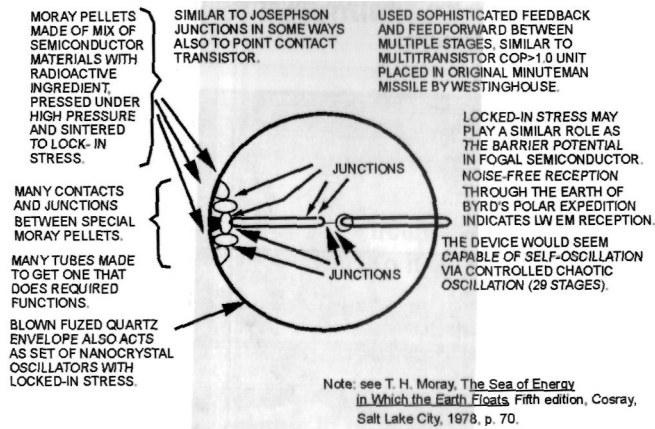


Figure 5-2 Diagram and some novel features of T. Henry Moray's special tube.

The pressed semiconductor pellets were placed in the tube in quadrature, in a sort of "point or junction contact" with each other.¹²¹ Each semiconductor contained a mix of triboluminescent zinc (a semiconductor material), a radioactive material (probably uranium dioxide), and another material of unknown composition, rumored — but not confirmed — to possibly have been diatomaceous earth which also has some unusual properties one may look up. There were some 29 amplifying tube stages in the device. A U.S. patent {288} was eventually granted on an electronic therapeutic unit containing Moray tubes, but the patent on the power system was never granted, although the application was kept current for some years by the Moray family. Eventually the power device patent application files disappeared from the U.S. Patent and Trademark Office.

Although its full technical details were never released, the Moray device is of interest because Moray demonstrated it many times to engineers and scientists, under rigorous measurement conditions, for years. These expert witnesses then signed affidavits to the results achieved by Moray in the

¹²¹ Indeed, the junctions of such sintered pellets are most interesting. Such a grainy junction can be compared to a host of very close point contact junctions, particularly with finely-ground powdered materials used in the pressing and sintering. In essence, Moray's junctions contained a great many "point contact transistors", and it is known that such transistors can behave (particularly under pressure!) as true negative resistors. This also appears to be one of Moray's secrets.

tests. Moray also discovered that he could produce an additional 50 kW of power simply by inserting an additional tap just prior to the formal output.

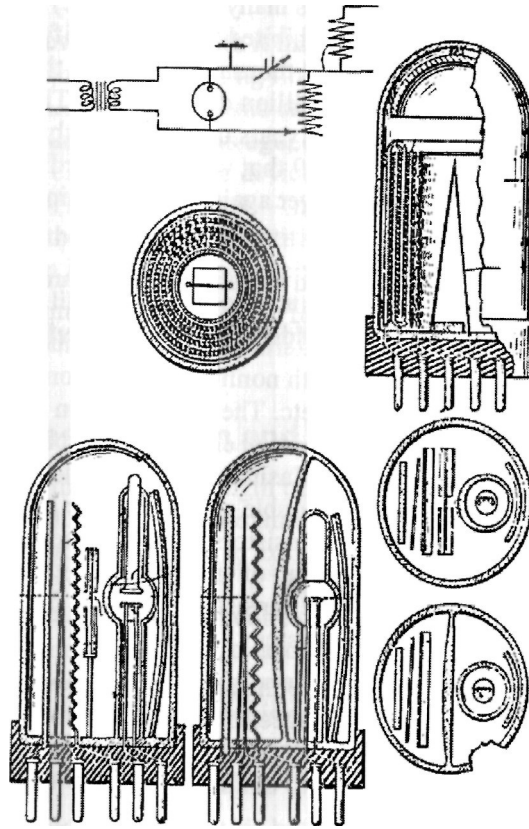


Figure 5-3 A variety of Moray tubes showing their complexity.

Repeated assassination attempts were made against Dr. Moray. While driving his car on the streets of the city, on several occasions he was fired at from an alley or from the sidewalk, but he had bulletproofed the car because of continual threats and ambushes. He was also shot in his own lab in a physical struggle with one would-be assassin, but survived although seriously wounded. A Russian company tried to steal the device, and a Russian agent was planted in Moray's lab, gradually sending essentially all the technical details of the Moray device to Russia. That

agent later destroyed the unit right in Moray's lab by suddenly smashing it with a hammer.

Moray's tubes were quite expensive and were painstakingly made by hand. He fabricated a number of tubes (as many as 30 or more) before he obtained one that "worked" and exhibited the self-amplifying effect. Over the years, he spent several hundred thousand dollars on the project, which is the equivalent of some twenty million dollars today. The 29 tubes in his final 50 kW unit were the result of years of labor and fabrication of several hundred rejected tubes to get the 29 that worked. Accordingly, once those 29 were destroyed, Moray was never again able to obtain sufficient financing to rebuild his unit.

However, Moray had demonstrated a special type of transistor years ahead of the first transistor patent. He had demonstrated the importance of multiple junctions in transistor materials. Optical and nuclear functioning of the tubes was also woven in with nonlinear oscillations, multiple feedforward and feedback loops, etc. The sophistication of the tubes and feeds alone almost certainly guaranteed chaotic self-oscillation. We suspect but cannot prove that the Casimir effect may also be involved in some of his conducting metallic double surfaces.¹²² He had demonstrated a remarkable "tube-with-internal-transistors" that produced energy output self-gain, without any operator input of energy. In addition, he had successfully used his special tube/transistor hybrids to produce a very successful $COP > 1.0$ EM power system.

After Moray's death, his two sons John and Richard continued to try to rebuild the unit, but were never successful due to lack of sufficient funding and lack of a proper scientific team. They do know how to build the tubes, however, and they do know how to build the unit.

It appears that no electrodynamicist or physicist skilled in higher group symmetry electrodynamics ever examined the Moray device or worked with Moray. No particle physicist or electrodynamicist skilled in non-Abelian electrodynamics ever worked with the device. Since broken

¹²² The "grain" of the stressed semiconducting pellets may be important with respect to the Casimir effect versus the frequency. In short, Moray's contact surfaces between his semiconductors were "grainy" and these grains would have constituted Casimir surfaces. For the importance of the shape of the double surfaces, see M. Chaichian et al., "Quantum theories on noncommutative spaces with nontrivial topology: Aharonov-Bohm and Casimir effects," *Nucl Phys B*, Vol. 611, 2001, p. 383-402.

symmetry was not discovered and proven until 1957, no technical person who worked closely with the unit was ever aware of the various broken symmetries by which some of the virtual energy of the vacuum can be and is transformed into observable EM energy.

Certainly no one ever worked with it that understood the peculiar action of the difference frequency in traveling linearly through an isotropic nonlinear medium. John Moray, who stalwartly carried on the Moray lab in Salt Lake City until a few years ago, does know how to build the tubes, and he knows the circuitry for the device. That he does not understand the "deep theory" is of no consequence — no one else does either. In the opinion of this author, a funded scientific team — carefully chosen and working with John Moray — could probably rebuild the Moray device. We would very much like to see a Moray unit in production and contributing to permanently solving the energy problems of the world. Sadly, that does not seem likely.

5.4 Anti-Stokes Emission and Similar Processes

Stokes' law states that the wavelength of the fluorescent light emitted by a phosphor or other luminescent substance is always greater than the wavelength of the radiation used to excite the fluorescence {289}. This condition was observed by Stokes in 1852 {290}. From an energy viewpoint, the collecting medium collects and dissipates some of the input energy in the medium itself (e.g., to accelerate moving molecules) and then emits the remainder of it. The "system" consisting of the medium, the experimenter's input, and the output is such that it usefully outputs as luminescence less energy than the experimenter inputs. Hence it exhibits a $COP < 1.0$, by absorbing excess energy in its "environmental surroundings".

Usually such a "law" generally holds but is sometimes violated in at least a few cases. Stokes' law is no exception. It applies for most cases of fluorescence and luminescence, but it does not hold for a few of them. In a few cases, the emitted wavelength is precisely the same as the input wavelength. This means that the collector/absorber re-emits all the collected input energy as fluorescence or luminescence. Here the $COP = 1.0$. This condition is known as the *resonance condition* and the emission is called *resonance emission*.

In other well-known cases, Stokes' law is violated and the energy emitted is greater than the energy absorbed. In other words, the system exhibits a **$COP > 1.0$ with respect to energy emitted versus energy input by the experimenter**. This is known as anti-Stokes emission. It has been well

known for six decades that anti-Stokes emission processes do indeed output more energy than one has to input oneself {291}. This excess energy emission is usually euphemistically attributed to "additions from the internal energy of the molecule" and referred to as "negative resonance absorption by the medium" or just as "negative absorption by the medium".

Unless the excess energy taken from the physical medium of the system is replaced from outside the physical system, the anti-Stokes emission process produces cooling in the physical system and is self-quenching once the medium loses all the energy it can afford. For the overunity researcher, a huge hint is to search the literature for anti-Stokes type emission phenomena that do not result in media cooling. The Letokhov phenomena {292} are in fact such phenomena where the excess emitted energy is received from outside the physical system medium, and therefore from the surrounding active vacuum and/or the surrounding local curvature of spacetime.

Other than for a very few physicists — e.g., Bohren {24}, Letokhov {157}, H. Paul and R. Fischer {25} — there appears to have been little *effective* discussion of where the excess energy "extracted from the molecule" really came from initially, and how it is replenished to the molecule (if at all), and particularly *whether or not it has to be replenished to the molecule by the operator*. There has been no discussion of the local potentials as dipole asymmetries in the virtual energy exchange with the vacuum, although there has been inadequate discussion of the involvement of the Poynting energy flow (e.g., by Bohren, Paul, and Fischer). There has been no discussion of the possible involvement of the Heaviside nondiverged component of the energy flow, which is additional to the Poynting component but unaccounted by today's electrodynamicists. To my knowledge, the broken symmetry of every dipolarity has not been discussed with respect to such experiments.

The reader can see the point. If a mechanism exists or can be evoked to freely resupply the lost energy to the molecule from the other two components of the supersystem, then the resulting *self-replenishing* anti-Stokes emission phenomenon can be utilized as a legitimate and continuing $COP > 1.0$ process. It remains to be seen whether this can be worked out. If we wish, the giant negentropy mechanism of the source dipole and source charge {308} may be considered universally proven cases of self-replenishing anti-Stokes emission, already exhibited by every charge and dipole in the universe.

At least one audacious scientist — Letokhov — has suggested that similar processes in certain systems can perhaps comprise true Maxwell's demons, yielding excess energy output and perhaps eventually a $\text{COP} > 1.0$ operation {293}. Russell has suggested that a similar $\text{COP} > 1.0$ process is involved in the fiber fuse phenomenon {299}.

Over the last few decades there has been slow but important work in an optical area of possible anti-Stokes emission phenomena {294a-c}. A variety of strongly scattering, optically active media have been shown to produce substantially more energy output than the experimenter inputs to stimulate the output. However, most are being done in laser-like pumping situations and so the pump energy has to be furnished by the operator. This means that the "replenishment" energy to the medium is furnished by the operator, resulting in overall $\text{COP} < 1.0$ performance. However, in self-oscillation conditions, the medium can be self-pumped (self-replenished, taking its replenishment energy from the active vacuum exchange when viewed in the supersystem), and in such conditions $\text{COP} > 1.0$ performance is possible, at least in theory. Presently we know of no one who has achieved it — except in the destructive fiber fuse effect — but the work seems to be progressing steadily toward that eventual outcome.

5.5 Gain in Intensely Scattering Optically Active Media

This modern work — which may be regarded in one sense as extending the anti-Stokes emission effect — is largely being pursued in intensely scattering optically active media. A very nice example is given by Lawandy's experiment {295a-d}, shown in Figure 5-4. Figure 5-4a shows a comparison experiment in water without an intensely scattering optically active medium but with a fluorescent dye to show the emission interaction. Figure 5-4b shows the same experiment with titanium dioxide particles added to the fluid. The TiO_2 particles are sized so that their optical resonance is within the laser's frequency domain.¹²³

First, as shown in Figure 5-4a, a small, weak laser beam is aimed into the solution, and a small "warm little glow" of fluorescence results just around **that** region where the laser beam interacts with the solution. Scattering in **the** medium is rather normal, and provides nothing of any great interest to the overunity researcher.

¹²³ In passing, we point out the involvement of the Bohren effect due to particle resonance. This collects additional energy from the usually nondiverged large **Heavyside** energy flow component.

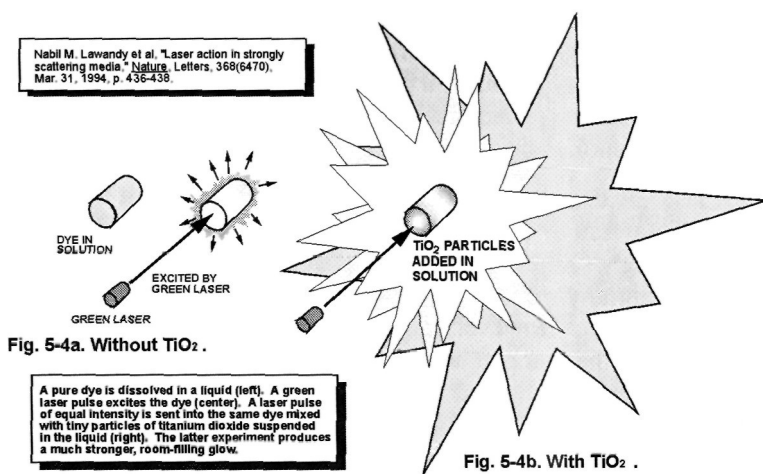


Figure 5-4 The Lawandy experiment

Then the titanium dioxide particles are added, and the same weak illuminating laser beam is directed into the colloidal solution. Figure 5-4b shows the new and spectacular results.¹²⁴ Immediately a very bright, room-filling emission of scattered coherent light fills the entire room. The intense optical scattering includes extensive retroreflections for some "ping pong" between individual particles, so that the optical gain is enormous. A highly enhanced energy emission is now evoked, for the same energy input by the operator as was used in the first experiment without the TiO_2 particles. Lawandy's experiment is inexpensive and can be repeated in any university nonlinear optics laboratory and by many individual experimenters. It gives results every time, without fail.

Oddly, no one seems to clearly state that, for a single pulse of input laser energy to the suspension of TiO_2 particles, precisely how much energy was input and how much energy was then emitted by the medium. Instead, "gain" is mentioned, but never the $\text{COP} = (\text{energy output by medium emission}) / (\text{energy input by operator})$. One suspects that journal referees would probably not allow such a clear and unequivocal statement of

¹²⁴ This is a very easy and very convincing argument for the presence of the long-ignored Heaviside component of energy flow arbitrarily discarded by Lorentz more than a century ago, and still discarded by modern electrodynamicists.

overunity, but would apply quibbling and spin control to prevent stating that more energy is output by the medium than is input to it by the operator.

It follows that, if sufficient "ping pong" iterative retroreflection and multiple collection occurs in the medium, the $COP > 1.0$ because more work is done on exciting the medium than the energy input to it by usual (Poynting) calculations. No one accounts the energy unwittingly input to it by the ignored Heaviside component accompanying the Poynting component. Usually the output/input is just referred to as "optical gain". We stress, however, that we are considering only the actual laser beam energy being furnished into the colloidal solution as input, and we are not calculating the efficiency of the laser, its pumping, etc. Anyway, for this stimulated emission process, it is possible that the $COP > 1.0$, and one can see the parallel to anti-Stokes emission. In short, we are considering the TiO_2 solution itself as exhibiting a true negative resistor action.

The field of high gain stimulated optical emission is advancing rapidly {296}, although many experiments still use external pumping furnished by the operator. If the operator has to pay for the replenishment (pumping) energy as well as the input energy, then the $COP < 1.0$ overall. But the experiments are tending toward sustained self-oscillation and self-pumping conditions. If such conditions are obtained in sufficient magnitude, the process will then become a legitimate $COP > 1.0$ operation overall. In that case, it will be usable as a basis from which to develop self-powering $COP > 1.0$ electrical power systems, particularly for infrared "heating" systems etc.

The more recent experiments have shown positive feedback loops both in the time-forward and time-reversed paths; trapping of light flow energy (both time-forward and time-reversed) in large random walks of more than 1,000 individual interactions; weak Anderson-type localization; and constructive interference of forward time and reversed time light paths. since such experiments can be performed in the infrared, they point toward a potential "*vacuum-energy-powered overunity heater*" as a **feasible** achievement in the future. In our opinion, there should be a determined and major Department of Energy program oriented to develop exactly that kind of system.

Such a heater can become self-powering by the presence of greater governed positive feedback during self-oscillation conditions, which will allow sufficient excess collection due to *multipass multicollection* from the usually wasted giant Heaviside energy flow component. This process —

with the self-excitation occurring spontaneously as a "kick-in" positive feedback process in an exploding gas — probably accounts for the phenomena observed in the gamma ray burster and other such violent "burster" cosmic phenomena. Re-ignition, afterglow, and similar effects are observed in gamma ray bursters. They are also observed with *remarkable* similarity in the latest experiments in intensely scattering optically active materials the laboratory. Similar phenomena occur in x-ray bursters as well, and perhaps even in the recently observed and confirmed gamma ray emissions from intense storm clouds.

Finally, we point out that many magnetic materials are also photorefractive, and they readily produce nonlinear optical effects at various frequencies. Some barium compounds are typical examples. As an example, multivalued phase conjugate reflection can occur {297}. Such effects did occur in the Sweet vacuum triode amplifier, to be discussed shortly. It may be that Sweet's conditioning of his magnets conditioned their barium nuclei into self-oscillation, self-pumping, and thereby into *self-replenishing* stimulated optical-type emission at ELF frequencies.

5.6 The Fiber Fuse

See Figure 5-5. Although presently a one-shot destructive process, another multicollection phenomenon exhibiting a novel $COP > 1.0$ process is the *fiber fuse* {298a-e}. This is a well-known but unusual effect in optical fibers and in fiber optic cables.

See Figure 5-5a. Once initiated by simply heating the cable (as with a butane cigarette lighter), the fiber fuse ignites and is self-sustaining. In those susceptible systems utilizing power on the order of one watt or so, the ignited fiber fuse propagates down the cable slowly, at about a meter per second nominally. It is evidenced by a bright white light propagating down the fiber, resembling the burning of a fuse for explosives — which led to the name "fiber fuse".

In fiber optic cables, it occurs only in those that contain germanium in their cores, and not in those containing just silicon in their cores. It moves down the fiber or cable at approximately one meter per second, and it is unlimited in the length of cable that it will continue along and march to the end. In the core, the marching fuse is actually "hopping", so to speak, and it melts a little "hole" about every centimeter or so, blowing out the material from the hole as it occurs. This "steadily and slowly marching" series of core melts results in the catastrophic destruction of the optical fiber core of the cable and thus destroys the functioning of the cable.

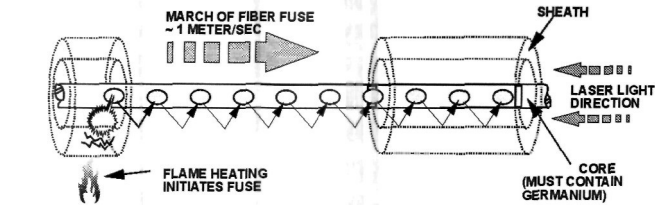


Figure 5-5 A. Fiber fuse destroys core of fiber optics cable of indefinite length, pitting core with holes.

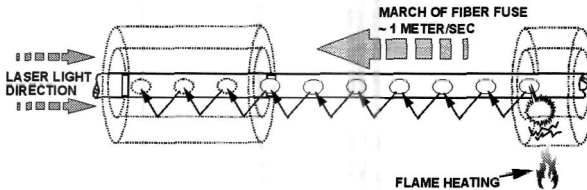


Figure 5-5 B. Reversed second fiber fuse often restores pitted core in cable, filling holes back up.

Figure 5-5 The fiber fuse.

The mechanism has been theorized to be self-propelled and self-focusing. Other experiments have found evidence for thermal shock waves and chemical reactions.

But see Figure 5-5b. Astonishingly, after a — say — 1 kilometer fiber optics cable is destroyed by such a fiber fuse, it is often possible to "heal" the damage by reversing the direction of the normal laser light propagating down the cable, while re-initiating the fiber fuse from the other end by heating the cable on that end. In that case, sometimes the *reverse-ignited* fiber fuse will then march right back down the cable, precisely refilling those previously-melted little holes every centimeter or so, *restoring the functioning of the cable!* If ever a phenomenon cried out for further painstaking investigation to determine its actual mechanism, the fiber fuse is it.

Truncated coupled-wave theory applies to this phenomenon. A rigorous **analysis** by Russell {299} of power conservation in dielectric gratings has shown that truncated coupled-wave theories do not rigorously conserve power. Predictably such conclusions have been disputed {300a-300d}, however, and are adulterated by the same old use of Lorentz-surface integration of the Poynting vector around the grating and discarding of the nondiverged Heaviside energy flow component. Those disputing the results and claiming the impossibility of $COP > 1.0$ systems continue to ignore the unaccounted Heaviside energy flow component accompanying

every EM energy flow situation. In fact, they continue to unwittingly discard that component, and so have never performed *afullly* adequate analysis of any circuit or process. They also are unaware that all EM energy in 3-space comes directly from the active vacuum — specifically, it enters 3-space from the time domain and then returns to the time domain.

As long as the Lorentz surface integration scheme continues to be ubiquitously used without understanding what it does with respect to energy flow accounting, the dispute will not be dissolved. Presently both sides still use the Lorentz integration and discard the available Heaviside component. So they are really disputing whether the *Poynting diverged component* of the input energy can be equal to the energy dissipated. The answer to that is simply "No!"

Of course in a lab test the fiber fuse can be initiated with small Poynting energy input by precision point heating. In that case, the total energy required to melt the holes and move the material out of them, every centimeter or so down that (unlimited) length of cable, can be made as large as one reasonably wishes, simply by making the cable as long as one wishes. In short, COP»1.0. As can be seen, it can be experimentally proven that the input *Poynting* energy component can be far less than the total energy dissipated in damaging the cable. On the other hand, the energy dissipated in damaging the cable *is not* greater than the sum total of the usually calculated Poynting component together with the neglected extraordinarily large Heaviside nondiverged component. Conservation of energy is upheld, but only if the long-neglected Heaviside component is also accounted.

It stands to reason that the reverse fiber fuse can also be initiated by less input Poynting energy component than the total energy dissipated in restoring the cable. At that point, conventional theory has a problem. One can start with a good cable, put in a little EM energy twice — once to ignite the fiber fuse and once to ignite the reverse fiber fuse — and one winds up with a good fiber optics cable and having done lots more work inside the cable than the amount of energy one input by conventional considerations. We leave the solution to that problem as an exercise for the reader. Again, unless one includes the long-neglected Heaviside component, there is no way to make the energy flow balance, and one will have an experiment that seemingly contradicts the conservation of energy law. It doesn't, and that is the exercise the reader should understand.

So unless one uncovers and specifies the external source (Heaviside's energy flow component) of excess energy feeding the fiber fuse, it is a

demonstrable experiment whose efficiency ξ seemingly winds up being $\xi > 1.0$. It works every time and seemingly violates the conservation of energy law *as that law is conventionally and imprecisely stated for an equilibrium system only*. The $\text{COP} > 1.0$ fiber fuse phenomenon does not violate overall conservation of energy because the system is not in equilibrium with the other two components of its supersystem. It only violates (permissibly!) the conservation of energy statement for a system in equilibrium. The "system" consisting of the fiber fuse and the cable is *not in equilibrium in its energy exchange with its active environment (with the other two components of the supersystem, consisting of the active vacuum energy exchange and the active local curvature of spacetime)*. We point out, of course, that the Heaviside component is flowing in space outside the physical system, hence in the vacuum and therefore in the external environment.

Specifically, every dipole in the system is extracting and pouring out energy from the vacuum, and only the small Poynting diverged component of this available energy flow is ordinarily caught. The extreme nonlinearity (and some resonances!) of the particles in and exposed to the extraordinarily locally heated fiber fuse do sweep out a greater reaction cross section than do cold, static charges, in a fashion similar to the separate demonstration of such extended geometrical reaction cross section in the Bohren experiment {301}. Hence the fiber fuse subsystem and the associated particles of melted matter from the holes do intercept, diverge, and collect some of the accompanying but usually nondiverged Heaviside component.

See again paragraph 2.1.6 in Chapter 2. Iterative retroreflective systems — such as in intensely scattering nonlinear optical materials — are not necessarily limited to $\text{COP} < 1.0$. Such a system is not necessarily limited to only the energy input by the operator, and it is not limited to only the operator's input Poynting component. Instead, the system can receive an input of excess energy from (i) its active local vacuum, and/or (ii) the local curvatures of spacetime. Its efficiency ξ , however, is always $\xi < 1.0$, even when its COP is clearly greater than 1.0.

Since scientists disputing the energy aspects of the fiber fuse only have assumed an equilibrium system and have not considered the neglected Heaviside energy flow component, the present arguments against $\text{COP} > 1.0$ performance of the fiber fuse are quite irrelevant.

We also point out that an optical phenomenon is involved, and that the core materials in the melt are optically active. Hence, appreciable iterative

phase conjugate retroreflections occur in the fiber fuse itself and particularly in the melt materials (in the "inferno" of the "spot" itself). This asymmetrical self-regauging process gets more than one joule of work from one joule of original input Poynting energy, because of the iterative (and reciprocating) change of form of the energy. That operation produces iterative joules of work for each joule of original input energy, plus the unaccounted original input of the Heaviside component.

Again, there is no law of *conservation of work* in nature. The present conventional energy-work theorem erroneously considers only a "single interception and change of form" of the energy collected in the system, before loss of the energy from the system. Therefore, it only considers each joule of input energy performing one joule of work on the system to "excite" it to a higher potential energy state. It also considers that, once a joule of energy is then dissipated from the system as work in an internal load or process, it has departed the system forever and is not returned to do additional work by having its form changed yet again! In intensely retroreflective or intensely scattering systems, those conventional assumptions do not necessarily hold. For analysis of the fiber fuse phenomenon, the extended work-energy theorem must be utilized.

Finally, we point out the connection of this fiber fuse phenomenon to the similar "runaway" phenomena we have previously postulated as involved in producing the x-ray burster, gamma ray burster, etc. where iterative retroreflection and thus asymptotic rise in energy density is involved.

Another possibly related phenomenon is the unexpected explosion of porous silicon, as discovered at the Technical University of Munich {302}. The porous pellet involved in the unexpected experiment is covered with a layer of hydrogen atoms. In the presence of oxygen penetrating the oxygen barrier, an extraordinary and superfast chain reaction is initiated. The power of the explosion is some 10 times that of TNT. In the inferno portion of the fiber fuse, the "melt" as it puddles and then particulates, should be in the presence of oxygen and hydrogen from air in the cable. This dramatically differs from the explosive pellet, but may be sufficient to ignite at least in a local area rather than explode violently. If so, between the ablating particles of silicon there could exist iterative phase conjugation, thus producing an asymptotic rise in temperature and energy, perhaps sufficient to sustain the fuse. At least this possibility should be investigated.

5.7 Multiple Feedforward and Feedback Semiconductor Loops.

DeSantis *et al.* {303} showed that feedback systems with a multipower open loop chain can produce $COP > 1.0$ performance. In semiconductors, the present author hypothesizes that complex feedforward and feedback loops involving semiconductors can induce time reversal effects, hence some movements of current against the voltage. In short, there can arise a true negative resistance effect, as demonstrated in the Fogal transistor.

Indeed, a Westinghouse frequency converter using 64 transistor stages and similar sophisticated feedforward and feedback mechanisms was placed in the original Minuteman missile, then was later deliberately modified by Westinghouse engineers to prevent its demonstrated $COP > 1.0$ performance.¹²⁵ The specific germanium transistor used in the converter was also withdrawn from the market.¹²⁶ In those days, power meant weight and weight was at a premium in missile design. The power supply was very tightly designed, so that the weight could be minimized.

The converter had been deliberately designed to be 90% efficient, which was quite the state of the art. However, placed in the missile, the average converter would produce from 105% to 115% times as much output power as input power. (We are stating a $COP > 1.0$, *not* $\xi > 100\%$!) This was more output power than the tightly designed succeeding stages were designed to accept; consequently those overloaded follow-on circuits often burned out and deadlined their Minuteman missiles — something of great strategic concern at the time. The increased rate of Minuteman missiles out of action due to this problem placed great pressure on Westinghouse executives. In turn, they simply ordered the engineers to "fix it!"

Westinghouse simply "fixed the problem" very directly. The engineers reduced the output power of the converter by adding limiting diodes etc. Very quietly, Westinghouse then obtained several patents {304a-c} surrounding the technology, but no further mention of it appears in the literature. The Westinghouse work continued for at least a decade, judging by the spread of the patent dates.

¹²⁵ Our information came directly from private conversations of a close scientific colleague with the Westinghouse engineers who thoroughly tested the converter **causing** the Minuteman problems, and who then altered it to prevent the problems.

¹²⁶ Germanium has some unique properties, particularly with respect to transducing surface longitudinal waves to transverse waves and vice versa.

Such multi-loop, multi-feedback transistor circuits can apparently be developed to exhibit true negative 4-resistor effects. With specialized clamped positive feedback of the Bedini type, such open dissipative systems can then exhibit stable $COP > 1.0$, since the energy is taken from the vacuum via the broken symmetry of dipoles, and then discharged asymmetrically in the loads so as not to destroy the source dipole negative 4-resistors. However, the reader should see Chapter 9 for special considerations and phenomenology.

5.8 Negative Resistors

We define a *true negative resistor* as a circuit component or system that receives energy from the environment and outputs useful energy, either in altered form or to power loads usefully. This contrasts sharply with a *differential negative resistor*, which exhibits negative resistance in one part of its regimen, but where all the excess energy to move the current against the voltage in that regime was previously drawn from the circuit itself and therefore was not freely received from the active external environment. Instead, the operator paid for it already. We are not interested in differential negative resistors, which are well known in the literature {305} and do not enable $COP > 1.0$ system performance, so we will not discuss them further. Hereafter when we use the term "negative resistor", it is understood that we mean "true negative resistor" unless the term is otherwise qualified.

The true negative resistor is an open dissipative system *a priori*, and equilibrium thermodynamics therefore does not apply. Instead, the thermodynamics of open systems far from equilibrium applies. The negative resistor freely receives energy from outside the system (from the environment), and "dissipates" it in interception and collection actions inside the system, to freely increase the available potential energy in the system.

In circuits, the main characteristic of a negative resistor is that the environment freely furnishes some excess energy to (i) power the load, and/or (ii) move the current back against the voltage, particularly when shunted across the back emf region of the source dipole. The *operator* does not have to furnish this excess energy dissipated to propel the current backwards or dissipated to power the load!

One must incorporate the entire supersystem into the analysis of a negative resistance element or system. Since the operator does not furnish the input energy dissipated by the negative resistor, then the active vacuum or

curved local spacetime — or both — must furnish the input energy to it. One must consider local curvature of spacetime interactions with the negative resistance and the active vacuum interactions with it, as well as the interactions between active vacuum and local spacetime curvature. In other words, one must again include the active environment of the Maxwellian system that Lorenz/Lorentz symmetrical regauging arbitrarily discarded.

We specifically do not include the well known "differential" negative resistor, such as a tunnel diode, which in one regime moves current against the voltage, all the while drawing all its enabling energy to move current against the voltage from an overall previous energy input by the operator. Unless the input enabling negative resistance energy is freely received from the external environment, true negative resistance is not involved.

Several true negative resistors other than the point-contact transistor have been produced. We review a few of them in the following subparagraphs.

5.8.1 Kron's Negative Resistor

One of the greatest American electrical scientists was Gabriel Kron. Working for General Electric (GE), Kron built a true negative resistor in the 1930s, which could power itself and the network analyzer¹²⁷ at Stanford University, under a GE support contract with the U.S. Navy. Here is a direct quote from Kron {306} to show what we refer to:

"When only positive and negative real numbers exist, it is customary to replace a positive resistance by an inductance and a negative resistance by a capacitor (since none or only a few negative resistances exist on practical network analyzers.)"

In that sentence we believe that Kron was forced by the censors to insert **the** words "none or" in the expression in parentheses. Particularly note the suggestion that in the imaginary realm it may not be the same as the accepted practice of using inductance as a positive resistor and capacitance **as** a negative resistor. Of course, the fourth Minkowski axis is - *ict*, and so this is very probably an oblique reference to the fact that energy can also "flow in" from the time domain. Kron was quite knowledgeable in general

¹²⁷The network analyzer was a large analogue simulation capable of modeling sophisticated equations — such as Maxwell's equations, the Schrodinger equation. **etc.** — for use in designing, simulating, and analyzing naval communications systems or proposed systems. It was one of the most advanced simulations of its day. Kron was the chief engineer and scientist on the project, and one of the ablest electrical physicists the United States ever produced.

relativity as well as advanced electrodynamics, and he applied full general relativity to rotating EM machines etc. In another quote, Kron {307} also revealed that he had the negative resistor but was not allowed to use it to openly power the Network Analyzer. Quoting and reading through the "spin control":

"Although negative resistances are available for use with a network analyzer, in practice it is more convenient to use a second type of circuit, in which the positive and negative resistances are replaced by inductors and capacitors and the dc currents and voltages are replaced by ac currents and voltages of fixed frequency. The use of the second type of interpretation is equivalent to multiplying the wave equation by $i = \sqrt{-1}$."

After the word "although..." Kron includes the blunt statement that negative resistors were indeed available for use with the network analyzer. But if the "convenient" replacement of the positive and negative resistors by inductors and capacitors was made, then there was no $COP > 1.0$ involved, and there was no true negative resistance involved. Kron is trying to clearly tell us that fact in the above quotation. He also strongly hints that energy from the time domain on the axis *ict* is involved, but that multiplication by $\sqrt{-1}$ discards this "energy from the time domain".

Kron's negative resistor secret has never been released by General Electric, Stanford University, or the U.S. Navy and it is not going to be released. It has never been deciphered outside those groups, with the possible exception of knowledge by Floyd Sweet of Kron's negative resistor construction. Sweet worked in General Electric but not on the Network Analyzer project. Kron, however, was Sweet's mentor and patron, and Sweet often spoke of Kron in glowing terms. In our opinion, Sweet's vacuum triode amplifier was a further development of Kron's early negative resistor, as Sweet understood it.

We further believe that Kron's "open path" is simply the other two components of the supersystem, being (i) local curved spacetime, and (ii) the active local vacuum. Obviously the *external environment* connects any two points in the physical circuit, in addition to the circuit's physical connection (the "closed path"). Between any two points at differing potentials in an electrical circuit, there exists a potential and a dipolarity. Therefore, there exists a broken symmetry because of the dipolarity. The potential difference of that dipolarity is also a curvature of spacetime; i.e., it is a "field" between the two points, and the field is identically a curvature of spacetime. Hence from any two such dipolar points in the

circuit, there exists the giant negentropy flow of EM energy that we pointed out in 2000 {308}. This "open path" EM energy flow between any two unlike charges (any dipolarity) in the universe, not intercepted by the circuit and thus nondiverged, is discarded by Lorentz's integration of the energy flow vector around a closed surface enclosing any volume element of interest. It appears that Kron not only recognized (in different terms) what we are calling the "supersystem", but also recognized the equivalent of Heaviside's nondiverged EM energy flow component from any dipolarity — referring to that energy flow as the "open path" flow of energy. It is almost certain that he fully recognized what Lorentz symmetrical regauging did to the Maxwell-Heaviside equations. Thus it appears that Kron was the first scientist to discard Lorenz/Lorentz symmetrical regauging, producing his negative resistor by doing so.

We do not have firm knowledge, however, but only circumstantial evidence that Kron recognized the flow of EM energy from the time domain into 3-space, and vice versa, though he was certainly capable of seeing that. Nevertheless, this would also be included in his notion and discovery of the "open path", since it is included in every dipolarity, generating the scalar potential between the poles of the dipolarity. It may also have occurred to him from his excellent grasp of general relativity and spacetime curvature {309}.

Kron's concepts are certainly capable of being modeled and used to produce $COP > 1.0$ EM circuits and systems, including his negative resistor. Kron did tremendous work in advancing EM networks and power systems. He left behind a great legacy of network and system analysis capable of dealing with the $COP > 1.0$ electrical power system problem {310a-e}. Unfortunately, that legacy has been little used, if at all, in design of electrical power systems and power distribution networks today. To our knowledge, there are no electrical power systems deliberately using Kron's open path.¹²⁸

5.8.2 Chung's Negative Resistor

A highly simplified diagrammatic illustration representing the Chung negative resistor is given in Figure 5-6. In a July 9, 1998 keynote address at the Fifth International Conference on Composites Engineering in Las

¹²⁸ A possible exception is provided by Barrett's extensions {286a, 286b} of Tesla's "potential shuttling" technique {124}, which can only be seen in higher group symmetry electrodynamics such as quaternions. However, as far as we know, Barrett has **not** applied energy shuttling techniques to electrical power systems.

Vegas, Dr. Deborah D. L. Chung, professor of mechanical and aerospace engineering at State University of New York (SUNY) at Buffalo and Director of the Composite Materials Research Laboratory, reported that she had observed apparent negative resistance in interfaces between layers of carbon fibers in a composite material prepared under pressure.¹³⁰ The negative resistance was observed in a direction perpendicular to the fiber layers. By varying the pressure at which the composite material was prepared, Chung *et al.* were able to control whether the material would exhibit negative, minimal, or positive resistance. Apparent negative resistance was also observed in carbon fiber cement-matrix composites and in bare carbon fibers held together by pressure.

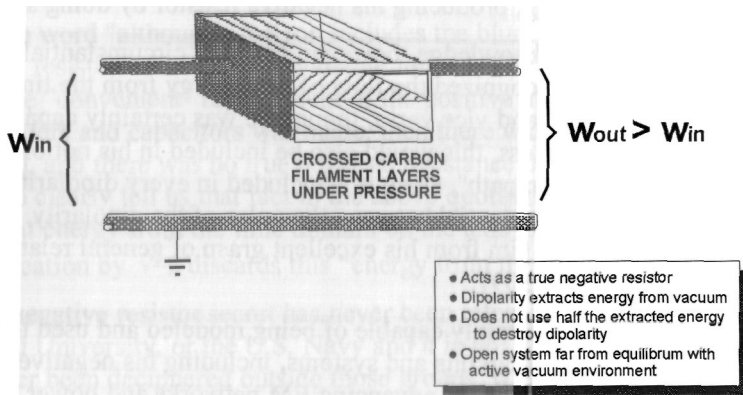


Figure 5-6 Chung's negative resistor (diagrammatic).

A formal technical paper was later published by Wang and Chung {311}. A few years earlier a patent {312} had been issued to Chung and assigned to The Research Foundation of State University of New York, Albany, NY for a superconductive material using a laminate combination of carbon

¹²⁹ Professor Chung holds the Niagara Mohawk Chair in Materials Research at SUNY and is internationally recognized for her work in smart materials and carbon composites. The reader may peruse a curriculum vitae, research work, and papers at <http://www.mae.buffalo.edu/people/faculty/chung/research1.doc>.

¹³⁰ The preparation of "locked-in" stress in Chung's carbon fiber material is reminiscent of Moray's similar preparation of his amorphous semiconductors with locked-in stress also.

fibers and metal.¹³¹ The patent mentioned mesoporous carbon filaments, strikingly similar to our previous discussion of the surprising explosion of porous silicon at the Technical University of Munich, as well as possibly a special kind of "porosity" consideration in the fiber fuse phenomenon (in the material of the fuse itself).

An initial offer on the State University of New York at Buffalo website to provide a technical package with respect to the negative resistor — for which a patent had been filed — to those submitting a nondisclosure agreement was abruptly withdrawn. The project may have been classified, or — far less likely — it may have been retained as deeply proprietary by the University. We suspect that both the technical package and the patent application have been classified by one or more U.S. government agencies.¹³²

In our opinion, Chung's fruitful discovery deserves rigorous and continuing investigation, particularly in higher group symmetry electrodynamics and in terms of supersystem interactions to include Dirac sea hole current interactions. We also believe Chung may have been required by referees (or by declassifying authorities, if such were involved) to use the term "apparent" in the paper. The reported measurements in the technical paper do seem to unequivocally include true negative resistance with current running backwards against the voltage. It is not clear, however, whether this is Dirac hole current or electron current or a mix of both.

We also call attention to the fact that Dirac sea holes in the local vacuum — as will be discussed in Chapter 9 — will and do run backwards against the voltage. Further, such hole current can be transformed from negative energy to positive energy by the Bedini process shown in Chapter 9. The pressure used by Chung *et al.* in fabricating the material produces a stress potential in the material and thus decomposes into our reinterpreted Whittaker 1903 decomposition, preciously discussed. So giant negentropy is involved in the composite material, which implies that true negative resistance can be involved, at least in some operational regimes as pressure

¹³¹ We stress that the issuance of this unclassified patent does not rule out a possible negative resistor (hence $COP > 1.0$) patent that may have been classified. Some sensitive defense work in special materials is indeed performed at SUNY at Buffalo.

¹³² At least the gist of the work is not lost, however, due to Naudin's duplication of the Chung effect and placing the results and building instructions on his website in France; see <http://jnaudin.free.fr/cnr/>.

etc. are varied. Such results were found by Chung *et al.* and are reported in the paper.

Naudin reported independent success with a simpler variant of the Chung negative resistor {313}. This assures that at least the effect will not just be buried.

5.8.3 The Fogal Charge-Barrier Device

Figure 5-7 shows an illustration from one of William Fogal's patents {314} on a new kind of transistor (more accurately, a charge barrier device). Fogal's device incorporates a very special electrolytic capacitor¹³³, which introduces optical-type functions as well as the more familiar capacitor functions.

Fogal Semiconductor

- Blocks electron current flow $i = dq/dt$
 - As capacitor charges electrons in emitter junction attracted to plate
 - Charging plate produces high barrier
 - AC conduction electrons cannot penetrate barrier
 - AC displacement current dq/dt and Poynting current $S = E \times H$ are passed through the barrier
- AC into the barrier produces AC Lorentz symmetrical regauging, which produces AC stress waves, which are longitudinal EM waves *a priori*
- Semiconductor becomes "energy pipe"
- Massless displacement current is energy flow without losses
- Energy can be collected and separately discharged through load for free work
- Transmission mode Holding potential while changing displacement current produces enfolded longitudinal EM waves inside potential accompanied by time-polarized phase conjugate twins
- Reception mode Receiving longitudinal EM waves at barrier provides scalar interferometry, making transverse EM waves
- Fogal semiconductor can both receive and transmit via enfolded longitudinal EM waves, which are not limited to the speed of light in vacuum
- Semiconductor can also be used as a true negative resistor.



DIAGRAMMATIC
ONLY

Figure 5-7 Novel characteristics of the Fogal semiconductor.

Most semiconductor materials are optically active materials. Further, the individual electrons in a signal with a frequency well below light frequencies, are "jittering" with higher frequencies including the entire optical band. A "frequency" of a signal thus is imbedded in a jittering higher frequency complex set, and that set is quite able to interact in optical fashion *if the complex itself is used and controlled*. Fogal's process

¹³³ The exact method of manufacturing this electrolytic capacitor, and its internal structuring, is proprietary to Fogal and a major capacitor manufacturer, who is under a nondisclosure agreement with Fogal.

does appear to both use and control that jittery high frequency signal complex.

Hence Fogal's process can "tunnel under" the normal *detected* force-field frequency responses of the individual electron,¹³⁴ and directly affect, change, and alter its higher-frequency environmental changes in the force-free field or field-free potential condition. In this way, Fogal has carried the electron (and hole) functions of a transistor to functions well beyond those in the present texts {315}. He may have also extended quantum mechanical tunneling effects to signals between widely separated regions of spacetime, since superluminal communication is possible with the Fogal semiconductor properly used. Longitudinal EM waves — which Fogal's semiconductor is able to utilize and control — can and do move at superluminal speeds {93a} because it uses the long-neglected "infolded" longitudinal electrodynamics revealed by Whittaker in 1903 and 1904. Further, superluminal solutions to Maxwell's equations do exist {93b}.

The charge barrier device is formed in a bipolar design that can be incorporated in Metal Oxide Semiconductor (MOS) designs as well as multiple gate devices. The device also produces a Hall effect EM field internal to the device. The Hall effect magnetic force will force electron flow and angular spin of the electrons in the same direction to the top of the conduction bands in the crystal lattice on semiconductor devices, unlike Silicon On Insulators (SOI) devices that force electron flow to the surface of the semiconductor lattice. This forcing function, together with the "extended tunneling" effects on the embedded EM environment of the electrons and holes, produces a unique effect. The device is able to stop and "pin" electrons while continuing to process the signal energy flow (the entire jitter signal complex) in which the electrons were coupled and moving. Thus the Fogal transistor is able to operate upon and with mass-free spacetime itself, and curvatures thereof. It is the first practical semiconductor capable of performing *engineering of the active vacuum*.

In the last few years we have stressed that EM waves in spacetime are longitudinal EM waves *a priori* — but they are accompanied by time-polarized waves (phase conjugates). Hence the two in combination become observable, as pointed out in quantum field theory by Mandl and Shaw {316}. *We detect effects a priori and not their causes. We detect*

¹³⁴The electron itself is enveloped in the jittering of whatever background it is exposed to and interacts with. Hence a coupling interaction exists to arrange and **control** the jitter of the electron as well.

transverse *electron precession waves* in our detector circuits, and not the causal waves interacting with them to produce their precession. *The Fogal transistor is able to process the causal longitudinal EM waves directly, prior to their interaction with matter.* It in fact opens up an entirely new region of "detected physical reality" to our vision and detection, a region far more extensive than the development of infrared and ultraviolet sensors opened up to our sight.

The pioneers of electromagnetics, who erroneously assumed a material ether and EM force fields in space, confused the transverse "material detected waves" (electron precession waves) in the detector with the "material undetected waves" they assumed to be incoming from space. Note that neither the electron nor the atom had been discovered when all these assumptions were used to determine how the EM wave in space was to be viewed and modeled. The transverse waves observed in the interacting/detecting of the Drude electron gas — i.e., the detected electron precession waves — were considered to be direct interceptions of the incoming causal waves from space. This already substituted the effect for the cause, as we have previously discussed.

Further, Faraday envisioned the "material field in space" as consisting of a series of "taut physical strings". A "perturbation" of this field in space was, in his view, simply the transverse wave plucking of those strings. Maxwell, who closely followed Faraday's experimental work and concepts, simply assumed the transverse "plucked string waves" advanced by Faraday. Therefore, the erroneous notion of the transverse EM wave in space arose and stayed firmly fixed in the theory.

One can check Whittaker's decomposition of the scalar potential into longitudinal EM wave pairs, then realize that the energetic vacuum is naught but a giant scalar potential — which can be decomposed by Whittaker's method. In short, as a scalar potential, space itself is a writhing mass of longitudinal EM waves and their highly nonlinear dynamics and interferences, or it can be modeled in that fashion. The energy continually enters 3-space from the time domain to the negative charge of every point in space considered as a point dipole, thence to the positive charge, thence back to the time domain. Notice the giant 4-space circulation involved. One also notes the polarization of the vacuum continually happening and arising spontaneously, as is well known in quantum mechanics. We also suspect that this or a similar mechanism is at the root of spontaneous broken symmetry in physics.

An interesting thing emerges from Whittaker's 1904 paper {317}, where he showed that all EM fields and waves can be decomposed into differential functions of two scalar potentials. Each of these two base scalar potentials can be decomposed by Whittaker's earlier 1903 paper {85} into a set of longitudinal EM waves. All EM fields, potentials, and waves are comprised of longitudinal EM waves and their internal dynamics, which also comprise waves of spacetime curvatures and their dynamics. Further, each longitudinal EM wave in 3-space is accompanied by its phase conjugate twin in the time-domain.

This far more primary "internal electrodynamics comprised of pure spacetime dynamics" — comprising and creating the recognized EM potentials, waves, and fields, their internal dynamic spacetime structuring and also the structuring of time — has not been developed and applied in physics theory. This internal or "infolded" electrodynamics is the primary "medium" in which the Fogal semiconductor appears to work and work upon. The Fogal semiconductor seems able to modulate and demodulate this internal structuring or parts of it, as has been demonstrated.

Imperfect longitudinal EM waves — called *undistorted progressive waves* - are already known to be able to travel at superluminal velocity, e.g., as shown by Rodrigues and Lu {318}. Indeed, Maxwell's equations have both subluminal and superluminal solutions, as shown by Rodrigues and Vaz {319}. Further, these waves can carry information. However, the *technology* of employing these waves has been lacking {320}. The use of scalar EM wave interferometry to produce normal EM fields and EM field energy at a distance has been shown by Evans *et al.* {321}.

As pointed out by Rodrigues and Lu {318}, perfect longitudinal EM waves travel at infinite velocity. This eliminates the difference between potential, field, and wave; a perfect longitudinal EM wave can also be taken as an instantaneous scalar potential with net force-free iterative regauging (varying at each point instantly and simultaneously). Both ways of looking at it produce the same end result: instantaneous remote energy change of spacetime energy density itself, in general relativity terms, or of the energy density of the vacuum, in particle physics terms.

Elsewhere, (e.g., Chapter 2), we also pointed out the "total photon **interaction**" mechanism that generates the flow of an entity through time. We also have advanced the concept of a "time-reversal zone" (TRZ) as a region where antiphoton interactions with charges predominate over photon interactions. We used these new concepts to propose exact nuclear **reactions** for the production of excess deuterium, tritium, and alpha

particles in cold fusion experiments. In such an "excited state" TRZ region, the law of attraction and repulsion of charges is reversed. In the TRZ, like charges attract and unlike charges repel. Further, the gluon forces are reduced, so the quarks in the nucleons are much more lightly bound. In such TRZ zones, dense clustering of like charges occurs due to their mutual attraction.

A time-reversal zone is created in one part of the Fogal transistor, greatly assisting in the "electron pinning" action. That is, the usual strong mutual repulsion (the Coulomb barrier) of the electrons at the pinning site vanishes in the TRZ inside the Fogal semiconductor, and the resulting mutual attraction of the electrons greatly facilitates the pinning process far beyond what is usually obtained against "like charge" repulsion in a time-forward zone. Indeed, the TRZ in the Fogal semiconductor also materially enhances the electron pinning process beyond what can usually be obtained with cryogenics. At least some indication of trapping and perhaps pinning has been reported in amorphous semiconductors at room temperature {322a-b}.

The Fogal device is able to remove EM noise (electron noise) from existing EM signals, displays, etc. by 96% or more, by pinning the electrons and simultaneously time-reversing the spatial EM signal back to its original noise-free state prior to hosts of interaction electron collisions. This "noise removal" capability has been rigorously tested by independent parties, including at a leading university in the Netherlands,¹³⁵ and by several large electronics companies and several other universities. By pinning the electrons (and electron currents) while still processing and propagating the EM energy effects, the Fogal device can move noiseless EM energy without loss at room temperatures, at superluminal velocities, and reconnect the lossless propagated energy to electrons past the pinning region at a receiving region, releasing the electrons in the receiving region. The Fogal semiconductor therefore already accomplishes *room temperature superconductivity* as well as tunneling.

The Fogal device's basic mechanism (consisting of all the submechanisms) is to restore and move EM energy in force-free form, using direct regauging of the vacuum instantaneous scalar potential itself (or the

¹³⁵ The university researchers verified room temperature superconductivity being produced by the Fogal semiconductor in their independent verification measurements. They also measured that some 96% of the noise already present in a circuit was removed by Fogal's semiconductors in Fogal's circuits.

vacuum potentials themselves). It operates directly upon the longitudinal EM waves comprising the vacuum potential. Hence it directly engineers the active vacuum and curved spacetime. I.e., it is the first *supersystem engineering* device of (hopefully) many more to come.

In the "jitter" environment of the space in which the individual electron is embedded, there exist many (and essentially all) field gauges, simultaneously. One of these, of course, is the Coulomb gauge where there exists an instantaneous scalar potential. Usually the instantaneous scalar potential is considered only a *near-field* effect, with no contribution at any significant distance. However, as Jackson points out {323}, transverse radiation fields are given by the vector potential alone. Also, in the Coulomb gauge the scalar potential "propagates" instantaneously everywhere in space {324}.

Along with other electrodynamicists, Jackson avoids the obvious superluminal communications implications of the instantaneous scalar potential by stating that "*..it is the fields, not the potentials, that concern us.*" As he points out, a detailed (*though conventional*) discussion of causality is given by Brill and Goodman {325}. Again as pointed out by Jackson, in the Coulomb gauge the quantization of the photon involves only the vector potential. *The use of the scalar potential in the Coulomb gauge, together with deliberate engineering of the internal longitudinal Whittaker wave structure of that potential, directly allows distant engineering via multiply connected spacetime, even inside the nuclei of distant objects. This is in fact a unique and marvelous engineering application and extension of Bohm's quantum potential concept.*

My "pinning" the electrons, apparently Fogal is able to essentially "hold" the vector potential and all the force fields while the instantaneous scalar potential *persists and now extends over all space, not just to the near field since all formerly moving field dynamics that would limit it have been frozen*. If this effect is substantiated, I have nominated it as the "Fogal effect". Further, this unrestricted instantaneous scalar potential now i lunges in field-free form (pure regauging form) over all space according to the signal energy being perpetuated and propagated¹³⁶ by the Fogal semiconductor independently of its pinned electrons. In this fashion, the **Fogal** semiconductor is indeed capable of "instantaneous" communication

¹³⁶ Here we again point out that the usual notion of a signal as energy propagating in 3-space is wrong. It propagates in 4-space, but not in 3-space. Also, what propagates is the spreading point-like polarization of the vacuum itself.

over essentially unlimited distances. At least one independent test has verified the Fogal instantaneous communication effect, but the test is still held proprietary by the testing agency.

Since Fogal is able to alter and control the internal longitudinal EM wave Whittaker structuring of the scalar potential used in this Coulomb gauge manner, he is able to accomplish superluminal (and even instantaneous) communication, so long as a Fogal semiconductor is available in both the transmitter and the distant receiver. In the transmitter, the Fogal component is necessary to *ifold* the information into the internal LW structure of the scalar potential to be used in the Coulomb gauge, thus transforming the input signal information into output longitudinal EM wave information directly in spacetime itself. The Fogal component in the receiver is necessary in order to detect, transduce, and *outfold* the infolded longitudinal EM wave information inside the instantaneous scalar potential. We have stressed that these internal longitudinal EM waves and their dynamics are spacetime curvatures and their dynamics. Hence their transmission and detection is a viable process for superluminal communication, including instantaneous communication.¹³⁷

Further, once the electrons are pinned, all "signal fields in charged matter" (i.e., all EM force fields) are frozen and localized. This, we believe, involves a new physical effect introduced by Fogal that is analogous to the Aharonov-Bohm effect.¹³⁸ So I have called it the "Fogal effect". That is,

¹³⁷ We believe that physics books will have to be substantially rewritten, once the internal longitudinal structuring of the scalar potential (and of EM fields and waves) is employed directly in open technology. We further believe that the Fogal semiconductors are the first pre-developments in that coming vast new technology, at least in the open Western scientific world.

¹³⁸ There have long been, and still are, efforts to "fit" the Aharonov-Bohm effect into slightly modified classical electrodynamics after all. E.g., see C. J. Carpenter, "Electromagnetic energy changes due to charges moving through constant, or zero, magnetic field," *IEE Proc. A*, 138(1), Jan. 1991, p. 55-70; — "Electromagnetic energy and power in terms of charges and potentials instead of fields," *IEE Proc. A*, 136(3), 1989, p. 101-113; G. M. Graham and D. G. Lahoz, "Observation of static electromagnetic angular momentum in vacuo," *Nature*, Vol. 285, 1980, p. 154-155; T. H. Boyer, "Semiclassical explanation of the Matteucci-Pozzi and Aharonov-Bohm phase shifts," *Found. Phys.*, 32(1), Jan. 2002, p. 41-49; — "The Aharonov-Bohm effect as a classical electromagnetic-lag effect: An electrostatic analogue and possible experimental test," *Nuovo Cimento*, Vol. 100B, 1987, p. 685-701; — Classical electromagnetic deflections and lag effects associated with quantum interference pattern shifts: considerations related to the Aharonov-Bohm effect," *Phys. Rev. D*, Vol. 8, 1973, p. 1679-1693; — "Does the Aharonov-Bohm effect

the force-fields are frozen and localized by the pinning, but the field-free potentials then remain, including the instantaneous scalar potential ϕ and probably the curl-free magnetic vector potential A as well. The result is that the instantaneous scalar potential can be directly *regauged* everywhere at once by the changes of magnitude of the "frozen fields", rather as if they were "static voltage", possibly simultaneously regauging the field-free A -potential — all as part of a new kind of Lorentz symmetrical regauging. After all, a single Lorentz symmetrical regauging {326} changes both the potentials A and ϕ . Changes in symmetrical regauging produce stress waves, which are longitudinal EM waves. Continual changes of symmetrical regauging also continually changes both the potentials A and ϕ , *including over all space when operating in the Coulomb gauge*. This is one explanation of the beautiful effect that Fogal has discovered and is utilizing.

We accent that, with pinned electrons frozen in place, the normal ϕ and A in matter (defined in terms of interaction with charge and the movement of charge) cannot occur. With time reversal zone utilized, electron pinning is greatly eased and the instantaneous scalar potential ϕ now assumes the primary active propagating role in surrounding space. Neither ϕ nor A is free to develop the normal $\partial\phi/\partial t$ and $\nabla \times A$ *spatially propagating dynamics of the force fields (effect fields) observed in matter*. In the Fogal process, the instantaneous scalar potential "signal" (the causal signal in 4-space) is generated in the transistor when it pins the electrons and freezes the force fields into "equal and opposite" form. Since no net force field can develop, the instantaneous scalar potential is a stress potential in spacetime itself and simply changes its magnitude instantly, at each and every point in space that it occupies, when the Fogal chip's input EM fields change in its signal input.

In the output, the net force fields remain zero and frozen, even though the individual force fields change constrained to "equal and opposite" manner. If one wishes, one may take this part of the Fogal output — the field free changes in the stress energy density of the vacuum — as one expression of *modulating the instantaneous scalar potential's energy density in perfect correspondence to the field changes in the normal EM input to the Fogal transistor*.

exist?'. *Found. Phys.*, Vol. 30, 2000, p. 893-905; — "Classical electromagnetism and the Aharonov-Bohm phase shift," *ibid.*, p. 907-932.

The instantaneous Fogal changes in magnitude (e.g., instantaneously induced upon a distant collecting charge) are no longer limited to near field effects, or to the speed of light — and communication is not bound to the retarded wave. Now the induced changes of the instantaneous scalar potential exhibit far field effects and these changes — being naught but these special Lorentz condition magnitude regaugings — are instantaneous. This of course is a form of *action at a distance*. We stress that the best astronomical evidence also points to a startlingly superluminal speed of gravitation (curvature of spacetime, which after all is just a longitudinal EM wave or set of them) itself, as pointed out by Van Flandern.¹³⁹ If so, since any change of energy in spacetime is a curvature of spacetime, and one form of spacetime curvature can move at superluminal velocity, so can other forms of spacetime curvatures. In our favorite expression, *it only takes one white crow to prove that not all crows are black*.

As is well known, the de Broglie waves of matter always move faster than light, as do appropriate quantum tunneling processes. Further, the quantum potential used by Bohm in his beautiful hidden variable theory of quantum mechanics {347} also appears instantly throughout space, wherever it will be, and with the value it will have. The question of whether a quantum potential can be used to communicate has been posed but not definitively answered in the previous literature. We propose a resounding "Yes!" if one uses the internal structure of the quantum potential for one's communication, applying some component such as the Fogal semiconductor to do the infolding and unfolding.

We also propose that a process for forming and using an instantaneous scalar potential in the Coulomb gauge can be interpreted as the formation and use of a quantum potential or its direct equivalent. If that assumption is true, then the Fogal semiconductor seems to be the first component ever openly built and patented which produces and uses Bohm's quantum potential, *including* its infolded Whittaker structuring and dynamics. It also definitively answers in the affirmative the question of whether the quantum potential and the scalar potential in the Coulomb gauge can be used in superluminal communications.

¹³⁹ Tom Van Flandern, "The speed of gravity - What the experiments say," *Phys. Lett. A*, vol. 250, Dec. 21, 1998, p. 1-11. Van Flandern gives an extremely important, clear, and succinct summary showing that experiments refute the standard far field assumption of light speed in gravitational effects. Laboratory, solar system, and astrophysical experiments for the "speed of gravity" yield a lower limit of $2 \times 10^{10} c$.

Thus Fogal has apparently found a way to directly modulate intelligent change of magnitudes into and upon the internal longitudinal EM wave structure of the instantaneous scalar potential (and upon the quantum potential), as well as iterative "pure *net-field-free*" regauging of the instantaneous scalar potential {327}. It seems to have previously escaped notice that varying the Lorentz symmetrical regauging of a circuit or system easily produces pure longitudinal EM waves. This strongly implies that Fogal has surmounted and removed the barrier to practical superluminal communication and even further has reduced the barrier to practical instant communication.

Several tests — in one of which the present author participated — have indeed shown Fogal transmission of signals, including video signals, between two widely separated points with less delay than light-speed signals exhibit, and also with video bandwidth infolded inside a DC signal. In at least one series of tests in a large company's own laboratory and by its own engineers, communications from a ground-based Fogal chip transmitter apparatus occurred between the ground station, through the uplink into the satellite, back through the downlink to earth, into a ground-based transmission system with repeater stations, and into the receiving Fogal transistor unit in the lab. The transmissions occurred with *no discernible time delay*, something previously deemed impossible in all the textbooks. This was particularly significant since even the conventional time-delays in the repeater station amplifiers and the satellite receiver-transmitters were apparently eliminated. This further accents that the infolded "longitudinal EM waves superhighway" inside all EM fields, potentials, and waves — including inside matter such as the ocean and the earth itself — is a multiply connected space phenomenon. It is the most ideal communication medium, enabling deep space communication without delay, etc.

The implications for nondelayed future remote control of robot spacecraft and robots landing on the surface of planets and asteroids are obvious, as are the implications for direct exploration and measurement of conditions *inside the interiors* of the planets, the sun, the moon, and the earth via **internal** scalar interferometry. We accent that Fogal has done private experiments exploring this vast new physical reality revealed by the "internal longitudinal EM wave dynamics" and its interferometry, and it is mind-expanding (some would say *mind-boggling!*). It is also a great new step in physics and in our very notion of physical reality itself.

The vacuum itself, being highly energetic, is indeed a scalar potential. **Further**, it has any and all gauges. Since potentials superpose, we postulate

that Fogal's use of the instantaneous scalar potential is directly superposed on the corresponding instantaneous Coulomb gauge scalar potentials of the entire vacuum. His discovery of how to modulate the instantaneous ϕ magnitude without allowing modulated EM field propagation, constitutes a very special case of tunneling right through "space" itself, using one aspect or "component" of space.

In short, to be a little dramatic one might even apply the term *subspace communication* to this long distance tunneling effect. That interpretation would also seem consistent with the deterministic variation of the internal stress energy density structuring of the vacuum that is produced in the Fogal process.

From another viewpoint, Fogal has succeeded in not only finding the missing chaos of quantum mechanics, but in deterministically engineering and using it.

This is also consistent with Whittaker's decomposition of the scalar potential into bidirectional longitudinal EM waves {328} and his connection between time-polarized EM waves and longitudinally polarized EM waves as reinterpreted (12) to be consistent with quantum field theory {19}. We point out that a single point in time is simultaneously "connected" to every point in the universe. By using a transmission system that back-pedals from 3-space into the time domain, an instantaneous connection to any other spatial point in the universe is therefore available, if one's technology can take advantage of it. Fogal's technology does.

It is also consistent with quantum tunneling experiments that have demonstrated the transmission of intelligent signals (such as Mozart's 40th symphony) at superluminal speed between two points in a waveguide {329a-b}. Regardless of how one chooses to model intelligent superluminal communication, it has been experimentally demonstrated — multiple times and by multiple experimenters in multiple laboratories — that such can occur.

The difference in those superluminal experiments and the performance of the Fogal chip is that the chip uses iterative regauging of the magnitude of the instantaneous scalar potential, as well as deterministic alteration of the scalar potential's internal longitudinal EM wave substructuring, and probably also modulates the internal structuring of a quantum potential. The presently proposed quantum tunneling mechanisms apparently do not do this, at least as they are presently modeled. Further, the quantum tunneling mechanism is difficult to apply; the Fogal mechanism is fairly

simple and straightforward to apply, given the Fogal semiconductor at both the transmitting and receiving ends of the communication system.

Pure longitudinal EM waves readily penetrate matter to great distances, since matter is mostly empty space between widely separated mass particles. On the microscopic scale, matter is comparable to something like the solar system, except that intense fields and potentials (bundles of longitudinal EM waves and their dynamics) occupy the space between the particles. All this vast empty space inside matter, being a potential and comprised of longitudinal EM waves, is a giant "superhighway" for the passage of longitudinal EM waves and their dynamics, as indeed is matter itself which is mostly such empty space. Further, even the masses themselves are such, since mass is simply highly compressed spatial energy density, and therefore is highly compressed longitudinal EM wave energy and dynamics. It is just a "denser" superhighway.

Hence a longitudinal EM wave system can readily be developed to "see through matter" using Fogal semiconductors in transmitter and receiver. Fogal in fact has made at least one proprietary prototype demonstration unit that demonstrates this startling capability. The vision is very clear, due to the remarkable absence of noise in the Fogal process. It is also shockingly unique, and it changes our very notion of physical reality. We are not at liberty to further discuss this new "sub-submicroscopic" reality revealed in such experiments. We simply interpret it as jumping the presently assumed restrictions of observation, and allowing the direct or correlated observation of the virtual state entities.

As alluded to, the previously modulated "Fogal type signals" emitted by all matter and other physical entities can also be displayed on a screen using the Fogal process, revealing a hitherto unsuspected physical reality and EM signals environment. In this prototype system, Fogal showed a remarkable and startling new extension of our very perception of physical reality itself. This is another reason why we expect that physics books will have to be rewritten, once the Fogal semiconductors are on the market and available in practical equipment. As every physicist knows, any dramatic increase in our ability to sense finer levels of physical reality inevitably leads to new and startling advances in physics itself and changes our very knowledge of the nature of physical reality.

The ability to bypass and "park" force fields by pinning their source electrons in a time-reversal zone, while continuing the flow of noise-free EM energy at will and at infinite velocity, obviously enables $COP > 1.0$ systems. A pure longitudinal EM wave already has infinite energy, for

such a wave appears across the entire universe simultaneously, instantly changing the stress energy density of the entire vacuum in which the longitudinal EM wave is present.¹⁴⁰ The back emf and back mmf fields in an EM system or electrical power system can be frozen and held from restoring the Lorentz condition in the circuit, using the Fogal semiconductor {330}. We presently have an agreement with Fogal for the licensed use of his semiconductors in all such energy unit applications.

A quantum potential is modeled in a multiply connected spacetime, so that a given joule of input energy to one multiply connected point simultaneously appears in every other multiply connected point.¹⁴¹ Since the Fogal semiconductor apparently can operate in quantum potential or Coulomb gauge fashion, it can act as a *direct energy amplifier*, with respect to the lab observer in a singly connected space. In short, the Fogal process dramatically extends the concept of "conservation of energy" to include conservation in multiply connected space and therefore incorporates observed energy amplification in singly connected space. Again, a broken symmetry (in singly connected space) reveals a higher symmetry (in multiply connected space), and the hierarchy principle is alive and well. In short, with the Fogal semiconductor used in power systems, the law of conservation of energy must be extended to include energy symmetry in multiply connected space but asymmetry in singly connected space. Obviously, such functioning totally transcends the limitations of the present thermodynamics models.

We carefully point out that this is not "energy creation" but simply the energy following the known kind of statistics in physics that allows a thing to be in multiple different places simultaneously. What is actually "instantly transmitted" is the simultaneous regauging of the energy density of the vacuum. At any point in space, the vacuum has an energy density and thus is a scalar potential with a given magnitude. Changing the energy density is simply regauging, which is freely permitted under the gauge freedom axiom of quantum field theory. So instant amplification of

¹⁴⁰ This should not be too surprising, since the bare charge and the bare mass of every electron each has infinite energy, as is well known in particle physics. For confirmation in very straightforward language, see Nobelist Steven Weinberg, *Dreams of a Final Theory*, Vintage Books, Random House, 1993, p. 109-110.

¹⁴¹ If we wish, we can even take time itself as a special kind of quantum potential, since time also displays such a "multiplicity of connection" in 3-space. In one sense, time is the ultimate quantum potential, since a single point in time is "connected" to every single 3-space point in the universe, simultaneously.

energy" over a region of points is simply the instant regauging of the potential already present at each point in the region. It is a *permissible multiply connected space violation* of the present more limited "special case" energy conservation concept, which implicitly assumes a singly connected space. We have been working with Fogal for some time in this area, and we expect to rapidly develop and introduce commercial EM power systems based on the Fogal semiconductor's abilities in multiply connected space, as soon as it is in production and available. Until then, the details of our work in that area must remain highly proprietary.

5.8.4 Point-Contact Transistor.

Figure 5-8 diagrammatically shows a point-contact transistor with n-type base in a typical circuit for power gain. The point of the contact is under pressure on the material with which it is in contact.

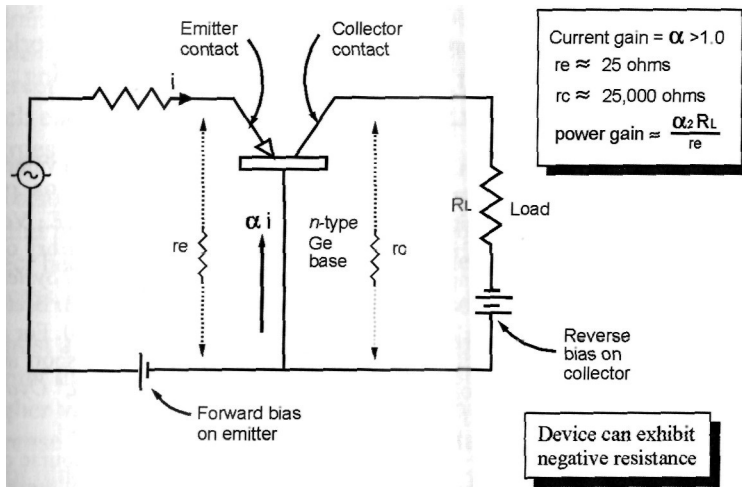


Figure 5-8 Point contact transistor with n-type base.

The point-contact transistor often behaved in true negative resistor fashion, outputting more energy than was input to it. Its production was always far **more** of an art than a science.

As can be seen from our quotation at the beginning of this chapter, the original point-contact transistor was never thoroughly understood

technically.¹⁴² Specifically, there does not appear to have ever been any deliberate attempt to capitalize on the ability of the transistor to become a true negative resistor under certain manufacturing techniques and under certain conditions.¹⁴³ Instead, the variations and difficulties in manufacture resulted in use of the point-contact transistor being essentially bypassed rather quickly, by advancing to other transistor types more easily manufactured and with less manufacturing variances. In reducing the manufacture of other types of transistors to a science rather than an art, the point-contact transistor and its further development and optimization into reliable true negative resistors were abandoned.

We present this transistor as a straightforward and relatively inexpensive area in which young researchers in COP>1.0 systems and phenomenology may wish to begin, assuming they have access to semiconductor facilities in a university or similar or are willing to work meticulously under a jeweler's loupe. A rich combination of effects in the transistor awaits optimization and control. We predict that we shall yet see, on the world market of the future, such point contact transistors reliably exhibiting

¹⁴² E.g., different theories are given in: (a) W. Shockley, "Theories of high values of alpha for collector contacts on germanium," *Phys. Rev.*, Vol. 78, 1950, p. 294; (b) W. R. Sittner, "Current multiplication in the Type A transistor," *Proc. I.R.E.*, Vol. 40, Apr. 1952, p. 448-454. Also of interest is (c) W. van Roosbroeck, "Theory of the flow of electrons and holes in germanium and other semiconductors," *Bell System Tech. J.*, Vol. 29, Oct. 1950, p. 560-607. See also (d) J. Bardeen and W. H. Brattain, "The transistor, a semiconductor triode," *Phys. Rev.*, Vol. 74, 1948, p. 230. For a more modern re-examination, see Shuji Hasegawa *et al*, "Electronic transport at semiconductor surfaces — from point-contact transistor to multi-tip STM," *Oyo Buturi*, 70(10), 2001, p. 1165-1171 (in Japanese).

¹⁴³ E.g., the point contact is usually under pressure, and this pressure of course can be varied. The full phenomenology of points (which increase voltage) and pressure, complicated by surface effects as well, has not been worked out in physics. Note the similarity of the pressure in the point contact transistor to the pressure in the Chung negative resistor. Note the almost certain involvement of the "overpotential" of chemistry and electrode chemistry, as well as the "double surface" effect of the small gap between the point and the substrate on which it rests in contact. Part of the gap probably even involves the Casimir effect as well. Any electrical signal variation in that very complex point junction will vary the overpotential, the stress potential, the "point increase in voltage" effect, etc. As can be seen, the phenomenology of the point contact is remarkably complex and rich in several areas of physics and in a great variety of physics variables. Obviously, the reasonable control of all these highly nonlinear variables — and their mutual interactions — is a difficult matter. Hence the readiness with which point contact transistors were dropped with substantial sighs of relief.

negative resistance. It will be necessary, however, to also take into account the symmetrical self-regauging characteristics of the common closed-current-loop circuit. By adroit switching of a true negative resistor in and out of a closed-current-loop branch, or placing it in parallel with the back emf of that branch to reduce it, asymmetry can be introduced into the overall closed current loop circuit, defeating the Lorentz symmetrical regauging. Defeating the Lorentz condition is essential to $COP > 1.0$, of course.

We envision such a development as an ideal "negative resistance shunt" to add across the secondary of a transformer, and another possibly across its primary and across the external power supply as well, in producing more amenable and easily fabricated $COP > 1.0$ electrical systems. We also point out that, once the back emf or back mmf forcing of equal power dissipation in the primary of a transformer or in the emf section of a circuit is dramatically reduced or eliminated, one does not require "large intensity" potentials and voltages to collect a great deal of power in the intercepting and receiving external circuit. Again, by simple $W = Vq$, as much energy W can be collected from any nonzero potential V as there are charges q to intercept.

We also envision such a true negative resistor being close-looped by the Bedini process, thus producing a small "self-powering" transistor, which in effect becomes a small self-powering "battery". This is absolutely a doable process, and it will be done once the Fogal semiconductor is in production.

Almost all semiconductor materials are also optically active materials, and a point discharge into such materials represents a very sharp regauging (higher voltage) discharge at a point or into a very small area, due to the increase in potential at the tip where it contacts the base material. The point junction is under pressure, so a stress potential exists there. In addition, the well-known "point" effect also increases the potential in the junction pointer itself, from its base to the point. The point contact phenomenology of different materials — one conductive and one semiconductive — is of much interest, and with novel phenomenology.

The fact that the point-contact transistor in its most usual formulation primarily uses holes more than electrons, is also of much interest in $COP > 1.0$ situations. Holes in a circuit move against the voltage. The trick is to let the Dirac holes *before observation* move in an open path from the ground return line against the back emf to the potentialization line, and **transduce** the moving hole current (via the Bedini process) into electron

current after the holes have already freely reached the vicinity of the high side of the circuit.

When Dirac sea holes (causal positrons before observation and thus prior to their alteration to lattice holes and parity reversal) and Dirac sea hole current are also involved with point-contact transistors, the resulting phenomenology has been but little investigated and none of it is in the present textbooks. However, from recent work with positron probes and positron microscopes to examine semiconductors and semiconductor materials, it is known that the holes (positrons) tend to be repelled from nuclei in the material into defects (voids) in it {331}. These effects have been investigated, for example by Triftshauser *et al.* {332}.

Both the mechanical stress potential (which is fundamentally electromagnetic) and the heightened junction potential decompose via our reinterpretation of Whittaker's 1903 decomposition of the scalar potential. This leads to optical-type pumping in both the time domain as well as the 3-space domain. Hence novel optical-type effects and time-reversal of material states can be involved, leading to a very complex set of phase conjugate phenomena, time-reversal phenomena, etc.

Certain Hall effects employed in conjunction with a point contact transistor could be a fruitful area of investigation. As an example, narrow Hall bars with junctions between current and voltage leads of various geometries could be investigated. Widening the junction from the normal square-cornered shape can sometimes produce a negative Hall resistance.

The junction of the point contact involves asymmetrical self-regauging, iterative time-reversal retroreflection, increased Poynting and Heaviside energy flow components, optical scattering processes inside the junction materials, etc. The transistor can indeed be manufactured so that these highly nonlinear effects sum to a negative-resistor-like movement of the output current against the voltage, although with so many other phenomena involved it will require some hard work and research in order to develop and stabilize it — and understand it.

5.8.5 Bedini's Negative Resistor Process in a Battery {333}.

5.8.5.1 Some Pertinent Lead-Acid Battery Processes

A lead-acid storage battery is a highly nonlinear device. The plates may be plante, pasted, or tubular etc. They are usually highly porous and have a thin oxide layer. They may have other coatings and the electrolyte solution may include additives to enhance operation. The plates consist of a mix of crystalline materials in most cases. The plate materials include acicular

(needle-like) crystals, particularly the negative plate. The plates usually are porous, knit, and have gridded separators.

The chemistry of the battery electrolyte is complex and — even today — not all of it is well understood, particularly when mass transport is accounted. In our discussions, we will be including some of the previously neglected phenomena during mass transport (ion sluggishness in moving) that are responsible for some of that lack of understanding. In the battery chemistry, there are many double surfaces between the ions and also there is a variety of point voltages. There is a separate theory for double surfaces.

One of the most important phenomena is that the ion currents in the electrolyte are confined to the battery, and do not pass out into the external circuit. Much of the electron currents in the external circuit are blocked at the plates from moving within the electrolyte. Consequently, we will limit our discussion to two major currents of interest¹⁴⁴ in a battery-powered system, and these currents are effectively isolated from each other (at least to first order). Those currents are (i) the ion currents in the electrolyte, confined to between the plates and therefore internal to the battery electrolyte, and (ii) the electron currents between the outside of each plate through the inside of the plate and on out through the external circuit and **then** around to the inside and thence to the outside of the other plate. Chemical changes occur on the plates themselves as a result of these two currents.

It is usually assumed in power systems that these two currents are in phase or almost entirely so. That need not be true at all, and Bedini takes specific advantage of deliberately arranging these two currents to be antiphased part of the time. Part of the Bedini effect can be understood from this fact alone; the other part must consider one other most unusual electrical current that is encountered only in battery-powered systems or COP»1.0 systems.

So indeed there are *several* (many) currents in a lead acid battery [334], not just one, and we will consider three of them — the two previously mentioned, and an additional Dirac sea hole current in the local vacuum **itself**. The reader interested in greater technical depth should also turn to

¹⁴⁴ Of course, there are many other currents in a battery as well, but — although an oversimplification — these two major currents together with the Dirac sea hole current will suffice for our introductory modeling and explanation purposes.

the literature of electrode chemistry and electrochemistry {335a-f}, which is quite complex.

5.8.5.2 Dirac Sea Hole Current

In a battery-powered COP»1.0 system (and in some COP>1.0 systems), there is a previously unrecognized significant flow of Dirac hole current in the local vacuum, running from the output section of the system to the system input section and thence through the conductors into the battery terminals and onto the battery plates, and on into the battery electrolyte chemistry. This hole current may be greater — *evenfar* greater — than the normal electron current running from input to output.

So in the battery-powered overunity system with positive feedback, not only does an electron current run from the battery through the connecting conductors to the input section of the system, but also a Dirac hole current pours back out of the system input section, and — if not intercepted and transduced — through the conductors and back into the battery. All the while, this Dirac hole current is "eating" electrons being furnished by the battery to the system. The net result is that the battery "sees" an extra load to be powered, in addition to the ordinary load presented to it by the normal system input section. It "sees" the situation as an "extra load" because it first has to furnish sufficient electron current to fill the hole current and "kill" it, before it can furnish the additional electrons to power the system in normal fashion.¹⁴⁵

¹⁴⁵ An odd effect occurs in the battery, however, when the battery completely discharges in the normal sense. Actually, it is still fully charged with positive energy charge, but also has been simultaneously charged with negative energy charge. With the excess negative energy holes continuing to charge the battery with negative energy charge, the battery becomes increasingly *charged with net negative energy*. There is almost no limit to the negative energy charge the battery (i.e., the local Dirac vacuum portion of its supersystem) can take, except the eventual development of antigravity effects due to the inverse and increasing curvature of local spacetime in which the battery is embedded. After a battery has been used to power a COP»1.0 system for some time, one can take the battery off, place it on a normal battery charger, and it will then "eat" positive power for an extended period of time — e.g., a week or longer. During this period, one is steadily negating the inverse curvature of the local vacuum via the increased positive energy collecting in that spacetime. The battery again finally passes through zero voltage and net charge again, and suddenly starts charging up again in a "normal" sense with positive energy charge. This process actually increases the lifetime and function of a battery in a startling manner. Bedini has used batteries almost devoid of charge and energy in the normal sense, and powered systems very well with them, even for longer than a year continuously.

A $COP \gg 1.0$ EM system is an excited system far from equilibrium in its exchange with its active environment. For all such excited systems, there exist significant decay mechanisms to bring the system back into equilibrium with its environment, since equilibrium yields the lowest energy state and maximum entropy. The Dirac sea hole current (negative energy current) is nature's unexpected natural decay mechanism to sharply decay a $COP \gg 1.0$ system back to an overall $COP < 1.0$ system when the external power supply is considered also.¹⁴⁶

So when Dirac hole current back through the local vacuum and through the system is involved, the battery first has to furnish electron current to fill these holes at the rate they are appearing in the input section, thereby furnishing a primary "hole-filling" electron current component which "disappears" into the Dirac vacuum and is lost.¹⁴⁷ Only after the holes in the hole current are filled — and the hole current is being steadily nullified

¹⁴⁶ It decays the *true negative resistor* power system back into being only a *differential negative resistor section* of a slightly extended metasystem including the power system and its external power supply. This novel decay mechanism also prohibits close-looping the now differential negative resistance power system for self-powering, unless the hole current is first converted into electron current, as discussed in Chapter 9 and in paragraph 4.9.6 below.

¹⁴⁷ The filling of these Dirac sea holes is not pair annihilation in the usual sense, and no radiation is emitted. Instead, the energy of the radiation that would otherwise be emitted is added to the negative energy curving the spacetime. Hence the net curvature of spacetime relaxes because of superposition. In effect, the vacuum/spacetime itself reabsorbs the energy as relaxation spatial energy added to the curvature energy of the curved spacetime, reducing that curvature. Particularly see Mendel Sachs, *Quantum Mechanics from General Relativity: An Approximation for a Theory of Inertia*, Reidel (now Kluwer), 1986. A generalization of quantum mechanics is demonstrated in the context of general relativity, following from a **generally** covariant field theory of inertia. Nonrelativistically, the formalism corresponds with linear quantum mechanics. In the limit of special relativity, **nonlinearity** remains and several new features are derived: (i) Particle-antiparticle pairs do not annihilate; an exact bound state solution is derived corresponding with all experimental facts about annihilation/creation — which, in approximation, gives the blackbody radiation spectrum for a sea of such pairs, (ii) A result is proven, without approximation, that is physically equivalent to the Pauli exclusion principle — which in linear approximation gives the totally antisymmetrised main-body wave function and Fermi-Dirac statistics, (iii) The hydrogen spectrum is derived, including the Lamb shifts, in agreement with experiment; new results are found for **high-energy** electron-proton scattering, (iv) Finally, several applications to the elementary particle domain are demonstrated, in agreement with results from experimental high-energy physics.

— can the battery then send additional electrons which do not disappear and which are accepted in the system input section to power the system. We discuss this Dirac hole current in some detail in Chapter 9, including how to convert it into useful input electron current to the system, reducing the current load on the external generator and enabling self-powering. Bedini invented the method of transducing available negative energy hole current in the vacuum into electron positive energy flow to charge the battery and power the system, preventing decay of the $\text{COP} \gg 1.0$ system back to $\text{COP} < 1.0$.

We shall not discuss the complexity of the additional chemical reactions ongoing in the battery electrolyte and on the plates. The two main mass-containing currents and the negative energy Dirac hole current will suffice to explain the Bedini negative resistor formation and usage, at least to first order and sufficient to stabilize systems.

5.8.5.3 *Changing Symmetrical to Asymmetrical Regauging*

To first order, we reiterate that the electrons flow from one plate of the battery through the external circuit to the other plate, but the lead ions do not. There is thus a sharp "two separate currents" interface at the plates and thus a sharp separation between the electron current and the ion current. In short, there are actually two half-circuits in the battery-powered system if one chooses to use them semi-independently.

The current carriers in the two half-circuits are quite different. Therein lies the opportunity to separate and antiphase the two currents, using one to recharge the battery while the other is used to power the loads. It also allows a good opportunity to asymmetrically regauge both half circuits, greatly and freely increasing the Poynting energy component intercepted, collected, and used by each half-circuit's carriers. This is the basis for a profound "opening" of the system and influx of excess vacuum energy.

The two half circuits meeting at a common interface allow a stress potential upon that interface to *individually* use the two halves of what is normally Lorentz's symmetrical regauging. That usually *symmetrical* regauging (if the complete circuit were unitary) is now comprised of two separated *asymmetrical* regaugings, one for each of the two circuit halves, because the net stress potential (net Lorentz symmetrical regauging) — consisting of two opposing fields and forces — is split into two now-individually-separated and separately utilized force fields.

We accent this process by an analogy. Suppose we suddenly place a scalar potential ϕ upon a point in the middle of a transmission line. Immediately the potential ϕ races off (spreads) in both directions simultaneously, at

nearly light speed. Further, in each direction there is a moving gradient of ϕ , hence an E-field by $\mathbf{E} = -\nabla\phi$. These E-fields or "emfs" are oriented in opposite directions, so there is a movement of charge from the middle of the line toward each of the ends. The same "dephasing" current effect can be applied to any conductive medium or to the interface between two conductive circuits.

In Bedini's negative resistor case, the placement of the potential ϕ — for its movement in both directions — is on the interface (the face of the lead plates) between the two half circuits and therefore between the two different current carrier types. An initial "Lenz's law" reacting with the suddenly placed E-field onto the plate surface, creates an E-field in opposition, forming a stress potential ϕ which is much higher than the normal potential of the battery (in a nominal case, 100 volts instead of the 12 volts of the battery).

Immediately this potential "takes off in both directions", with a powerful E-field and emf back into the outside circuit and its load, while a powerful E-field and emf also proceed into the battery electrolyte in the opposite direction. So the ions in the battery have a sudden, much higher energy interception and collection forced upon them, with the excess emf now being in *battery-charging mode*. The electrons in the outside circuit simultaneously have an excess emf and potentialization in the *load-powering mode*. Let us see how the two very different current carriers react to these "dual emfs" in the overall circuit.

5.8.5.4 *Mass-to-Charge Ratios of the Two Current-Carrier Types*

We stress the dramatic difference in the *mass-to-charge (m/q) ratio* of the two currents. The lead ions' m/q ratio is some few hundred thousand times the m/q ratio of electrons, as we recall. For our purposes, all we need to know is that the m/q ratio for the lead ions is *very much larger* than the m/q ratio for the electrons. For a given force, the ions in the internal half circuit in the electrolyte will therefore respond very much slower than will the electrons in the external circuit half.

5.8.5.5 *Hysteresis Between the Responses of the Two Half-Circuits*

Because of this great disparity in the m/q ratios of the two mass currents, there is obviously a relatively significant hysteresis (time delay) between the *response* of the more massive ion current and the *response* of the far **less** massive electron currents that interact at the plates to try to change the ion current and its momentum. This time-delay between ion response in the electrolyte (the effect) and electron pileup urging (the cause) can be adroitly manipulated. Specifically, it can be used to alter the local vacuum

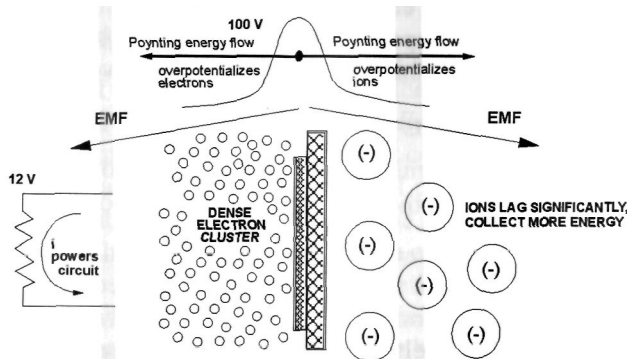
potential and cause it to add excess energy to the ions in charging mode **and** simultaneously to add excess EMF to the electrons in circuit-powering mode. In short, the response delay can be manipulated to "asymmetrically regauge" the mass currents in the system, freely changing their potential energy, and dramatically increasing how much potential energy is available for battery recharging and how much is available for powering the external circuit (loads and losses). Further, during the antiphase condition of the two current halves, the battery can be charged simultaneously while the external circuit half and load is being powered. Excess energy is fed into both actions by the *overpotential* (the stress potential) created at the surface of the plates.

5.8.5.6 Evoking the Initial Bedini Negative Resistor Effect

Figure 5-9 shows the first phase of Bedini's negative resistor process. Consider the battery in normal load-powering operation. From the external circuit, a very sharp leading edge rise of a pulse of electrons and potential is sent to the battery plates in "back-popping" or "battery charging" mode. The back-popping electrons drive in nearly instantly, piling up on the negative plate¹⁴⁸ and trying to force the heavy ions to start moving in the battery recharging direction. The pile-up that results in the stopped electrons on the battery plate surface represents an increase in local current density, hence an increased potential. This produces the 100 volts potential, during the time that the ions have not yet responded to any appreciable degree.

Due to much larger m/q ratio of the sluggish ions for a moment they lag due to their greater inertia, and this allows the much more agile electrons to "pile-up", producing a substantial overpotential as the local current density increases. The lagging ions are being steadily overpotentialized during this "lag time", up to about 100 volts in a normal 12-volt battery. At the same time, electrons are being forced back out of that higher 100-volt area and into the external circuit and its load, which had been at 12 volts. Recall now that these electrons can move longitudinally only at the drift velocity. Hence all electrons in the external circuit are now highly overpotentialized, and in *load-powering mode*. The overpotentialized electrons are thus producing excess power in the external circuit, much more than normal.

¹⁴⁸ We are not using conventional "positive current and positive plate" as the high side of the potential. We are using "electron current and the negative plate" as the driving potential plate.



- 1 Sharp leading edge voltage pulse produces intense electron clustering and large potential (negative resistor) at interface. Sluggish ions only beginning to move
- 2 Bidirectional Poynting energy flow from potential overpotentializes both the electron cluster and the ions, which are only beginning to move in charge mode
- 4 Large back emf into circuit returns overpotentialized electron current, powering circuit with excess energy pouring from negative resistor potential. Continues during ion delay
- 5 Simultaneously overpotentialized ion current is overcharging battery

Figure 5-9 Phase I of the Bedim negative resistor process in a storage battery.

Then the overpotentialized ions very slowly (compared to the electrons!) slow, stop, and begin to move in the opposite direction. They reluctantly respond and move in *battery recharging mode*. During that ion-response lag time, and the slower initial portion of the response, the electrons in the pulse continue to furiously surge in and pile-up on the negative plate, overpotentializing both the ions and the external circuit's electrons, while also some of them are being impelled back out into the external circuit to power it with extra overpotentialized energy dissipation. The charge density at that plate sharply increases due to the pile-up where the charges are "squeezing" together (clustering). There is a much higher potential suddenly rising in the squeezed charge cluster, because of the increased charge density there. As we stated, this potential nominally may be about 100 volts during this initial phase.

We call attention to the simple equation $W = VQ$, where W is the potential energy added to charges Q exposed to voltage V .

Simplified, the excess energy W_{IONS} freely impressed upon the ions is

$$W_{IONS} = f(100 - 12)(Q_{IONS}) \quad [4-3]$$

where Q is the total coulombs of charge of overpotentialized ions and $f(100 - 12)$ is the magnitude of the overpotentialization of the ions.

At the same time, an excess energy is impressed upon the electrons in the external circuit by the same potential extending along the conductors into the external circuit. Again, this excess energy W_E is given by

$$W_E = f(100 - 12)(Q_E) \quad [4-4]$$

where Q_E is the total coulombs of charge of the overpotentialized electrons and $f(100 - 12)$ is the magnitude of the overpotentialization of the electrons.

But the emf on the electrons from the pile-up is directed in load-powering direction, as can be seen. Consequently the ion current and the electron current have been deliberately dephased by 180° , and so the overpotential energy of the ions is delivered in battery-recharging mode, while the overpotential energy of the electrons is delivered in circuit load powering mode.

Recapitulating: Pulsed pile-up of excess electrons on the negative plate interface between the two currents, while the ions are beginning to respond or only sluggishly responding, produces a much higher potential (an *overpotential*) on the sluggish ions — nominally some 100 volts in a 12-volt battery. On the negative plate, momentarily there is now a much higher voltage (with respect to the positive plate) than normally exists in the 12-volt battery. This voltage *overpotentializes* both the reluctant charging ions in the battery solution between the plates, and the powering electrons back into the circuit in powering mode due to the reversal of the emf. Since there is, say, 100 volts across the battery momentarily, there is also 100 volts now across the external circuit momentarily. Accordingly, overpotential excess powering of the external circuit load is suddenly evoked, while at the same time overpotential recharging of the battery is also evoked.¹⁴⁹

In short, the ion current in the battery and the electron current into the external circuit have been placed 180° out of phase, achieving one major requirement for a $COP > 1.0$ electrical system: *violating the integrity of the closed current loop circuit*. The battery is recharging at the same time that

¹⁴⁹ Another of Bedini's innovations is to shunt the excess voltage (say, above 14 volts) into an external capacitor on the circuit side. In that way with his overpotential he can be (i) overcharging the battery, (ii) powering the load, and (iii) storing excess energy in that capacitor, from the altered vacuum — all simultaneously.

the external circuit is being powered, *from the same free overpotential*, and both recharging and circuit powering are driven by increased emf.

We strongly accent that the overpotential at the plates represents a change in the local vacuum potential, and it *identically* is part of that now-altered local vacuum potential. The vacuum, since it contains enormous EM energy in virtual state, is a very powerful EM potential. Any EM potential in our circuits is automatically a change to the ambient vacuum potential, or a change to another potential that is such a change to the vacuum potential. In the most exact sense, this is a method of overpotentializing the plate interface with excess energy from the vacuum, and then letting that energy flow onto the ions to recharge the battery and onto the electrons in the external circuit to power it and its load.

The Bedini overpotential at the battery plates decomposes via Whittaker 1903 {85} as reinterpreted and previously explained, so that excess energy is entering 3-space there, *from the time domain*. Further, the piled-up electrons on the plates and the ions (as charges) in the solution receive such potential energy from the increased potential on them via the same decomposition process. So the creation of the Bedini overpotential on the battery plates, together with dephasing the two currents, is the creation of a true negative resistor at the plates, freely receiving energy from the external vacuum (from the time domain and virtual state) and transducing it into real potential energy and emf on the internal ions and on the external circuit electrons.

Hence Bedini has invented a process for creating a true negative resistor inside a storage battery, and for suddenly thrusting the system out of equilibrium with both the active local vacuum and the active local curvatures of spacetime. As such, the thermodynamics of open systems far from thermodynamic equilibrium applies, and that system is permitted to exhibit $COP > 1.0$, while complying with energy conservation and the laws of physics and thermodynamics. With adroit use and collection of the excess energy, the externally collected energy can be used to close-loop the system and power all its functions. So the system is permitted to power itself and its loads, with all the energy being received from the vacuum via the broken symmetry created. Any overpotential is a dipolarity *a priori*, since any potential is. Hence creating an overpotential is precisely producing an extra broken symmetry of that dipolarity right there at the interface between the two half-circuits and the two dephased, localized currents.

During the "back-popping" pulse signals, one should not think of the energy pulses that Bedini inputs to the battery as the "powering" energy. Instead, one must think of each pulse as "triggering" and "timing" energy which initiates certain other key *negentropic* interactions to freely occur, once the electron pile-up occurs. The resulting negentropic interactions then add substantial additional energy (from the local active vacuum) to the ions in the ion current and to the electrons in the electron current. The freely added energy can be appreciably more than the switching or triggering energy that is dissipated as the "input by the operator".

In short, Bedini deliberately "switches" and "triggers" certain kinds of vacuum exchange interactions, effectively creating a *true negative resistor* in the battery itself.¹⁵⁰ Due to the broken symmetry of the increased dipolarity (*overpotential*) that Bedini makes in "electron pile-ups" urging reluctant and delayed ion response, the vacuum furnishes extra virtual particle flux to this pile-up of electrons on the plate, which produces an enhanced Poynting energy flow that interacts with the ions in the battery electrolyte. Being charges, these ions thus transduce some of the excess absorbed virtual photon energy into real observable energy, thus increasing their potentialization and energy.

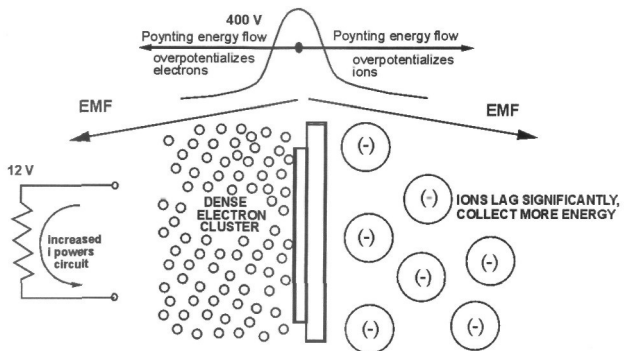
Bedini's method does the following: (i) It forms a true negative resistor in an unexpected way, upon the plates between a pile-up of electrons and the ions in solution in a common lead acid battery, (ii) it uses that negative resistor to extract excess energy from the vacuum and furnish it both to the ions forced into charging mode and simultaneously to the electrons in load powering mode, and (iii) it adds several other stimuli (such as Lenz law effects) which further amplify the negative resistor and enhance the effect, increasing the excess energy extracted from the vacuum and collected in the battery-charging process and also in the circuit-powering process simultaneously.

Specifically, the delay in ion response is adroitly allowed for and manipulated by Bedini to place the battery in ion current recharging mode while the signal pulse electrons between the plates and the external circuit are simultaneously placed in external circuit powering mode. By manipulating the hysteresis and adroitly timing the electron pulses and pulse widths, *Bedini breaks the usual forced Lorentz symmetry of the excitation discharge in a usually closed current loop containing both the*

¹⁵⁰ Again we stress that any dipolarity or potential is a negative resistor, producing giant negentropy {12}.

battery's source dipole and the external load. This is possible since his method deliberately opens the system so that vacuum energy enters freely, increasing the potentialization (energy collection) of the ions in the battery solution and upon the electrons between the plates and the external circuit as well.

We stress that Bedini has chosen to *avoid the* usual dissipation of half the energy collected in the external circuit to do nothing but kill the source dipolarity between the battery plates. He works on "that half of the circuit" that is usually just called the "back emf region" and ignored, and he separates and dephases that half of the circuit from the other half. By interrupting that normal "back emf battery-discharging section dynamics and converting it to "forward emf battery recharging section dynamics, while simultaneously powering the external load, Bedini temporarily produces and utilizes a negative resistor right there on the surface of the battery plates themselves.



- 1 Sharp trailing edge of voltage pulse produces intense Lenz law effect. Sharply increases electron clustering and potential (negative resistor) at interface. Sluggish ions delay speedup further increasing the Lenz law effect
- 2 Increased bidirectional Poynting energy flow from potential overpotentializes even further both the electron cluster and the ions, which are only beginning to accelerate in charge mode
- 4 Large new increased back emf into circuit returns overpotentialized electron current, powering circuit with new excess energy pouring from negative resistor potential. Continues during ion delay
- 5 Simultaneously, re-overpotentialized ion current is overcharging battery even faster

Figure 5-10 Phase II of the Bedini negative resistor process in a storage battery

5.8.5.7 Further Increase of the Negative Resistor Effect by Lenz's Law

See Figure 5-10. To further increase the Phase I effect just before it would end, and requiring precise timing of his switching of the pulse leading edge and trailing edge, Bedini then invokes a second phase by carefully controlling the timing for the sharp *cutoff* of the "stimulus pulse" creating the negative resistor. This is usually invoked just as Phase I is preparing to end, but experimentation and adjustment for optimization to the individual circuit conditions may be required.

Invoking the Lenz law reaction by minimizing the stimulus pulse cutoff time, Bedini sharply increases the already-increased negative resistor overpotential by a Lenz's law induced voltage surge, and sharply raises it to as much as 400 volts nominally. The process also sustains the negative resistor overpotential for a longer period, while increasing it again during this second phase. Thus even more free energy from the altered local vacuum potential is delivered to the ions in charging mode inside the battery, while simultaneously even more energy is delivered to the external circuit electrons in powering mode. The overpotential period is also extended. In this second phase, the extra energy W_{IONS} added to the ions in recharging mode is given by

$$W_{IONS} = f(400 - 12)(Q_{IONS}) \quad [4-5]$$

and the extra energy W_E added to the electrons in system powering mode is given by

$$W_E = f(400-12)(Q_E) \quad [4-6]$$

The total energy added to the system in Phase I by the negative resistor is

$$W_T = W_{IONS} + W_E = f(100-12)(Q_E + Q_{IONS}) \quad [4-7]$$

The total energy added to the system in Phase II by the negative resistor is

$$W_T = W_{IONS} + W_E = f(400-12)(Q_E + Q_{IONS}) \quad [4-8]$$

And so the total energy added to the system by the Bedini process is just the summation of equations [4-7] and [4-8]. With adroit switching, Bedini need only "pay" a small fraction of that freely received excess energy, in his own operator's input pulse energy and switching costs.

So by invoking a novel negative resistance effect directly upon the driving plate of the battery, Bedini creates (in the first phase) and then further enhances (in the second phase) a "nearly free" overpotential and overpotential period inside the battery. This excess potential directly upon the electron-pileup plate acts in both directions — out into the electrolyte between the plates to overpotentialize the ions in charging mode, and back out into the external circuit in powering mode to overpotentialize the electrons now powering the load. During a fraction of the operating cycle, Bedini recharges the battery while powering the circuit simultaneously, and thus has invented a novel method for extracting energy from the vacuum and curved spacetime to enable a $COP > 1.0$ power system.

This is just a description of one fundamental period where Bedini applies his negative resistance process.

Several other places in the operation of the circuit lend themselves to additional phases of negative resistor formation and usage, and Bedini does use them. We do not discuss them here, since our purpose is only to advance the *fundamental principle involved*.

5.8.6 Independent Replication of the Bedini Negative Resistor Effect

Independent replication of the Bedini effect was accomplished early on by Nelson and by Cole, and also by Watson. Nelson has chosen not to further publicize his own work for some years, perhaps due to his employment as a microwave switching engineer in a large (and conservative) aerospace company. Cole is deceased, and Watson abruptly withdrew — forcibly, in our opinion — from public research and all further contact with his close colleagues after successfully demonstrating (in 1984) an 8-kilowatt power system utilizing a modification of the Bedini process. We are almost certain that Watson received the "offer he could not refuse", and that Watson-type $COP > 1.0$ power systems are in fact already powering exotic underground facilities that "officially do not exist" but which we are aware of. We briefly discuss Watson's 8 kW generator at the end of this Chapter.

For non-battery powered systems, as we explain in Chapter 9, any unitary $COP \gg 1.0$ EM system may experience a Dirac sea hole current decay mechanism which will produce an effective extra "load" in the system's input section, including on out into the external power system. As a general rule (sometimes violated), we estimate that the effect begins to be of importance at $COP > 10^3$ or so. Certainly it is of great importance in the range of $COP > 10^5$. To operate stably at $COP \gg 1.0$, this decay mechanism must be dealt with and prevented. For close-looping into self-powering mode, this negative energy feedback must be converted to positive energy feedback, thus allowing self-powering mode where all the input energy is freely received from the vacuum.

For battery powered systems, the hole current and "extra load in the input section" becomes of significance near $COP = 2.0$ or even less, because of interaction with the complex battery chemistry and the tendency to charge **the** battery with negative energy as well. So battery powered systems present a special problem for close-looping to achieve sustained self-operation. Bedini has long solved and demonstrated solutions to that problem in a variety of successful experimental systems.

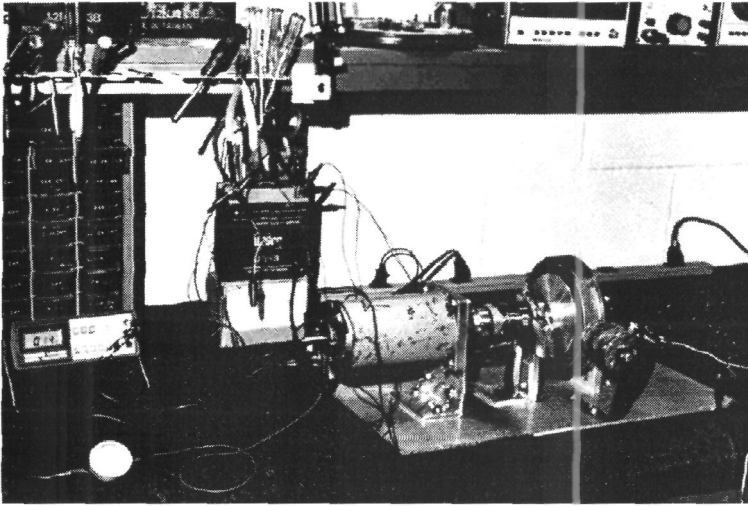


Figure 5-11 **Bedini motor** similar to the type which ran continuously off a battery for three years, simultaneously recharging the battery.

To utilize Bedini's battery-powered system at $COP > 2.0$, or to close-loop it for sustained operation, one must add another Bedini process that transforms negative energy current into positive energy current. That is Bedini's *transducing* negative resistor process {336}. We describe that process briefly in the next paragraph below.

Bedini has built many different motor-generator versions of systems self-powered by use of his negative resistor processes. Figure 5-11 shows a Bedini motor similar to one that once ran off a single battery for more than three years without stopping, using the forerunner of the Bedini back-popping process for creating a negative resistance in the battery. Bedini is still building and testing such power systems; one of his prototype motor-generators today, capable of operating and self-powering off a single battery, is shown in Figure 5-12.

5.8.7 Bedini's Transducing Negative Resistor.

Figure 5-13 gives a simplified block diagram of Bedini's transducing negative resistor process, which asymmetrically regauges negative EM energy into positive EM energy. With this process Bedini is able to intercept the Dirac sea hole current running from the output section of a $COP > 1.0$ EM system to its input section, and divert the negative energy Dirac hole current to "reverse charge" a capacitor. The "reverse charge" consists of providing a hole current to the anti-negative plate of the

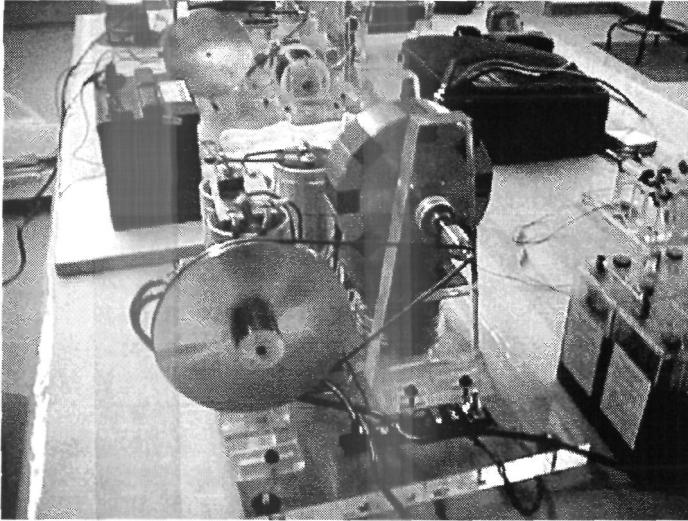


Figure 5-12 Modern Bedini motor prototype which operates off a single battery, powering the load and recharging the battery also.

capacitor, so that holes acting as positrons pile up in the local vacuum of **that** plate. This attracts the trapped electron charges in the dielectric, straining the dielectric in the direction of the hole collection. At the same time, the other plate draws electrons from the system that would otherwise be in currents that fight the back emf of the primary source dipole for the system. That reduces the back emf of the system during the charging of the capacitor; in effect, the back emf has participated in charging the capacitor with excess electrons on the negative plate.

Then Bedini reconnects the charged capacitor to the conductors leading to **the** power supply, discharging the capacitor by electrons furnished to the negative driving plate of the battery powering the system, and simultaneously to the input section of the system itself in normal powering mode. Note that the holes simultaneously discharge from the capacitor's anti-negative plate to the ground side of the battery, further charging the **battery** (the power source!) and the load as well.

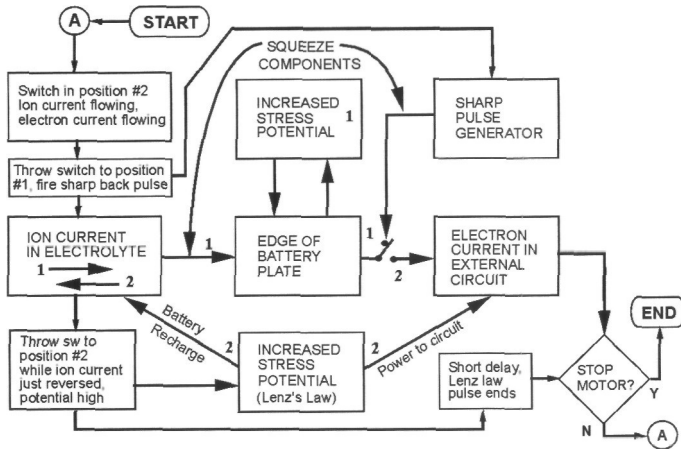


Figure 5-13 Bedini transducing negative resistor process block diagram. Adjusting timing of rear edge of pulse adds additional Lenz law increase.

Though it does not appear in the conventional textbooks,¹⁵¹ one can power a load directly by Dirac hole current, but one does so by using the hole current in exactly reverse fashion from how one would use electron current to power the load. Semiconductor components are also critical and usually should be avoided. In short, one simply reverses the terminal that is considered the "driving terminal", and feeds the hole current to that "anti-negative" terminal as now the temporary driving terminal.

The Bedini process thus allows the Dirac hole current (negative energy) produced by a $COP > 1.0$ EM system to be fed back to the input section and transduced into positive energy input to power the system with electron current and also to recharge the battery with positive energy.

¹⁵¹ Lattice hole currents of course do appear and are considered. However, even though the circuit designers consider a lattice hole as a positron, it is not such at all, because the m/q ratio of the ion with one + charge is quite different from the m/q ratio of a true positron. The Dirac hole in the vacuum is effectively the "4-positron" — still in negative energy Dirac 4-electron state — before its observation or interaction with mass. It is a true negative energy entity, and thus a negative mass entity. Prior to observation, it actually should be said to be a "negative energy x time" entity and a negative "masstime" entity. It is also a negative energy electron entity. This subtlety is essential if one wishes to produce successful antigravity experiments on the bench, as we point to in this book and as were exhibited by the Sweet vacuum triode amplifier at $COP > 1.5 \times 10^6$.

This converts what would otherwise be negative energy feedback to the input section of the system (and to the battery) to positive energy feedback **to** its input section and to the battery. Instead of seeing the negative energy current in the input as an additional "load" to be powered, the external power supply sees it as excess positive energy input by the environment to the system, reducing the "load" represented by the system. It thus reduces the power required by the system from the external power supply.

When the amount of "transduced" positive feedback electron current to the input section equals the "normal electron current draw" required by the system, the battery (or generator) can be disconnected and the unit will continue to operate in the self-powering mode, fed completely by the positive energy from the Bedini transduction process. The other *supersystem components* (comprising the external environment of the system) will continue to power the system and its loads and losses, with all the input energy to the system being taken from the combined active local vacuum and local curvature of spacetime.

5.8.8 Gray's "Splitting the Positive Pole" Engine.

One of the real pioneers in early application of causal positron energy was inventor Edwin V. Gray of Van Nuys California. In WW II Gray learned radar during his tour in the U.S. Navy, having previously attended advanced engineering school in the Army until discovered to be under age 15 and discharged. After the war, by 1958 he had learned to perform what he called "splitting the positive pole", using "cold electrical energy" (his name for negative EM energy) as well as the normal positive electrical energy. His first motor was operating by 1961. Preparing to put units into production, in 1974 the Los Angeles District Attorney confiscated all Gray's records and prototypes. To escape bogus charges, Gray later pleaded guilty to two minor infractions and was released. His prototypes were never returned. After several mishaps, moves, and more prototypes, Gray died in Nevada under mysterious circumstances in April 1989. We quote directly from Lindemann {341}:

"In the early 1980's, Gray offered the U.S. Government his technology to augment Reagan's SDI program. He actually wrote letters to every member of Congress, both Senators and Representatives, as well as the President, Vice-President, and every member of the Cabinet. Remarkably, ... Gray did not receive a single reply or even an acknowledgement!"

In fact, during his early experiments, Gray discovered he could power light bulbs with cold energy, etc. Later he was to demonstrate this fact in a sensational manner: With a light bulb lit from his generator, he simply immersed the lamp — electrical leads and all — in water, where it remained lit. With his hands in the water, he would have been electrocuted or severely shocked if the electrical energy involved had *been positive* (diverging) energy. Instead, it was *negative* (converging) energy.¹⁵² Another demonstration was to hit the coil of an electromagnet with some 3,000 volts, which hurled the electromagnetic into the air — but did not heat it. The electromagnet's coil would have been instantly melted if the energy had been positive, and the magnet would have been heated.

The reader should recall the timing of Dirac's theory of the electron {498a-b, 249}, which included the negative energy electron as early as 1930. Dirac also pointed out that we would observe this negative energy electron as a positive energy electron of opposite (positive) charge and positive mass, going in the opposite direction. The *observed* 3-positron and the *unobserved* negative energy 4-electron are quite different entities, producing quite different EM fields. The positron produces positive energy EM fields and positive gravity while the negative energy 4-electron produces negative energy EM fields and negative gravity.

In 1930, to his previous theory of the electron Dirac introduced the vacuum energy: the electron sea filled with electrons occupying negative

¹⁵² By convention, "positive" energy has been associated with diverging EM energy, which is heating. Negative EM energy is associated with converging EM energy, which is cooling. In scalar interferometry {79}, one can control whether the distant EM field energy emerging in space in the distant interference zone shall be diverging (positive) EM field energy or converging (negative, cooling) EM field energy. This is determined simply by the biasing of the electrical grounds of the interferometer transmitters. The weather control referred to in 1997 by Secretary of Defense Cohen {89} is accomplished by using multiple scalar interferometers, some to gently heat the atmosphere in certain selected local areas (forming low pressure areas by expansion of the air) while cooling it in other selected local areas (forming high pressure areas by contraction of the air). By then moving these highs and lows around adroitly, one can capture and steer the giant jet streams, thereby steering the weather as one wishes, and directing significant weather changes into an area. By placing fairly sharp turns on the jet streams, one can induce great spin energy, thereby spawning tornadoes. Interestingly, by sharply pulsing the interferometer and controlling its electrical ground bias, distant cold explosions or hot explosions can be produced at will. Such weapons have been tested worldwide, and many test incidents are given in our older books *Fer-de-Lance* and *Gravitobiology*. Information on such incidents is available on website <http://www.cheniere.org>.

energy states. The holes are treated as the positive electrons (as if observed). This vacuum energy medium is now referred to as the "Dirac Sea." First, Dirac attempted to identify these holes with protons, but that was falsified. Later the positron was experimentally discovered.

One of the problems with present conventional application of Dirac's theory is that the positron is not used in its *unobservable causal negative energy 4-electron state* by modern theorists and experimentalists, but *after observation* where its direction has been reversed, its charge has been reversed, time has been stripped away, and the mass has become positive. So it is actually used as a positive energy entity having positive mass, and producing positive energy EM fields and positive gravity. This defeats the entire magic of the causal (unobserved) 4-positron as the electron carrier of negative mass and negative energy (*convergent* electromagnetic energy) in currents in the vacuum (spacetime) itself, rather than the electron carrier of positive mass and positive energy in ordinary 3-space. By replacing the unobserved (causal) vacuum 4-positron (negative energy electron) with the observed (effect) 3-positron with positive mass and positive energy, the entire vast area of negative energy EM fields — and thus direct antigravity via electromagnetic means — is discarded.¹⁵³ But the physicists avoided having to grapple with practical negative mass and practical negative energy (cool mass and cool energy). It also set back the pace of physics in discovering and engineering antigravity transportation for nearly three quarters of a century.

It appears that Gray's thinking about cold energy was more prosaic than the somewhat esoteric considerations of the Dirac Sea theory. Conventional electrical engineering circuit theory considers positive charges moving around a circuit (although some electronics technical circuits required thinking in terms of electron current). Hence the "high" side of the standard circuit was the positive polarity, or the positive pole of the terminals of a generator or battery. From this "positive pole", positive current was sent around the external circuit to the ground return line by the forward emf (forward voltage). However, forcibly returning to the positive pole from the ground return line (i.e., from the negative pole) were those

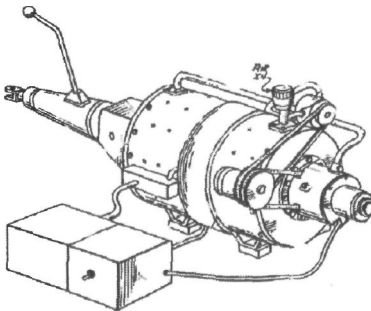
¹⁵³ When the huge nondiverged Heaviside energy flow component is appreciably of "convergent" or of negative EM energy rather than positive EM energy, the antigravitational aspects are substantive and observable (and practical). The unaccounted Heaviside negative energy flow component is often a trillion or more times as great as the accounted Poynting negative energy flow component. Hence **antigravity** technology is possible and practical, as we present in a later chapter.

same positive charges, being forced back up by the back emf and requiring expenditure of half the external circuit's collected Poynting energy.

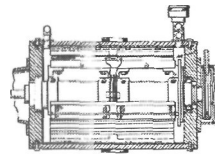
So to Gray, the positive pole had two currents, one useful and one usually detrimental. The positive pole had (i) outgoing positive emf current powering the external circuit's loads and losses, doing the beneficial work (dissipating energy) in the external circuit with its load, and (ii) incoming positive current being forced back up against the back emf, doing the harmful work against the back emf and using up half the energy previously collected out there in the external circuit. Gray was aware that the work against the back emf was equal to the work done by the forward emf. So he set out to split these two currents apart, and catch the incoming current against the back emf separately, then use that normally wasted or oppositional energy to further power loads and/or recharge the batteries powering the system. Something like this was the way he was thinking.

That is what Gray called "splitting the positive pole". He also reasoned (and found) that the "reverse current" must be cooling instead of heating, since it moves against the voltage and acts backwards from regular current dissipated in resistors, etc. This precisely matches the cold (negative) energy phenomena met in the Sweet vacuum triode amplifier and in the motionless electromagnetic generator, as well as other $COP > 1.0$ electrical systems.

Gray's later demonstrations showed that he had recognized this process or something very similar to it, in his "splitting the positive pole".



5-14 a The Gray engine



5-14 b Cross section view

US Patent No 3,890,548
issued 17 June 1975

Figure 5-14 Gray's "splitting the positive" $COP > 1.0$ engine.

To take advantage of his concept and principles, Gray developed a special engine shown in Figure 5-14. In 1975 Gray received a patent on this engine {337} along with his special means of battery powering and special switching circuits.

Gray's engine uses pulsed capacitive discharge to power a magnetic motor, with recharging of the powering capacitors taking place *between* successive discharge positions of rotor and stator. The motor runs by initiating repulsion rather than attraction, which — apparently without Gray recognizing it in such terms — invokes the notion of the "superpole" pioneered by Bedini. The superpole is an important concept in COP>1.0 research, though most researchers in the field have never heard of it. John Bedini conceived it several decades ago and demonstrated the surprising difference between a superpole and a common pole of double strength.

When two equal and like magnetic poles are facing each other in repulsion with a small gap between them, a net stress magnetic potential (pole) is formed in that gap which has an energy density some four times as strong as the normal field energy density in the field from one of the two opposing like poles. Hence the local energy density of the vacuum in the gap has been substantially increased above the energy density in the field region between a north and a south pole facing each other. Further, this energy density is in a "field-free" Lorentz-regauged form, i.e., a stress potential form. From that superpotential *outward*, there exists a normal magnetic field. But in it, there is no net magnetic field, but there is a "stress" field nonetheless.

Compared to an ordinary magnetic motor using attraction as well as some repulsion, the exclusive use by Gray of the Bedini "superpole" principle caused an extra *symmetrical* regauging¹⁵⁴ of the local vacuum energy input to the system (to the gap between the poles) as the magnetic superpole

¹⁵⁴ Every conventional electrodynamics text already assumes and uses the Lorentz-Lorentz symmetrical regauging as being absolutely free. Symmetrical regauging assumes that the energy of the system has been freely changed twice, but in such a way that the two free fields formed are equal and opposite, forming a stress potential. Gray found how to split apart and separately use these two "free-flowing exchanges of energy between system and active vacuum" that comprise the overall stress potential of the system, and thereby violated the Lorentz-Lorentz symmetry condition, freeing the two equal and opposite EM fields and their free energy to be used individually and beneficially to (i) provide extra power to the load and (ii) recharge the powering batteries so they did not run down. Using a different method. **Bedini** has done likewise.

(stress magnetic scalar potential). However, this stress potential is comprised of bidirectional longitudinal wavepairs, as shown by Whittaker in 1903. This superpole or stress potential thus can and does "split" into two different fields in antiparallel directions from each other. Since the north pole is deemed "positive" in magnetics, then using the two anti-fields comprising the free positive superpole is indeed "splitting the positive pole". Gray coined a very apt phrase for what he was doing.

Each of those antiparallel fields also involves an associated and unaccounted phase conjugate field {338a-c}, hence it is a time-reversed field (after observation). So opposing time-polarized EM waves also accompany Whittaker's decomposition waves. In short, the scalar potential accomplishes *optical-type pumping* in the time domain, and can be used to demonstrate time-reversal (as in Becker's bone-healing method).

Before observation (interaction with charged mass) and while still in the causal state, *the EM field from the positive pole is actually an EM field from a negative energy 4-electron, and the field can be taken to be a negative energy field!* In our view, positive energy enters every point dipole in the polarized vacuum at the negative charge, thence to the positive charge, thence back to the time domain. From the positive charge, the positive energy is leaving 3-space back to the time domain. Hence positive EM energy diverges from the negative charge and converges on the positive charge, then "disappears", so to speak, back to the time domain from whence it came. The "disappearance" of positive (divergent) energy is the disappearance of heat energy; hence it is a cooling process rather than a heating process. Or said another way, *negative* EM energy enters 3-space at each point dipole, entering from the time domain to the positive charge. Thence it moves to the negative charge, and back to the time domain. We see or detect the positive energy flow in 3-space directly, while the negative energy flow in the Dirac vacuum is evidenced by the "backwards" interaction creating Newton's third law reaction force.

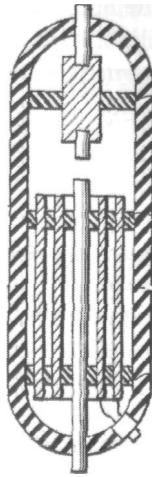
By splitting the positive superpole, one has effectively destroyed the Lorentz symmetry condition. Hence the excess energy in the superpole will be capable of performing real work in the system in two directions. One direction is from the system to the external environment so that it produces the dissipation of energy (therefore work) in the loads and losses. The other direction produces a "negative resistor" or negentropic action that adds that much excess usable energy to the system back into its input section. By adroitly intercepting and switching that energy into capacitors and/or batteries, Gray was able to charge capacitors, recharge batteries,

and even power loads with cool energy (as demonstrated later by immersing a lighted electrical line and a lit light bulb in water).

A positive-energy resistor becomes a negative resistor when fed with negative energy. Then it converges positive EM energy from the external environment and outputs it into the circuit in which the resistor is connected. Note that this is the same statement as the resistor receiving (extracting) negative energy from the circuit and emitting it back to the time-domain. *That's like extracting back emf from the circuit and tossing it off to the time domain.* A conductor to positive energy flow is an insulator or dielectric to negative energy flow. Hence the normally "conductive" water was a neat insulator for Gray's "dunking" demonstration of negative power, as were his own normally conductive hand and body. To negative energy, a coil seems to produce capacitance rather than inductance, while a capacitor seems to produce inductance rather than capacitance.

Thus when the "positive pole is **split**" in the system, the system has broken **its** Lorentz regauging and is an open system in disequilibrium with the external vacuum environment, freely receiving excess energy from it.¹⁵⁵ With adroit switching and energy capture, such a system is permitted to exhibit COP>1.0 because it has violated the free Lorentz regauging once the excess energy in the superpole region is discharged and used.

¹⁵⁵ When one analyzes the supersystem of any Lorentz-regauged EM system, one realizes that the extra stress potential energy — entering the system and "locked up" as a stress potential due to the Lorentz condition — is actually a special relativistic **rotation** of the frame of the power unit away from the laboratory frame. That is, the system when rotated away from the lab frame, takes on free symmetrical regauging energy in that rotated frame as an excess stress potential. Gray's "splitting the positive" process simply separated the two apposite fields comprising the stress potential, then produced excess free energy from that *broken* free regauging Lorentz condition. Literally Gray splits Lorentz's stress potential into halves, the halves being its two opposing EM fields and their energy. This is equivalent to the system being rotated back into the lab frame, releasing its excess energy it possessed in the rotated frame back into the lab frame. Richard "Scott" McKie has also filed a patent on an invention deliberately rotating a capacitor's frame and fully charging it — while it is in its rotated frame. The rotated capacitor can be charged with less energy furnished from the lab frame, than is obtained back out of the capacitor in the lab frame when the charged capacitor is suddenly rotated back and discharged. At least in **theory**, McKie's overunity process should be workable if the switching costs are negligible. Our contribution to McKie was to advance the theoretical mechanism for **the** experimental mechanism he had discovered and was using.



From US Patent No 4 661747
issued 28 April 1987

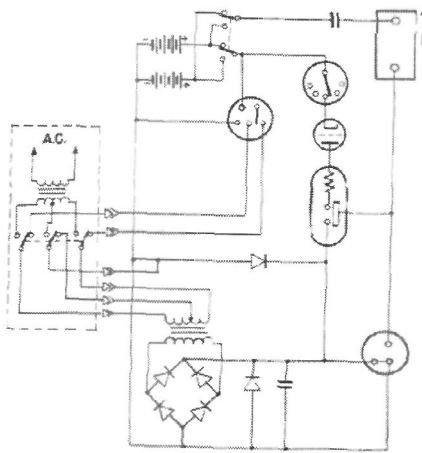
Also in U S Patent No 4595,975
issued June 17, 1986

Figure 5-1S Gray's conversion tube used with power systems,

Gray also utilized a special conversion discharge tube, shown in Figure 5-15. This tube uses the fact that a very sharp pulsed discharge in it results in a temporary $COP \gg 1.0$ condition. This $COP \gg 1.0$ condition instantly involves causal Dirac sea 4-positrons, moving as negative mass current and negative energy current in the local vacuum, which sweep back from the output side of the discharge to the input side.

We also point out the severe overpotential that must accompany any such violent pulse discharge process. The overpotential is a departure from equilibrium conditions, and is the difference between the actual potential and the equilibrium potential. The overpotential is well known and utilized extensively in electrochemistry {339a-c}, but is little used in conventional circuit theory. Nonetheless, it is involved in cold fusion processes due to the double layer phenomena {340a-b}, and it is involved in all electrode discharges (as from a cathode to an anode). It is also involved widely in electrochemistry and ion processes in solution.

Figure 5-16 shows Gray's circuit containing his conversion tube. Figure 5-17 shows Bedini's successful replication of the Gray conversion tube. Figures 5-18, 5-19, 5-20, and 5-21 show four pertinent pages from Bedini's laboratory notebook on his replication of the Gray conversion tube and the Gray motor system.



From U S Patent No 4 661 747
issued 28 April 1987

Also in US Patent No 4 595 975
issued June 17, 1986

Figure 5-16 Gray's circuit containing his conversion tube.

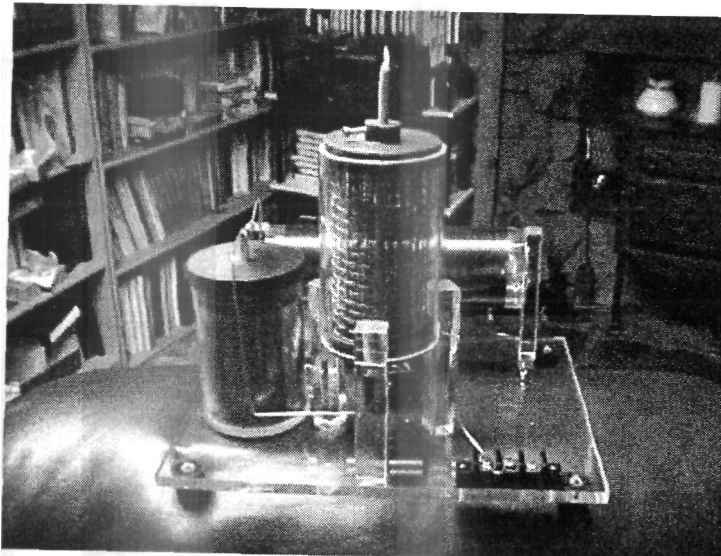


Figure 5-17 Bedini's successful replication of the Gray conversion tube.

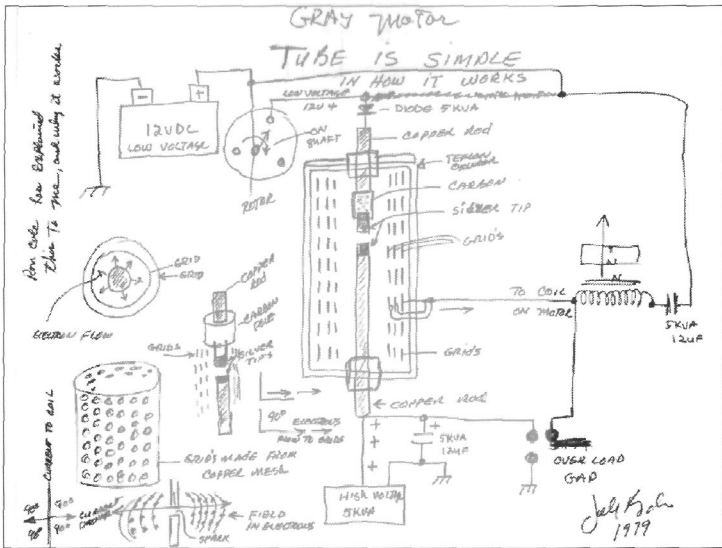


Figure 5-18 Page 1 from Bellini's lab notebook on the Gray conversion tube.

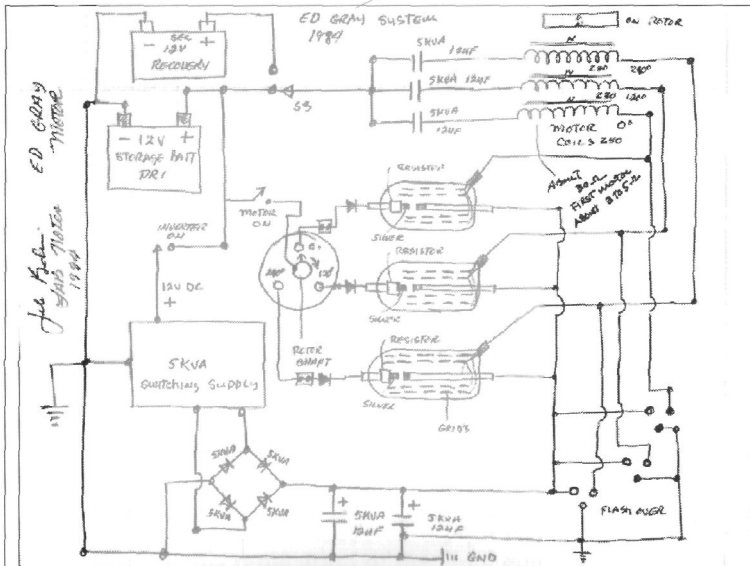


Figure 5-19 Page 2 from Bedini's lab notebook on the Gray conversion tube.

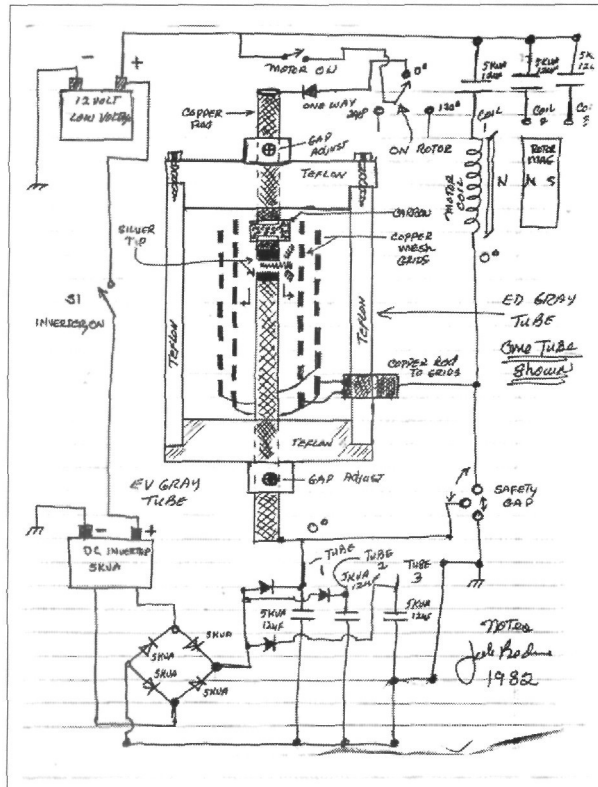


Figure 5-20 Page 3 from Bedini's lab notebook on the Gray conversion tube.

In science, when a novel experiment is replicated independently, that experiment then is established as a scientific fact. It then becomes the task of the theorists to either change the theory to accommodate the experimental results, or come up with a new theory to explain them. With Bedini's successful replication of Gray's work and extension of it, that work has now been scientifically established. With his "splitting the positive pole", Gray was referring to an actual, useful mechanism he evoked and used in the processes ongoing in his motor, in his conversion tube, and in his power system.

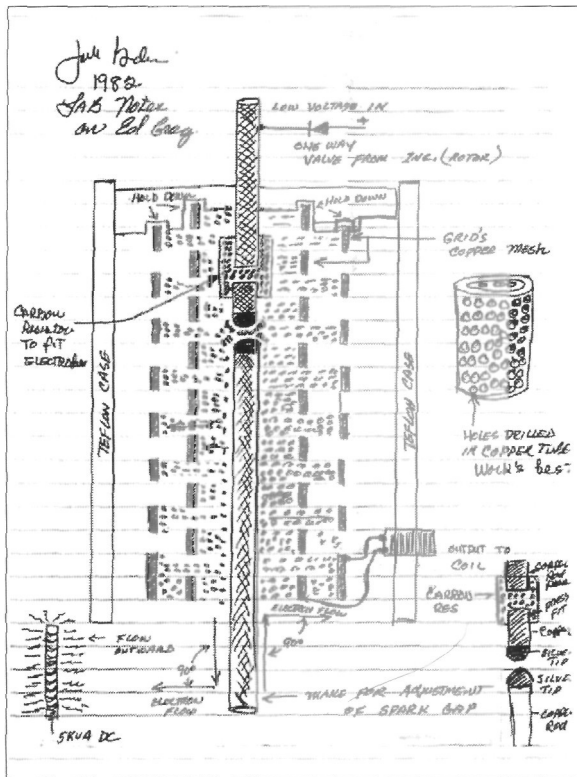


Figure 5-21 Page 4 from Bedini's lab notebook on the Gray conversion tube.

For further discussions about the Gray motor, conversion tube, and the history of it all, one is referred to the book by Lindemann {341}.

5.8.9 Watson's Self-Powering Generator

See Figure 5-22. In 1984, Jim Watson demonstrated a self-powering 8-kilowatt generator at the International Tesla Conference in Colorado Springs. This generator was a modified extension of smaller motors and generators built by Bedini over a period of years. At the conference, engineers from the audience were invited to the platform to perform their own independent measurements of the unit, while it was running and powering its load. The engineers directly confirmed that the system was delivering power to the load (as could be seen visually also), and that it was recharging its batteries as well.

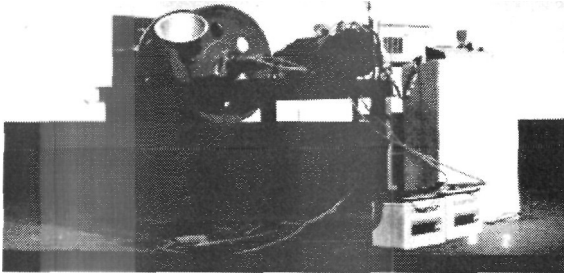


Figure 5-22 Watson's self-powered 8 kW generator demonstrated in 1984.

Interestingly, one of Watson's batteries was stolen that night. The reason was obvious. First, at the conference there was present one of the major persons charged with suppression of $COP > 1.0$ electrical power systems world wide, along with several of his henchmen. Since they have been involved in suppressing many dozens of similar $COP > 1.0$ systems, they are thoroughly familiar with both the theory of $COP > 1.0$ electrical power systems and the various types of devices and mechanisms that have been invented in that area over the past century.

One feature of Watson's unit was that it charged the batteries with negative energy (i.e., with Dirac sea hole current, or "cold energy" as sometimes referred to), and could use negative energy for powering the unit. Hence, his batteries became charged with negative energy as the machine ran and powered its loads. After much demonstration and running, such a negatively charged battery has its local curved vacuum charged with an appreciable number of unfilled Dirac holes. Such a negatively charged "battery supersystem" will then absorb positive energy charging (electron current charging) for a protracted period before it will start to change its voltage and accept the positive charge. Instead, during that protracted initial period the battery will just "eat electron currents and positive energy" from the battery charger, with no apparent effect and no change in its discharged state or its voltage.

A very simple way to absolutely ascertain whether or not a unit such as Watson's (without a Bedini negative energy converter) is genuine, is to **simply** take one of his batteries from a unit that has been running quite a bit, and recharge it on a conventional battery charger. If it exhibits that two-phased recharge phenomenon, it proves that the unit is real and is

indeed a true COP>1.0 device, or certainly has the potential to be one. Coupled with the demonstration and independent measurements, this removed all doubts about the validity of Watson's COP>1.0 system.

So it appears that certain parties who were concerned about that system decided to do the "simple test" to see if Watson's device was real. It was real, and so they discovered. At that point, the High Cabal — Winston Churchill's term — recognized they had another successful unit and inventor to suppress.

Bedini and I were in close contact with Watson over a period of years, as often as three or more times a week. Later, some time after that conference, abruptly Jim ceased all communication with his former close colleagues. For two days a rather crazy recording **was** on his phone, stating the Watsons had moved. Then that disappeared. Watson never again contacted either Bedini or me, or his own financial backer (the late R. J. Reynolds III). Even Reynolds could not find Watson's whereabouts at that time.

We are quite certain that Watson received the "offer he could not refuse". Simply put, this is the old Mafia trick of visiting the target, offering him a deal, and he has no choice but to accept or die. When this is used to suppress COP>1.0 systems, and some medical systems, the offer is usually: *"Accept the money and you and your family will live very comfortably, but you will never openly work on this again or communicate it. You either accept our generous offer, or you and your family will be dead when we leave here."* Assuming that happened Watson had no choice but to accept the several million dollars offered him.

He is still alive, because Jeane Manning physically ran into him at a conference — and recognized him and spoke to him — whereupon he withdrew abruptly and left the conference very hastily.

5.9 Suppression of Free Energy Systems Has Been Common

This is only one of many cases we know of where such suppression of overunity systems and inventors has been accomplished. Others are not so benign. Marinov was killed with a longitudinal EM wave shooter in Europe, and his body was thrown off a building to make it appear a suicide. The police allowed the body to lie on the pavement for a protracted time (it was emitting longitudinal EM waves from the time-charging action of the strike). When finally moved, the pavement glowed

in that area that had been underneath the body. Only one weapon on earth will kill a person in that manner, and that is a longitudinal EM wave "shooter".

Another prominent researcher was killed with a Venus technique (look it up, it's a distortion of the wave front) modified beam that plunges the heart into violent fibrillations. He rushed from a restaurant exclaiming, "They're killing me!" and died of a resulting heart attack. The present author was hit with just such a weapon in a restaurant here in Huntsville. A friend and I actually saw the weapon and the person wielding it. Knowing what it was and recognizing the symptoms, my seated companion and I were able to bolt out of the nearby back door during that minute or so we could still physically function. I personally saw the device and the person doing the beaming, and I have a witness to the event.

The partner of a colleague in Australia was killed on an upper floor by such a shooter from the street below, right through the walls. The assassin was observed, and was seen putting the bazooka-sized shooter back in his car, then speeding away. There are many other true incidents we could also relate, including a person killed by an ice-dart dipped in curare (a very professional hit method, used by some of the sinister arms of various intelligence systems). So there is more than just scientific work involved in pursuing COP>1.0 EM power systems. There can also be a direct threat to one's life, essentially at any time.

Almost any serious overunity researcher, who succeeds, will have had confrontations with assassination attempts, suppression attempts, threats, deliberate legal entanglements, etc. The present author is no exception. It is sad that one of the prerequisites for serious scientific work in this area is **often** a legal gun permit (for both the inventor and his wife) and either legally carrying a hidden weapon or never being very far from a weapon when working at home. As an old soldier, of course, one just shrugs and accepts it, and gets on with the job to the best of one's ability, albeit remaining very watchful and always on guard.

5.10 In Conclusion

In this chapter we have introduced many of the approaches to COP>1.0 EM systems or processes, or the possibility for such in some novel mechanisms known in science. Recalling our previously presented solution to the source charge problem, we emphasize to the reader that all assumed 3 - space EM processes are actually 4-space processes prior to observation, continually observed in iteratively frozen 3-snapshots by iteratively

invoking the d/dt operator that produces observation. Hence from the source charge (and source dipole) solution we realize that all EM energy in 3-space comes from the time-domain and returns to the time domain. It iteratively appears along the "line of propagation" in 3-space at each successive position, but does not continuously propagate in 3-space. It does continuously propagate in 4-space. Since all the EM energy in any EM circuit comes from the time domain via the broken symmetry of the source charges and source dipoles, then we need to apply this greater vision to the COP>1.0 mechanisms and approaches so that we see the 4-space to 3-space to 4-space interplays.

The notion of the negative resistor is particularly significant and direct in that respect, and we have presented several versions of true negative resistors. For those wishing to experiment, we would suggest the easiest thing to start with is the point contact transistor. Or, simply go to Naudin's website {313} and download his instructions for making a Chung-type negative resistor, build it, and do experiments with it by varying the pressure on the fibers etc.

Again, we have not presented "parts kits" with instructions, but we have presented things that have worked or can reasonably be expected to work with some effort. We have also discussed the principles involved, to the best of our ability. In a few cases, we have directed the reader to information on websites where building instructions for selected negative resistors and other devices are posted.

As in any other scientific endeavor, we also urge the interested reader to read the literature and check the references cited, or as many as possible. Increasing one's understanding of the area is necessary to increase one's probability of success in the area.

We also wish the reader good results and success in his or her research and experimenting. The energy crisis is not going to go away, and the demand for oil will double in the lifetime of many of our middle-aged or younger readers. The cheap oil peaks shortly and declines in availability forever thereafter {342}; this alone will drive up the price of oil and seriously impact the economies of the nations of the world. To keep from destroying the world economy and the biosphere, it is absolutely essential that COP>1.0 electrical power systems — including self-powering systems taking their input energy from the seething local vacuum — be developed to produce the necessary electrical energy needs of the world, cheaply, cleanly, and easily.

If one or more of the readers should succeed in developing and producing such systems, then the entire purpose of this book will have been fulfilled.

Chapter 6

Additional Approaches to Overunity Power Systems

"Can the quantum potential carry a signal? If it can, we will be led to a violation of the principles of Einstein's theory of relativity, because the instantaneous interaction implied by the quantum potential will lead to the possibility of a signal that is faster than light... a signal has in general to be a complex structure, consisting of many events that are ordered in definite ways. In terms of our language, each signal is a supersystem of events, while each event is in turn a system of subevents.... At present, the answer is, of course, not known. " [Bohm and Hiley] {343}. A comment:¹⁵⁶

¹⁵⁶ We comment that the "event" involves observation: i.e.. it is conceived as an *observed* event. In that exact sense, no signal in space carries "events" because there is no interaction with mass and no d/dt operation induced on entities (curvatures) of spacetime. The effect (observed) 3-space field cannot propagate faster than light, because it cannot even propagate in the first place! The totality of light's EM interactions with matter is what makes the observed field or observed signal to appear to be propagated at light speed. It is not actually "propagating", but being iteratively recreated from point to point in space *if observed at every point*. Signal in spacetime is causal and hence nonobservable; the interaction of causal signal with charged mass is observable and makes an "event". When we clearly differentiate the nonobserved (causal) 4-field or dynamic from the iteratively observed 3-field or dynamic, then the *nonobserved 4-field* or dynamic is not limited to light speed. Propagation along the time axis, e.g., can be at "infinite velocity" because a single **point** in time is connected to every point in the universe simultaneously. Since all EM energy in space comes from the time domain locally at each point dipole in 3 - space and returns to the time domain from that same point dipole, it is the notion of "propagation continuously through 3-space" at *any* velocity that is a non sequitur. Absolutely nothing propagates through 3-space! If general relativity is re-interpreted **to account** the difference between observed and unobserved (effect and cause), then the unobserved cause can propagate superluminally without violation of the "observed event (effect) propagation at light speed" of general relativity. It is the notion that anything propagates in 3-space that is the non sequitur, and it should be removed from special and general relativity as well as electrodynamics.

"...contrary to the conclusions of classical mechanics, there exist effects of potentials on charged particles, even in the region where all the fields (and therefore the forces on the particles) vanish. " [Aharonov and Bohm] {344}.

"...for any force varying as the inverse square of the distance, the potential of such force satisfies both Laplace's equation and also the wave equation, and can be analyzed into simple plane waves propagating with constant velocity. The sum of the waves, however, does not vary with time, i.e., they are standing waves. Therefore the force potential can be defined in terms of both standing waves, i.e., by a global, or non-local solution, and by propagating waves, i.e., by a local solution changing in time... Thus, Whittaker's mathematical statement related the inverse square law of force to the force potential defined in terms of both standing wave (i.e., global) and propagating wave (i.e., local) solutions. The analysis also showed that the electromagnetic force fields could be defined in terms of the derivatives of two scalar potentials. " [Barrett] {345}.

"What might appear to be empty space is, therefore, a seething ferment of virtual particles. A vacuum is not inert and featureless, but alive with throbbing energy and vitality. A 'real' particle such as an electron must always be viewed against this background of frenetic activity. When an electron moves through space, it is actually swimming in a sea of ghost particles of all varieties — virtual leptons, quarks, and messengers, entangled in a complex melee. The presence of the electron will distort this irreducible vacuum activity, and the distortion in turn reacts back on the electron. Even at rest, an electron is not at rest: it is being continually assaulted by all manner of other particles from the vacuum. " [Davies] {346}.

6.1 Introduction

In this chapter, we continue to present a selection of potential overunity systems, inventions, approaches, and selected mechanisms. We also make the reader aware **that quantum** mechanics, an entire branch of physics,

requires nonlocality and "instant propagation" in space. We utilize the quantum potential from Bohm's hidden variable theory of quantum mechanics {347} to impress the nonlocality. Further, the staid old scalar potential — which we meet as voltage in a circuit — also exhibits nonlocality and instant propagation in the Coulomb gauge {348}. Our purpose is to show that electrodynamics is not limited to the cut-and-dried subject as usually taught to electrical engineers and applied by them, but also covers a wide range of phenomenology that electrical engineers usually do not consider or account.

6.2 Energy Conversion and Energy Amplification

6.2.1 The Mead-Nachamkin Zero Point Energy Converter

It is well known that the vacuum interacts with electrical charges and dipoles, and also with the electrons in an atom. For example, Lamb received the 1955 Nobel Prize in physics jointly with Polykarp Kusch for experiments measuring the small displacement later called the "Lamb shift" of 0+ne of the energy levels in atomic hydrogen {349}.

Casimir {350a} proved that closely separated conducting plates also alter the energy density of the vacuum, thereby becoming an "energy extracting" method, although the energy is miniscule. It is quite real, however, as shown in meticulous experimental work by Lamoreaux {351}. **The** principle that vacuum energy interacts with matter, plates, and electrical double layers and circuits is well proven experimentally.

In 1996 Mead and Nachamkin were granted a patent on an overunity EM power system process for extracting zero-point energy of the vacuum {352}. If one closely examines the patent wording, the device is properly patented as an energy converter and does not overtly state that it is a COP>1.0 system. It is a COP>1.0 system, however, since the input energy is freely received from the vacuum and not input by the operator himself. **One** embodiment of the invention inserts a tiny coil between the plates to **extract** the energy. See Figure 6-1. The energy is based on the Casimir **effect** {26}, which was accurately measured in 1997 by Lamoreaux {27} **and** since then by others.¹⁵⁷ Further investigation of the force's behavior **with** the shape of the conducting plates has been performed by Chen *et*

¹⁵⁷ See also U. Mohideen and A. Roy, "Precision measurement of the Casimir force from 0.1 to 0.9 microns," *Phys. Rev. Lett.*, Vol. 81, January 1998, p. 4549.

al.¹⁵⁸ Numerous other papers of interest on the Casimir effect have also been published {353a-d}.

Because energy cannot be created or destroyed, any $COP > 1.0$ system is an *energy converter*, a priori. It must receive the excess energy from the environment (in this case, from the curvature of spacetime and from the local active vacuum) and convert that energy to a form usable to power or assist in powering the system loads and losses.

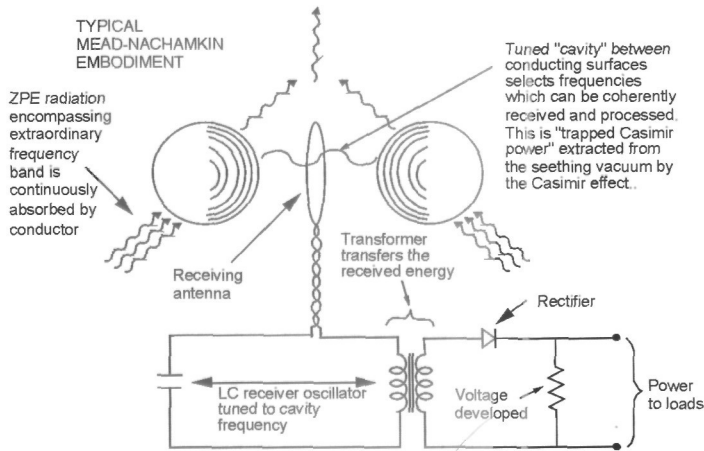


Figure 6-1 Mead-Nachamkin conducting surfaces, antenna, and receiver for extracting EM energy from the vacuum,

The Mead-Nachamkin patent is interesting because the physics of the device is proven and accepted. Getting sufficient power output to be useful for electrical power purposes, however, remains to be demonstrated, since the Casimir effect is very tiny.

6.2.2 The Quantum Potential As an Energy Amplifier

In Bohm's hidden variable theory of quantum mechanics {354}, an extra potential is added to the Schrodinger equation, and is known as a *quantum potential*. Figure 6-2 lists the novel characteristics of this potential, and

¹⁵⁸ F. Chen, U. Mohideen, (G. L. Klimchitskaya, and V. M. Mostepanenko, "Demonstration of the Lateral Casimir h'orce," *Phys. Rev. Lett*, (in press as of the time of this writing).

Quantum Potential Characteristics

- No point source; not radiated
- Just appears instantly
- Quantum potential between two particles
 - Interaction does not vanish as spatial separation becomes very large
 - Instantaneous connection
- Depends on quantum state of system as a whole
- System parts can be greatly separated

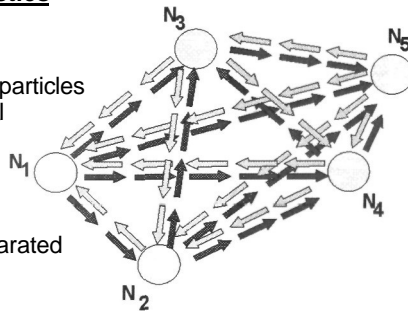


Figure 6-2 Quantum potential characteristics (table).

Figure 6-3 lists technical features of Bohm's hidden variable theory from whence the quantum potential is taken {355}. It can "move instantaneously", at "infinite velocity", which means it just suddenly appears everywhere it will be, and does not "propagate at a finite speed" through singly connected space at all {356}.

$$V_{\text{quantum}} = \frac{\hbar}{2m} \frac{\nabla^2 \sqrt{\rho}}{\sqrt{\rho}}$$

A quantum particle moves as if it were subject, in addition to its external potentials, to a potential which is a function of its own probability distribution.

Bohm's hidden variable theory assumes:

- Particle and wave function real and separate
- Wave function obeys Shrodinger's equation
- Particle obeys classical mechanics
- Particle couples to wave function through a quantum potential

Figure 6-3 Technical features of Bonn's hidden variable theory.

The potential is after all *potential energy*. With the quantum potential (QP), a joule of energy placed upon one collector, where that collector is connected via a QP with one or more distant collectors, will also result in a joule of energy (or some fraction thereof) instantly emerging upon and in each of those distant participating (QP-connected) stations simultaneously. It appears that, if only a fractional participation — say, 0.50 — exists with one or more of the distant stations, each of those stations will experience **the** appearance of that fraction (in this case, 0.5 joule) of the energy input to **the** initiating station. Any station can input energy, and it will

appropriately appear at every other participating station, regardless of where these stations are located in ordinary 3-space as seen by the external observer.

One way of expressing this "instantaneous QP connection" between separated objects is to model the different objects (or stations) as linked together in a multiply connected space, with a certain QP connection or collection fraction. Presence of energy at one station in the multiply connected group, results in the simultaneous appearance of the energy — or an appropriate fraction of it — at every other station in the group.

To understand multiply connected space, consider a single point on a plane. Now consider 999 more points superposed on/in that same point. But suppose that those thousand points are really located at different locations in 3-space, though superposed in this "crazy space" containing a plane where all of them are superposed at one point.

As the ordinary external observer, suppose you input a joule of energy into one of these — to you — separated points, which happens to be the original point and is located in your laboratory. Supposed the fractional connection is 1.0 (the connection is perfect in multiply connected space). Voila! Instantaneously one joule of energy appears at each and every one of those (to you) widely separated points. If you vary your input energy (e.g., as in communication), it varies precisely the same in each of those distant QP-connected points.

Those who continue to advocate that superluminal communication of information is impossible are ignoring present experimental proof that it does occur. As a single example (there are others), it has been shown by Enders and Nimtz {357} that Mozart's 40th symphony can be transmitted as frequency modulated microwaves through a barrier wave guide between two points in a waveguide, via quantum tunneling, at 4.7 times the speed of light c . We point out that this is achieved using *transverse* EM waves.

If *longitudinal* EM waves are used together with longitudinal modulation (which engineers might think of as a sort of "pulse compression" technique), the only limitation to the speed of communication is given by the impurity of the longitudinal EM wave one is able to make. The Fogal semiconductor, e.g., can be used to transduce ordinary transverse EM wave signals into longitudinal EM wave modulations inside a scalar potential. Hence that scalar potential can move in the Coulomb gauge at infinite velocity. It requires another Fogal semiconductor circuit on the receiving end to receive and transduce the longitudinal EM waves and their longitudinal modulations back into transverse EM waves for processing

and amplification by normal means. This capability of the Fogal semiconductor circuits has been demonstrated through satellite uplinks and downlinks coupled with long transmission line links, with essentially no delay from transmission to reception. One may think of the Fogal superluminal process as *tunneling through subspace*.

The best way to vary the energy is apparently by use of a variable stress potential (which translates to a longitudinal variation or modulation). In short, one must modulate the "internal energy" of the vacuum, so to speak, and not the "external energy". A reasonable discussion of internal energy versus external energy is given by Chen {358}. If one longitudinally modulates the internal energy of the vacuum potential — which, being a scalar potential, decomposes by the Whittaker decomposition {359} — then superluminal communication is not only possible but also practical. We expect Fogal to eventually place just such a system on the market, shortly after his semiconductors get into precision production.

One possible method of producing modulated internal stress potentials is by use of a Davis noninductive resistor {360}. Another is by use of a biwound coil with two windings, so that the two currents through two equal "superposed" coils are equal and opposite. We point out that, while there has been published much stuff and nonsense about such biwound coils, the truth is quite mundane. Simply examine the Lorentz symmetrical regauging applied to the Maxwell-Heaviside equations. It is the deliberate production of two equal and opposite force fields, which is in fact the creation of a stress potential and extra stress energy. By varying the magnitude of the Lorentz forces comprising the stress potential, the stress potential is varied in amplitude. Hence the concomitant longitudinal EM waves are varied in amplitude. A biwound coil is a variable Lorentz-regauging coil, *a priori*.

By oscillating the magnitude of any Lorentz regauging (which in the simplest case is simultaneously changing both opposing fields equally and oppositely), one can make longitudinal EM waves. By appropriately modulating both Lorentz regauging components, one can make longitudinal EM modulations upon those concomitant longitudinal EM wave carriers.

So with some careful tuning and adjustment, and a little nonlinear material in the core,¹⁵⁹ one should be able to have the superposed appositive

¹⁵⁹ The opposing waves must modulate (multiply), not mix (add), and modulation is a nonlinear process. Linear mixing of opposite waves or fields will not cause the

magnetic fields lock together (*modulate*, rather than linearly *add*) and produce a magnetostatic scalar potential stress signal in and from a nonlinear core material. We caution, however, that the biological effects of the radiation of such stress potentials internal to spacetime have not been investigated. The experimenter is cautioned that he experiments at his own risk, and he is cautioned to experiment only at low power levels until the phenomenology in a particular case is understood.

If we compare the stress potential oscillation (wave) to a sound wave, the similarities suggest that the stress potential oscillation can be treated as a longitudinal EM wave, if the two superposed opposing EM waves "lock together". Simple addition is insufficient; modulation is necessary. Hence the nonlinearity of the conductors and core material is of significance.

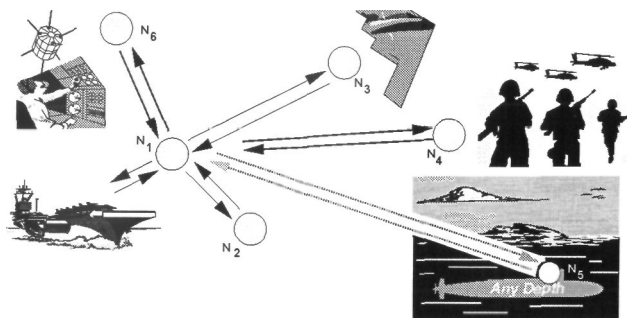
For instantaneously propagating potentials and pure longitudinal EM waves, any conceived difference between the two becomes somewhat academic. The characteristic of interest is the instant appearance of the input energy at multiple points via a multiply connected space.

To the ordinary observer, use of a quantum potential and multiply connected space measurably yields a fantastic *energy amplifier*. One furnishes one joule, and gets out — say — 1,000 joules in those distant locations altogether. As shown in Figure 6-4, the QP system is a communication system of enormous implications, particularly as humans travel into space across the solar system and even beyond. Unfortunately, by using appreciable power in the initiating station, the QP system also leads to weapon systems of incredible destructive capabilities. Some five nations {361} now possess such quantum potential weapons, which are the dominant weapons on Earth. We do not further discuss the quantum potential weapons aspects in this book.

Back to our little energy exercise, inputting one joule and getting out some 1,000 joules. Suppose these 1,000 participating points are not distant at all, but are gathered closely together into a local material but still QP-connected with a connection fraction of 1.0. Now we input a joule of energy to that device, and it develops and outputs one kilojoule. It is hypothesized that this becomes the ultimate negative resistor. It will also exhibit separated Dirac hole current phenomena as the COP increases and, if sufficient COP is developed, it will exhibit antigravity effects such as

fields to "lock together" into a common stress potential. Nonlinear mixing (modulation) will. Hence the nonlinear core is required for conversion of appositive fields to stress potentials and **Lorentz** regauging.

those shown by the Sweet vacuum triode amplifier discussed in this chapter.



- Quantum potential decomposes per Whittaker 1903 into bidirectional longitudinal EM waves
- Can insert additional longitudinal waves, thus information using a Fogal semiconductor
- Can receive "signal" and discriminate the information using a Fogal semiconductor

Figure 6-4 Quantum potential communication system.

Strangely, overall conservation of energy is not violated by the quantum potential COP>1.0 energy system. It's just that the energy now is furnished from space (from the vacuum) in a *multiply connected* manner. However, all the excess energy is still furnished by the active external environment - i.e., from the time domain, according to the giant negentropy process {12} — though that environment now is quite novel and multiply connected. So we still have a system analogous to a windmill, though *a very novel windmill and a very novel wind indeed*.

Without belaboring the point, action-at-a-distance is absolutely required in quantum mechanics. Further, photon correlation experiments have long demonstrated experimentally that such action-at-a-distance effects do exist, just as predicted. This was a refutation to Einstein's objection to quantum mechanics' "spooky action at a distance".

We point out without further comment that, if a self-powered process is Invoked in the initiating station, then all other participating stations also contain that self-powered process. However, note that one does not really wish to "invoke" a quantum potential connection and use it except occasionally and very quickly! Otherwise, if a strong QP is turned on and **left** on among many distant stations, anything and everything happening to

each one of them can instantly appear in all of them, so long as the "constant of connectivity" remains a constant or nearly so.¹⁶⁰ For that reason, strong quantum potential connections can be self-destroying and strong effects do not seem to normally appear in the physical world.¹⁶¹ The proper energy use of a quantum potential is thus to use it only for fleeting "inductions" of effects in the desired stations, in *momentarily* multiply connected spacetime, at least until the self-limiting behavior is ascertained.

Apparently, a quantum potential can sometimes be formed in the limit of an iterative, mutually phase conjugating operation of EM signals passed back and forth between two phase conjugate mirrors, or among many of them. Such iterative mutual phase conjugate reflection of signals — particularly pumped signals — is technically known as iterative *self-targeting*. Sometimes we use a more picturesque term, *ping-pong*, for iterative self-targeting.

Conceivably, strongly coupled, strongly pumped optical self-targeting mirrors can — in the extreme limit — initiate or partially initiate a quantum potential. The superposing beams of energy may be thought of as first narrowing to laser-like beams, then gradually subsiding into pure longitudinal waves with transverse components "canceled" to form simply "stress energy". In short, if this reaction occurs, the energy is transformed into a stress energy potential, which acts either as a scalar potential in the Coulomb gauge or as Bohm's quantum potential. In our view, the pure longitudinal wave has infinite velocity, as pointed out by Rodrigues and Lu {93a}, so Lorentz-Fitzgerald contraction results in "zero-separation distance", which in turn results in a multiply-connected spacetime.

One points out that the "input energy" to the initiating station may be deliberately structured internally, including altering the internal Whittaker longitudinal EM wave functions comprising the input electrical field

¹⁶⁰ Fortunately, it appears that this connectivity constant is not really constant, but reduces as the feedback of each station's fluctuations to the other stations increases. The result seems to be a "leveling off" process reaching a plateau and a fixed amount of gain in the overall system. In short, the system usually seems to be "self-adjusting" and "self-limiting" as the overall gain increases. Nature is riddled with quantum potentials, but this self-limiting process keeps most so tiny that they are not even noticeable.

¹⁶¹ However, the validity or invalidity of this statement for some of the highly energetic phenomena of astronomy remains to be determined. It also remains to be determined as far as the quantum potential's role in generating the zero point energy fluctuations of the active vacuum.

energy. In this manner, in theory deliberate spacetime curvature sets and dynamics can be introduced into the distant but multiply connected targets. A form of highly advanced electro-biological warfare induction of disease has been developed by at least one nation (Russia) in this regard, as an extension of Kaznacheyev's experiments showing induction of cellular disease at a distance. It appears that the cells of a living body are interconnected by a very weak quantum potential in such manner. Again, a great deal more research on that possibility is needed.

Given a quantum potential connection between separated objects including our initiating station, one can also add vacuum *engines* (energy structuring of curvatures of spacetime itself) as our input to the initiating node. Those vacuum engines will then simultaneously appear unabated (or only partially abated) in the multiply connected separated objects. In this way, in theory one can use the QP and QP energy to perform highly anomalous *momentary* engineering of nuclides, materials, fields, etc. in widely separated, distant objects and areas. By repeating the momentary engineering "pulses", distant objects and areas can be profoundly altered.

The use of vacuum engines in medical applications is of particular future interest.¹⁶² Very radical extension of those techniques can be achieved once quantum potential technology is developed and available in the open scientific community.

But let us ignore the weapons, free our scientific imagination, and let it roam. As an example, in the future a vacuum engine (spacetime curvature engine) might be developed and utilized in a world-wide quantum potential to *momentarily* strike and eradicate all AIDS viruses on Earth, and do only that. Or, the engine could be slanted to simply *momentarily* slightly change

¹⁶²See Vlail Kaznacheyev and L. P. Mikhailova, *Ultraweak Radiation in Intercellular Interactions*, [in Russian], Novosibirsk, 1981; Vlail Kaznacheyev *et al.*, "Distant intercellular interactions in a system of two tissue cultures," *Psychoenergetic Systems*, 1(3), Mar. 1976, p. 141-142; Vlail Kaznacheyev, "Apparent information transfer between two groups of cells," *Psychoenergetic Systems*, 1(1), Dec. 1974, p. 37. Unfortunately this QP induction of cellular disease has already been used by the former Soviet Union to develop a QP extension of the **force-free** structured potentials method first used to induce cellular disease and **health** changes in U.S. personnel in the former U.S. Embassy in Moscow for several decades. Now QP weapons using such techniques can target the entire population of a targeted nation. Using the internal Whittaker structuring of quantum potentials and EM fields and waves, *electromagnetic biological warfare* has already been born and highly developed. The actual dimensions of possible biological warfare strikes are far greater than has been mentioned in the open literature.

those viruses into an innocuous kind of new virus. The cells of the individual human body are already connected, it appears, by a very weak quantum potential. By connecting an external initiating station to that body's quantum potential, the energy of the body could be directly scanned, all abnormalities noted, and tailored engines created and *momentarily* used to treat the body and correct its abnormalities and malconditions. This, we believe, may well be a medical therapy of the future, a few generations from now.¹⁶³

6.3 Other Systems of Electrical Interest

6.3.1 Russian Parametric Oscillator Power Systems

In leading physics institutes and laboratories in the 1930s, Russian scientists built COP>1.0 parametric oscillators, including some of appreciable size. The work is documented in the literature {362a-k}, both in Russia and in France. The devices were developed and tested in several Russian laboratories. With linear loads, the oscillators would progressively build to self-destruction. With nonlinear loads, the devices would stabilize and power themselves and their loads, at a level depending on conditions — reminiscent of the behavior shown in Figure 4-3 in Chapter 4 for stability COP>1.0 levels for the asymmetrical self-regauging process.

Standard references for parametric oscillation in EM circuits are available. However, with standard practices none of these conventional oscillators produces COP>1.0, primarily because the conventional closed current loop circuit is applied without special modifications. For overunity work, the

¹⁶³ Apparently, tests of such QP capabilities in weaponry have been gingerly conducted for direct induction of disease patterns in the population of a targeted nation or area. One symptom of such a test is that a very small number of widely isolated cases of the same disease breaks out simultaneously, in isolated cases scattered widely and puzzlingly throughout the population, *without the possibility of any direct carrier vector connection*. Apparently, the test inductions have deliberately been held mostly to the "shadow state" (or upper virtual state, just below observable state) in most of the targeted populace, to prevent giving away the tests. However, the human immune system and cellular regenerative system do respond to such "near-observable-state" signals and engines, when sustained or repeated in time, by a sort of coherent addition (integration) over time. The bell-shaped distribution curve predicts that a few individuals, randomly scattered throughout the populace, will have quite lower induction thresholds and will evidence the actual disease after a certain time, whereas in almost all the other members of that population the "disease" will never evidence in the observable state during that time. The test is deliberately terminated when only a few observable cases occur, which are sufficient to prove the efficacy of the test and the method.

Russian and French literature (as we referenced) should be meticulously studied and analyzed in a higher group symmetry electrodynamics, to see how the Lorentz condition is broken during discharge of circuit excitation energy in the load, and how the $COP > 1.0$ Dirac hole current decay mechanism is avoided or contained.

The Russian $COP > 1.0$ parametric oscillation work appears to have been suppressed by the Communist regime just prior to WW II. After the war, all such technology passed under the rigid control of the KGB (by whatever name it took and takes from time to time) and into the special weapons research and development area — still highly classified in Russia. We know of no similar work presently ongoing in the West, although at least an English translation of one of the major summary documents of the Russian parametric oscillation $COP > 1.0$ power system developments was performed under NASA auspices {363}. However, in conventional U.S. parametric oscillation research, I know of no case where $COP > 1.0$ operation is being sought, or where the Dirac sea hole current decay mechanism is even mentioned or recognized {364}.

6.3.2 Sweet Vacuum Triode Amplifier

During the 1980s and 1990s, the present author worked — sometimes closely for extended intervals — with inventor Floyd Sweet, the inventor of the Sweet vacuum triode amplifier (VTA). Indeed, we gave the unit its VTA name, at Sweet's request.

Fig. 6-5 (pg. 384) shows a diagrammatic illustration of the fundamental VTA construction. Two coils in quadrature are between two barium ferrite "brick" magnets, of the kind formerly used in many power audio systems. The vertical coil is the "input" signal coil, and the horizontal coil is the "output" power coil. The input consisted of a 33 microwatt 10 volt 60-Hertz signal, and the output was a 120-volt 60-Hertz 500-watt signal. The barium nuclei in the magnets were specially preconditioned by Sweet so that they were in powerful self-oscillation with the surrounding energetic vacuum. A double-edged razor blade or piece of shim stock placed on one of these magnets would oscillate back and forth, incessantly, without cessation — showing that the magnetic field itself was "waving" back and forth (Figure 6-6). It was also continually doing work against air **resistance**, by moving the air.

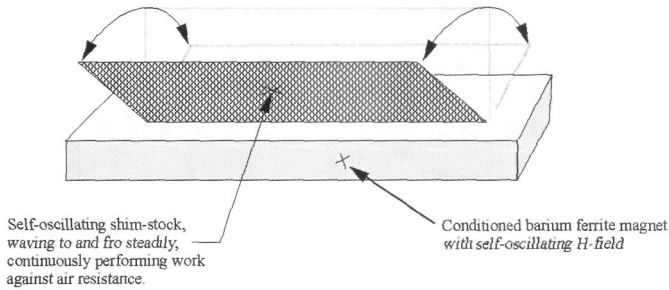


Figure 6-6 Blade waving continuously on Sweet's conditioned barium ferrite magnet.

Sweet had a Master's degree in electrical engineering from a leading university and handled the mathematical theory very well. He had worked at General Electric for many years, and Gabriel Kron was his patron and mentor. Sweet often spoke glowingly of Kron, and I came to believe that Sweet's VTA was probably an outgrowth of, or very similar to, Kron's negative resistor.

- Two activated magnets facing, with fields in self-oscillation.
- Barium ferrite magnets, barium nuclei in self-oscillation
- Barium nuclei self-pumped
- Two coils in quadrature, load is lamps, six watts
- Next unit produced 500 watts output with 330 microwatts input; later made 5 kW VTA

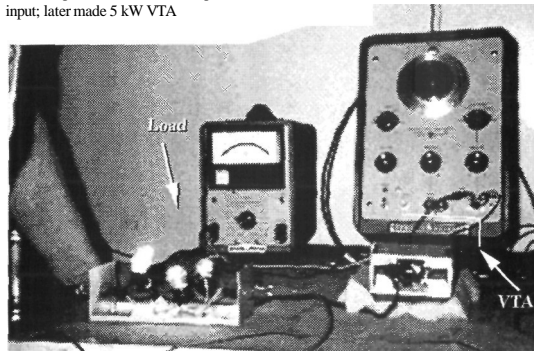


Figure 6-7 First Sweet VTA producing 6 watts output.

When I first met Sweet, his little VTA system was producing a 6-watt output, enough to light four 15 watts of auto lamps (Figure 6-7). But there

was no question as to the genuineness of the device. Nothing was hidden, and Sweet allowed me to measure the device at will, disassemble it, play with it, and examine it in any fashion. It was genuine, and not a hoax or trick. I also locked up one of his specially conditioned magnets for 24 hours, with a piece of shim stock sitting on the flat of the magnet and waving to and fro continuously, steadily performing work by moving air. When I opened the lock the next day, the shim stock was still there on the magnet and oscillating, having continuously done work against the air resistance for 24 hours with absolutely no energy input by the operator. And it was still working. Indeed, that single "kinetic" permanent magnet destroys all objections to $COP > 1.0$ EM systems, including those that are self-powering and thus have $COP = \infty$.

It seems little known that the vacuum around nuclei, in some cases, can be treated as a semiconductor, e.g. as discussed by Prange and Strance {365}. It is also known that nuclei do exhibit resonances at ELF frequencies. In particular, the vacuum in the region close to the nucleus of a superheavy element is known to act in a fashion analogous to the inversion layer in a field effect transistor. Prange and Strance introduce the idea of the inverted vacuum. Just as a semiconductor may be manipulated by subjecting it to external fields, doping etc., it appears that the vacuum can be similarly manipulated by appropriate means. We personally suspect that the semiconducting vacuum can be and is resonantly involved in any ELF resonances of the nucleus, which can occur in lighter nuclei such as barium.¹⁶⁴

The virtual particle flux of vacuum, regarded as noise, may provide noise amplification of the coherent self-oscillation frequency between the semiconducting vacuum and the barium nucleus. Certainly, analogous noise amplification of signals is known in electrical physics {366}.

¹⁶⁴ Here our concept of the supersystem may be of utility. The "lock-in" or "freeze-framing" of an equilibrium condition for a system — such as in a state of nuclear ELF self-oscillation — is stabilized and made a "new equilibrium condition" when the force field reaction from the curved local spacetime into the system is equal and **opposite** to the force field reaction from the local active vacuum into the system. We believe Sweet's undisclosed activation process was a method for synchronizing those two force field reactions and making them equal and opposite in one short discharge. We hope that this speculation is of use to future experimenters trying to duplicate Sweet's activation of his magnets into sustained and powerful supersystem self-oscillation.

I hypothesized that Sweet's activation process treated the vacuum surrounding the barium nucleus in such fashion, so that he was able to establish self-oscillation between the local activated vacuum and the concomitantly activated barium nucleus. Since barium ferrite is optically active, it may be that Sweet discovered how to get sufficient "self-pumping gain" for the self-oscillation to endure and not die away in a decaying oscillation manner. Since the "gain" of the second VTA as a self-pumping device was some 1,500,000 (Figure 6-8), obviously Sweet's activation method introduced a powerful state of self-oscillation.¹⁶⁵

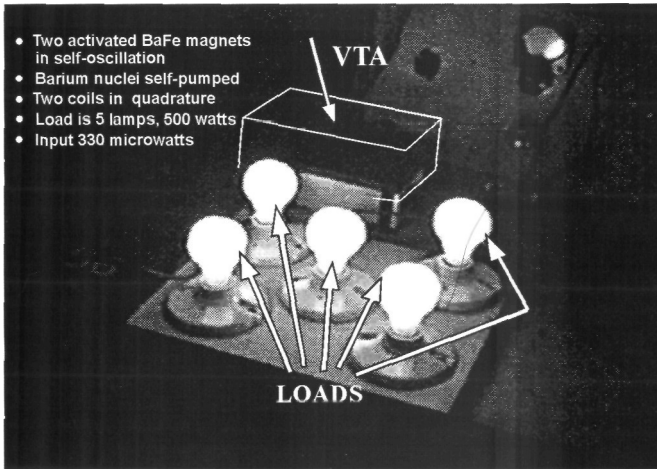


Figure 6-8 Second Sweet VTA producing 500 watts and COP=1,500,000.

¹⁶⁵ Here we point out that "small" things with very close "double surfaces" of opposite charge or potential usually have very large fields. The tiny Lamb shift, e.g., has a local energy density greater than the surface energy of the sun. Jackson, *Classical Electrodynamics*, Second Edition, 1975, p. 10-11 points out that "field strengths of the order of 10^9 - 10^{15} volts/cm exist at the orbits of electrons in atoms, while the electric field at the edge of a heavy nucleus is of the order of 10^{19} volts/cm." It should be obvious to the reader that, if our speculation is true and nuclear oscillation of the barium nuclei is involved, the production of optical gains of 1.5×10^6 in Sweet's self-pumped, optically acting barium ferrite magnets is not surprising because of the extreme magnitude of the oscillating nuclear fields. In that case, optical gain converts directly to true power gain because the pumping energy is furnished freely by the environment and not by the experimenter.

6.3.2.1 Mapping the Magnetic Field of the Magnets

Figure 6-9 shows a small magnetic field mapping device built by test engineer Rosenthal for Sweet. Sweet "scanned" and mapped the consistency of the magnetic field from his candidate magnets (barium ferrite magnets bought from surplus stores at the time). If the consistency varied over 12 to 15%, the magnet was useless because it would not "hold" the activation and retain it. Magnets whose magnetic field variation did not exceed 10% were ideal. So Sweet only found about 1 in 10 or even 1 in 30 magnets that would retain the self-oscillation state when initiated.

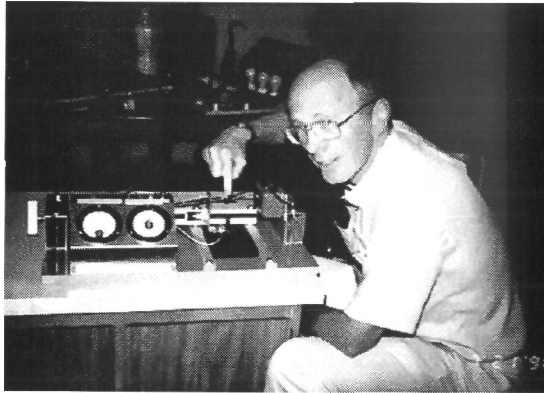


Figure 6-9 Test engineer Rosenthal points to a magnetic field strength mapping device he built for Sweet.

Sweet may have actually used two appreciably higher frequencies in his activation process, with the difference frequency between them being a precise ELF frequency (60-hertz, 100-hertz, 400-hertz, etc. as he desired).

That would make sense, when one realizes that the magnet is a highly nonlinear medium and then treats it (to first order) as an isotropic nonlinear medium. In that case, the two wave frequencies actually used would be subject individually to the normal overshoot, breakup, reconstitution, etc. inside the material of the magnet — but the difference frequency would behave as if it were a sine-wave frequency {367}.

This makes sense, since the output wave of Sweet's activated magnet was essentially a pure sine wave. Also, the presence of noise-enhanced heterodyning can sometimes be used to amplify a difference signal even further {368}. As we stated, since the activation is a self-oscillation between the local semiconducting vacuum and the barium nuclei, one wonders whether much of the rest of the vacuum virtual particle flux can

be treated as noise, and whether an effect is obtained for noise amplification of the coherent self-oscillation frequency.

L'vov and Prozorova {369} point out some interesting characteristics of the formation of self-oscillating spin waves which occur above parametric excitation. These oscillations result when internal stability does not occur, and they evidence themselves as oscillations of magnetization. The frequencies of the oscillations usually lie in the range from tens of kilohertz to tens of megahertz. At small above-threshold ratios, the shape of the oscillations is nearly sinusoidal. At larger ratios, the shape differs appreciably from sinusoidal. At still larger ratios, the oscillations become chaotic.

If Sweet did use the "difference frequency" conditioning, one suspects he may thus have been able to utilize larger above-threshold ratios, where the two frequencies actually transmitted would have resulted in chaotic oscillations. It is interesting to speculate that, in that case, for a suitably chosen barium ferrite magnet, the difference frequency still can behave sinusoidally, but now much stronger. If so, that might account for the tremendous COP Sweet attained in his second unit, which exhibited a $\text{COP} = 1.5 \times 10^6$, and could be pushed even higher.

6.3.2.2 Sweet VTA for Closed-Loop Self-Powering Operation

Courtesy of Walter Rosenthal, we now present a visual record of the Sweet closed-loop self-powering version of the VTA and its momentous successful acceptance test on May 1, 1990, as closely observed by Rosenthal.

Figure 6-10 shows Sweet and a different version of the VTA, with the coils in a slightly different configuration and the windings altered. This is the two-magnet, 2-coil VTA that he built and tested for self-powering operation. Figure 6-11 shows the unit mounted on a special test fixture built by engineer Rosenthal. This fixture and its components allowed the sensing of the sine wave output power at the zero-value crossover points. To switch in the special clamped feedback system for self-powering operation of the input, and simultaneously switching away from external power, the switching had to be done very accurately at that zero-point crossover. Feedback would not stabilize and hold if the switching were done at any other point in the output cycle.

Unit independently examined and testing observed by
test engineer Walter Rosenthal

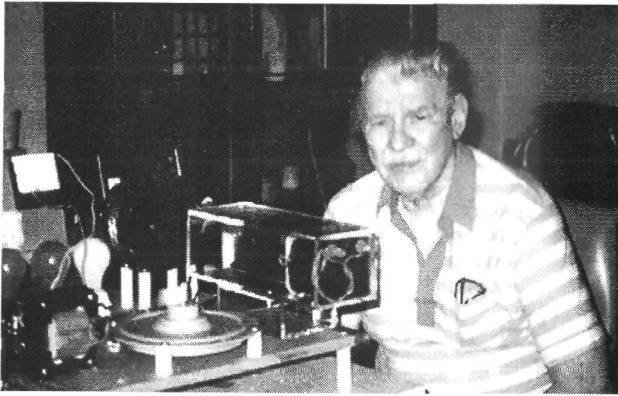


Figure 6-10 Sweet with 2-magnet 2 coil VTA, loads, and instruments for historic self-powering operational tests on May 1, 1990.

Figure 6-12 shows the set-up for the tests, with the unit and loads as well as some of the instruments used. Figure 6-13 shows the closed-loop VTA powering itself and its loads, after being initially set into operation with outside input power by the operator, and then adroitly switched into self-powering by switching the input from external to internal at an output

Fixture allowed unit to be started into operation on external power then switched to self-powering internal power at the zero crossing of the *output* voltage. The device in its fixture has a row of test points (disconnects) on every conductor going to the device

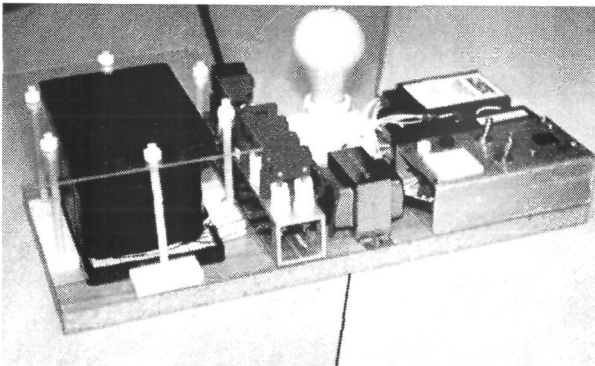


Figure 6-11 Two-magnet two-coil VTA mounted on a special test fixture built by Walter Rosenthal.

power zero crossover point. This picture shows the unit in self-powering and stable operation, taking all its input energy from the vacuum, including the power necessary to power its own internal losses and the power necessary to power its controls and loads.

Independently examined and testing observed by test engineer Walter Rosenthal

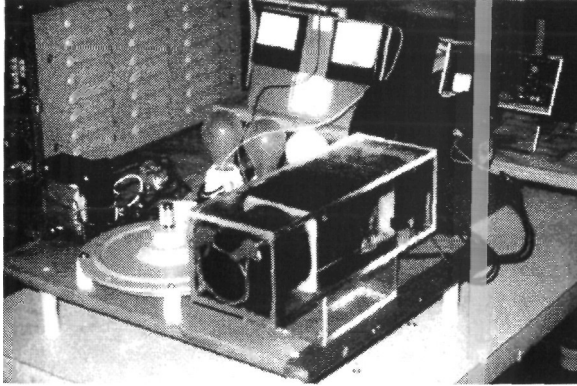


Figure 6-12 The 2-magnet, 2 coil VTA, loads, and instruments for its historic self-powering operational tests on May 1,1990.

Formal self-powering test on 1 May 1990 The loads and the VTA are powered by electrical energy extracted directly from the active vacuum
Independently observed by professional test engineer Walter Rosenthal

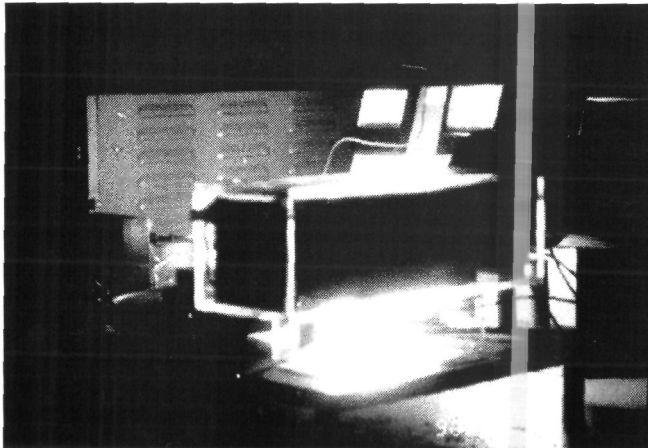


Figure 6-13 Historic self-powering operational test of the VTA May 1,1990 with no energy Input by the operator.

We strongly stress that this operation is permitted by the laws of physics and thermodynamics for an open EM system far from equilibrium in its exchange with its active environment. The active environment in this case is the combination of the active local vacuum and the active local curvatures of spacetime. The closed-loop condition is a new and stable equilibrium condition in the dynamics of the mutual exchanges between all three supersystem components: the system, the active vacuum, and the curvatures of spacetime. The *system* is in stable disequilibrium; the *supersystem* is in a stable new equilibrium condition.

6.3.2.3 Discussion

We do know that the output current of the second Sweet device was comprised of a significant Dirac hole current¹⁶⁶ as well as electron current — showing the expected heavy involvement of the altered local vacuum (the Dirac sea) and the curved local spacetime. The negative energy majority of the output revealed itself readily. If the output leads were shorted, ice formed instantly on the shorted leads from the moisture in the air. That is, an electrical short resulted in the sudden production of cold (negative) EM energy rather than positive EM energy.¹⁶⁷ That can only occur if the majority of the output is negative energy, and any sudden surge in output (as from the shorted leads) increases the ratio of negative energy to positive energy so that very strong net cooling results.

For many predominantly mechanical components (simple electrical motors, light bulbs, etc.), Dirac hole current applied to the positive lead will power the circuit equally as well as electron current applied to the high voltage (negative) side, if the grounding is simply by a conductor and not a "vast reservoir" of charge. In such case, the wire chosen to conduct or direct the Dirac hole current should be made very small. It can and will

¹⁶⁶ We do mean hole current in the Dirac sea, consisting of Dirac holes in the vacuum itself, prior to their interaction with charged matter to form lattice holes in matter. We do not mean the standard lattice hole current at all.

¹⁶⁷ In local curved spacetime, Dirac holes constitute "negative energy EM fields and potentials". In such case, one can have negative energy entities and reactions analogous to positive energy entities and reactions in 3-space. On the time axis, one also has negative energy entities and currents, potentials, waves, fields, etc. Because **classical** Maxwell-Heaviside-Lorentz theory eliminates any modeling of the local vacuum or the local curvature of spacetime, these negative spacetime curvature (**negative** energy) potentials, fields, and currents have not been added into the electromagnetic theory. That of course is a serious shortcoming of the normal theory.

carry intense hole current and will cool rather than heat.¹⁶⁸ The wire to the electron side of the device should be made normal sized, appropriate to the electron current to be carried.

Several other inventors over the years have been able to activate a barium ferrite magnet into sustained self-oscillation of its material particles or domains, in similar but weaker fashion for varying lengths of time — up to a month or so in the longest time that I am aware of. Sweet's magnet would continue in self-oscillation indefinitely unless (i) the magnet was sharply shocked mechanically (as with a hammer blow), (ii) the magnet was heated to too high a temperature, (iii) the leads of the output circuit were electrically shorted, or (iv) external artificial field interference (electrical pulse shock, particularly from longitudinal stress waves) was encountered.^{169,170}

Unfortunately, Sweet signed multiple conflicting agreements with several financial backers, and his work was legally entangled so deeply that it was never straightened. He eventually died, taking with him his activation secret. He was often threatened, and was once fired at by a professional

¹⁶⁸ This is very probably the secret of Tesla's "single wire system". At an exposition in Nevada, Bedini demonstrated just such a system, by powering 600 watts of audio speakers at the end of a long, very thin wire across the stage from his power amplifier. If he had been using positive EM energy, the wire would have instantly melted.

¹⁶⁹ During that period, the Russians were playing with earthquake induction via scalar interferometers, at various places around the world, including inside the U.S. heartland. Sweet's machine would sit above a natural quake and not be affected. But when a quake within many hundreds — even several thousands — of miles was artificially induced, the Sweet device would react to it. A fairly close artificially induced quake would destroy the self-oscillation of the magnets, and sometimes a very close artificially induced quake would actually explode the intensely activated magnets. So for several years one had a way of ascertaining which quakes were natural and which were artificially induced, by simply having Sweet confirm how his magnets interacted.

¹⁷⁰ For those who do not believe such an activity, here is a direct statement by then-Secretary of Defense William Cohen: *"Others are engaging even in an eco-type of terrorism whereby they can alter the climate, set off earthquakes, volcanoes remotely through the use of electromagnetic waves... So there are plenty of ingenious minds out there that are at work finding ways in which they can wreak terror upon other nations...It's real, and that's the reason why we have to intensify our efforts."* Quoted from DoD News Briefing, Secretary of Defense William S. Cohen, Q&A at the Conference on Terrorism, Weapons of Mass Destruction, and U.S. Strategy, **University of Georgia, Athens, Apr. 28, 1997.**

assassin using a silenced rifle. He survived the incident because, being old and a bit feeble, he stumbled and fell over the front steps just as the assassin fired. The bullet snapped by his ear, right where his head had just been. The incident was reported to the FBI, but with nothing else to go on, the assassin was never caught.

By whatever means, we do know that Sweet's magnets had to be activated by a special process that Sweet used and never fully revealed. An activated or "kinetic" magnet, it seems, was actually something a few of the "older magnetics guys" had known about, and Sweet had learned of it either from them or from Gabriel Kron. Sweet was also a transformer designer and expert, and he remarked that he had also observed specialized self-oscillation in certain transformers. Although most power engineers approached were either nonplussed or completely skeptical of a "self-oscillating field in a permanent magnet", self-oscillation of the fields, spin waves, etc. in permanent magnet materials *are* known to materials scientists today, especially to those working with magnetic effects in thin film materials {370, 371a-b}.

From a general relativity viewpoint, particle spin has a unique spin field of its own {372}, and there are such spin fields involved and operating in magnetic systems. The simple classical electrodynamic approach to magnetism and magnetic assemblies — or the view of a magnet as simply a bar with a north pole and a south pole — is quite insufficient when one wishes to research magnetic assemblies that will act as open systems far from equilibrium with their active environment, and thus will be capable of COP > 1.0 operations.

Recent work in coupled spins has revealed long-range coherence effects, previously unsuspected, as well as dual spin states participating in such phenomena {373a-b}. For example, Johnson has long used a 2-particle approach to spins and spin flipping in his own highly nonlinear magnetic assemblies {374}. His recent laboratory work has also shown similar and unsuspected *long-range coherence* effects in large multiple-magnet macroscopic systems {375} such as large assemblies of neodymium-iron magnets. This is strongly suggestive of the expected general relativistic spin field previously mentioned.

This work by Johnson is very important, since it may reveal a hitherto unsuspected mechanism for decay — of an otherwise nonconservative magnetic field around a closed loop — back into a conservative field. If one seeks an all-permanent-magnet rotating motor, a nonconservative magnetic field around a rotation loop must be established and sustained if

one is to have self-rotation and self-powering. A nonconservative magnetic field around such a rotation loop means that the system acts as an open system far from equilibrium with its active vacuum and active curved spacetime environment, by means of some asymmetry mechanism such as multi-valued magnetic potential {376a-c, 377a-g}, elucidation of exchange forces {378a-c} at selected positions and directions, etc. It also requires both a stable broken 3-symmetry and a stable 4-symmetry.

On the other hand, in our opinion, Sweet employed spin waves triggered into self-oscillation in the nuclei of the barium atoms in his barium ferrite magnets. Indeed, such nuclear spin waves in magnets have been known for some time {379}. We postulate that, as in any other COP>1.0 power system, a self-rotating all-permanent-magnet motor must also involve Dirac sea hole current interacting in the various magnetic components. It is reasonable to suspect that these also interact with the electrons and their spin fields, perhaps producing the active mechanism providing that observed long-range coherence that apparently can decay the nonconservative magnetic field around the rotation loop, causing it to revert back to a conservative field and thereby stop the self-rotation and self-powering. If so, that long-range coherence must be violated and the violation stabilized. However, we could find no papers in the literature that deal with such possibilities. Hence it is a subject for further investigation by COP>1.0 researchers.

6.3.2.4 The Highly Successful Anti-Gravity Test

On one trip to California to work with Sweet, we noticed that, at full power output of 500 watts, his unit weighed a little less on the bench than when not powered. Struck by this anomaly, I considered the negative energy aspects of the output — as evidenced by the Sweet's demonstration of icing when the output leads were shorted — and the very high gain, which added up to a predominance of negative energy in the output.

Pondering this from a general relativity viewpoint, I reasoned that: (i) increase of positive EM energy density in space increases the curvature of spacetime to produce additional positive gravity G_P ; (ii) increase of negative EM energy density in space must increase the curvature of spacetime in the other direction, and thus it must produce negative gravity G_N , and (iii) the total gravity G_T produced in the immediate spacetime of an object producing both positive gravity G_P and negative gravity G_N , was $G_T = f(G_P + G_N)$. Thus if we increased the output of the VTA unit, we must inevitably increase the weight reduction (antigravity) effect since the predominance of the energy output was negative energy, and this output was in the neglected negative energy fields aspect as well as in the local

vacuum (spacetime) itself. After several back-of-the-envelope estimates and educated guesses over some weeks, I concluded that if the efficiency of the antigravity process¹⁷¹ were 10% and the unit was pushed to 1500 watts output, it would lose all its weight and hover weightless.

However, because of the nonlinear local spacetime, magnetic monopoles^{172, 173} were deposited in Sweet's magnets when the unit was

¹⁷¹ We again accent the difference between efficiency and COP. Here we are definitely speaking of efficiency, not COP.

¹⁷² Dr. Robert Flower has confirmed that the 'symmetrized" (or "extended") Maxwell equations (Eqs. 7.1 in Springer's *Encyclopedia of Physics*, Vol. 16, p. 431) include non-zero magnetic charges and magnetic currents. Antenna engineers (Henning Harmuth, and others) know that these terms must be included for proper description of boundary conditions, even though, at the final step of computation, their integrals are set equal to zero (apparently to snuff out magnetic monopoles). For Dirac's original theory of the monopole, see P. A. M. Dirac, "Theory of magnetic monopoles," *Phys. Rev.*, Vol. 74, 1948, p. 817-830. See also F. A. Bais and B. J. Schroers, "Quantisation of Monopoles with Non-abelian Magnetic Charge," *Nuclear Physics B*, Vol. 512, 1998, p. 250-294; G. Lochak, "The Symmetry Between Electricity and Magnetism and the Problem of the Existence of a Magnetic Monopole," in T. W. Barrett and D. M. Grimes. [Eds.] *Advanced Electromagnetism: Foundations, Theory, & Applications*, World Scientific, 1995, p. 105-147. Particularly see T. W. Barrett, "On the distinction between fields and their metric: the fundamental difference between specifications concerning medium-independent fields and constitutive specifications concerning relations to the medium in which they exist." *Annales de la Fondation Louis de Broglie*, 14(1), 1989, p. 37-75; — "Electromagnetic Phenomena Not Explained by Maxwell's Equations," in Lakhtakia, A. (ed.): *Essays on the Formal Aspects of Electromagnetic Theory*, World Scientific, River Edge, NJ, 1993, p. 6-86; — "The Ehrenhaft-Mikhailov effect described as the behavior of a low energy density magnetic monopole-instanton." *Annales de la Fondation Louis de Broglie*, Vol. 19, 1994, p. 291-301. The work of Ehrenhaft, which is now substantiated and thoroughly replicated by Mikhailov, has produced experimental evidence of the magnetic monopole in many replicable experiments. In these experiments, magnetic particles move in a magnetic field along the lines of force. Reversal of the magnetic field, H , causes a reversal of the magnetic particle's motion, which is not the case with magnetic dipoles, since that can only occur for a monopole. See V. F. Mikhailov, "Observation of magnetic monopoles in the field of a line conductor," *J. Phys. A: Math. Gen.*, Vol. 18, 1985, p. L903-L906; — "Observation of the magnetic charge effect in experiments with ferromagnetic aerosols." *Annales de la Fondation Louis de Broglie*, Vol. 12, 1987, p. 491-523. See also M. J. Perry, "Magnetic monopoles and the Kaluza-Klein theory," *Am. Inst. Phys. Conf. Proc.*, No. 116, 1984, p. 121-125; E. V. Smetanin, "Electromagnetic field in a space with curvature — new solutions," *Soviet Physics Journal*, 25(2), Feb. 1982, p. 107-111. [English translation]. See also T. T. Wu and C. N. Yang, "Dirac monopole without strings: monopole harmonics," *Nuclear Physics*, Vol. B107, 1976,

producing power, and the density of these monopoles varied as the output power. Increasing the power output thus increased the tensile stress of the magnets, and at some point they would explode into fragments, like a hand grenade.¹⁷⁴ This explained why conditioned magnets sometimes exploded when experiencing fluctuations from artificial earthquake induction testing.

Having no explosive control facilities, I warned Sweet not to push the unit past 1,000 watts, for safety reasons. At my urging, Sweet made a new output load often 100-watt lamps in sockets, so the load could be varied from 100 to 1,000 watts easily.

p. 365-380; — "Dirac's monopole without strings: classical Lagrangian theory," *Phys. Rev. D.*, 14(2), July 15, 1976, p. 437-445.

¹⁷³ We emphasize that a magnetic monopole can be taken simply as a highly localized magnetic scalar stress potential. See, e.g., P. A. M. Dirac, "Theory of magnetic monopoles," *Phys. Rev.*, Vol. 74, 1948, p. 817-830. Dirac pointed out that the existence of a single magnetic monopole in nature would allow an explanation for charge quantization. We believe that the reverse of Dirac's argument may be true also: The existence of charge quantization should allow an explanation for the magnetic monopole. However, we also surmise that a magnetic monopole exists only in (and as) a sharply localized curvature of spacetime. Jackson, *Classical Electrodynamics*, second edition, 1975, p. had this to say about magnetic dipoles and Dirac's argument: "*Dirac's argument... is that the mere existence of one magnetic monopole in the universe would offer an explanation of the discrete nature of electric charge. Since the quantization of charge is one of the most profound mysteries of the physical world, Dirac's idea has great appeal.*"

¹⁷⁴ Sweet in fact did explode several magnets by pushing the power output of the device. Pushing the output was easy (and is easy for any unit outputting mostly negative energy), because all one had to do was connect additional load.

ENERGY FROM THE VACUUM: CONCEPTS & PRINCIPLES.

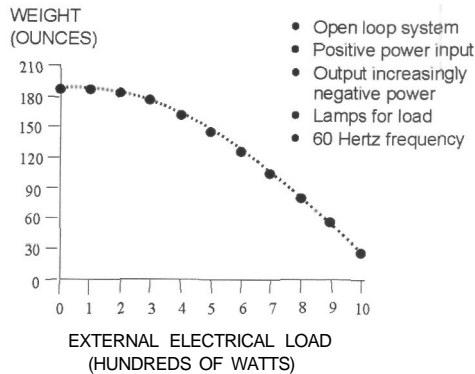


Figure 6-14 Results of the "pushed" VTA antigravity test: Weight of VTA on the bench versus power output.

Sweet completed the new load section and performed the experiment in California after I had returned to Huntsville, reading off the results to me over the phone. I took down the data, and then plotted the curve. Figure 6-14) shows the beautiful results. At 1,000 watts the unit had lost 90% of its weight. This was electrifying, because it was an unprecedented and highly successful antigravity experiment. Even my original "rough" assumption of levitation at 1500 watts was not too far from the indicated 1250 watts or so from the actual curve.

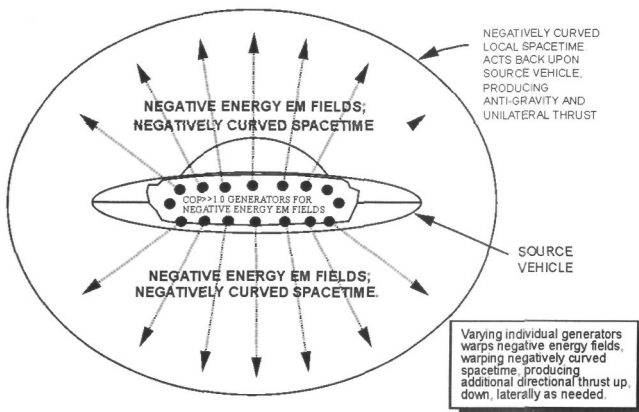


Figure 6-15 Proposed mechanism for practical antigravity.

Figure 6-15 shows my proposed mechanism for antigravity. We simply use negative EM field energy generators to produce a negative EM energy field in space surrounding the source vehicle. The associated positive energy from the same energetic power source can power the vehicle simultaneously. The local reversed curvature of spacetime now interacts back upon the mass of the vehicle, to produce an antigravity component. By adjusting the output of the power source, the amount of negative energy — and hence the amount of antigravity component — can readily be varied and controlled. By controlling the directions of the field components, one can have unidirectional antigravity force, or antigravity and thrust force vectors simultaneously. Hence such a vehicle could be maneuvered and controlled, and be self-powering. This at least was and is my concept of a practical antigravity technology.

6.3.2.5 Later Developments and the End of the VTA

Later I prepared a paper on the VTA, including the antigravity experiment's results. We succeeded in getting the paper published {380} but I deliberately did not include the real details of the negative energy aspects as I wished to withhold that information for patenting. I prepared the entire paper, but placed Sweet's name first, as was appropriate since he was the inventor of the VTA.

Unfortunately — but understandably! — Sweet became a bit paranoid after the sniper assassination attempt (he was shot at by a distant sniper using a silenced rifle), and then would never allow a formal demonstration of his antigravity test. I strongly wished to present it to a major national U.S. scientific committee for independent testing and confirmation — which could have been done without Sweet having to reveal his activation process for the magnets. However, Sweet would not hear of such. Indeed, he fearfully kept the antigravity capability a secret from most of his backers. He strongly believed that he would be killed almost immediately if he revealed our antigravity experimental success. He may have been correct.

In fairness, the inventor and his backers of necessity have different priorities from those of scientists doing open research in a university. But at least a record of the test results is in the literature, though certainly not as rigorously or as extensively as I wished. Sometime later, I withdrew from any further association with the VTA unit, after the backers changed, a lawsuit broke out, and the entire project unraveled. Sweet later died without ever revealing his full secret for such powerful activation of self-oscillation in permanent magnets at low ELF frequencies.

The loss of the Sweet vacuum triode was a severe blow to science and a real setback to the scientific progress that could already have been made. Nonetheless, I contributed what I could, documented what I could, and made a videotape of the operation of the open-loop 500-watt device in the power mode. I also made a video of as much as Sweet would reveal of his activation process. I was not allowed to videotape a second antigravity experiment, even though I frequently and strongly requested it. By that time, Sweet mortally feared for his life. Perhaps what we have written in this book will be sufficient to provide some needed clues to some future graduate student or post-doctoral scientist who will succeed in recovering the necessary activation of magnets and both the COP»1.0 power capability and the antigravity experiments.

Meanwhile, I have filed a provisional patent application on the mechanism for antigravity, the gist of which I worked out solely on my own back in 1971 at Georgia Institute of Technology, and that I include in Chapter 8. As far as I am aware, no one else had thought of it previously, or has thought of it in that exact form *{using the causal positron prior to observation, and while it is still a negative energy, negative mass electron, as the source charge for negative EM field energy, and also using the causal positron's corresponding giant Heaviside nondiverged negative energy flow for substantial negative curvature of spacetime.}*.

6.3.3 Intense Discharges in Ionized Gas

Intense sudden discharges in ionized gases are especially of interest due to the presence of optical frequency components and the involvement of iterative optical retroreflection etc. These processes seem to be involved in several investigations and inventions. Further, it appears that such intense discharges do produce bursts of negative EM energy as part of their overall discharge energy.

In the case of plasmas, some are known to transduce an input transverse EM wave into an output longitudinal EM wave, and vice versa. We know now that such a longitudinal EM wave is also accompanied by a time-polarized (scalar) EM wave in the time domain. The connection with the Whittaker 1903 decomposition of the potential, and with the new 4-symmetry negentropy law, is apparent. Several COP>1.0 researchers — notably Shoulders {381a-f} and Paulo and Alexandra Correa {382a-e} — have performed extensive research into anomalous discharge phenomena, and also have developed experimental devices capitalizing on the novel

effects available.^{175, 176} The Correas' U.S. Patent No. 5,449,989 includes many tests of a Correa glow discharge apparatus, one of which in 20 minutes of operation produced 0.988 kilowatt-hour of energy output for an input of 0.258 kilowatt hours. Using the known negative resistor characteristics, the Correas achieved sustained self-oscillations in the discharge.

As an aside, we point out that the well-known anti-Stokes emission — which produces more energy output than the experimenter inputs, and hence exhibits $COP > 1.0$ — has long been validated in certain gases such as aniline vapor {383} and H_2 {384}. Stimulated anti-Stokes radiation occurs in many solid materials such as oxides and doped oxides {385}. Assuming the excess energy comes from the internal energy of the molecules, this is a prime candidate for free replenishment of that furnished internal energy of the molecule, via the broken symmetry of the molecular dipoles in their fierce virtual energy exchange with the local active vacuum and local curved spacetime. Of course, conventionally the energy furnished by the molecules, etc. is not replenished from the vacuum, hence anti-Stokes emission can be used for coherent light cooling effects {386}. Apparently the Correas' process accomplishes the energy replenishing, hence the $COP > 1.0$ performance over a 20 minute period.

Formation of longitudinal EM waves in the plasma forms in certain gas tubes, such as Priore's gas-filled tubes {387}, may also occur in the Correa experiments and probably do. Longitudinal EM waves, of course, always involve their concomitant, accompanying time-polarized EM waves, since the combination comprises the scalar potential and hence the local curvature of spacetime provided by that scalar potential. The replenishment mechanism involved in longitudinal EM waves and scalar potentials — time-energy transduced into 3-space energy — apparently is

¹⁷⁵ Both Shoulders' electron cluster discharges and the discharge phenomena of Paulo and Alexandra Correa have been independently verified. Fox and other scientists have verified $COP > 1.0$ in Shoulders' work, and Mallove has formally observed a self-powering Correa system. Both these highly reputable scientists are well known, have the highest integrity, and I would trust either of them with my life. Further, we point out that strong gradients — as exist temporarily in strong discharge phenomena — are already known to violate thermodynamics. That is one of the areas being researched today to advance thermodynamics, under the aegis of "extended thermodynamics". See Appendix A.

¹⁷⁶ In addition, the Correas have demonstrated a form of energy that demonstrates latent heat. See discussion in Paragraph 6.3.9.

invoked and utilized in the Correias' sustained self-oscillations in the plasma discharge.

6.3.4 Shoulders' Electron Cluster Processes

Valone {388} has summarized Ken Shoulders' charge clusters and processes as follows:

"An unusual energy source is the clustering of electrons by a discharge needle into a high density bundle equaling Avogadro's density of a solid.... Ken Shoulders has patented a process (Pat. #5,153,901) that produces electron clusters with such high energy density, they equal processes exceeding 25,000 degrees Celsius upon impact. Yet, he only uses 20 microjoules to produce the effects. The clusters travel at a maximum of one tenth the speed of light and penetrate any substance with accuracy and sharp precision. It is similar to xenon clustering techniques currently used at megavolt energy levels. Low energy nuclear transmutation of the target has also been achieved with this process. Using a deuterium-loaded palladium foil, only the bombardment areas show transmutation into silicon, calcium, and magnesium with electron clusters upon analysis with X-rays. Jin and Fox {389} have postulated that the high velocity electron clusters achieve results similar to accelerators, including penetration of the nucleus, with substantially less power. The new physics of like-charges clustering in bundles under low power conditions opens a wide range of applications including spacecraft maneuvering microthrusters. Overunity efficiency [sic: should be COP] is 9 to 1, or higher. "

Ken Shoulders is an accomplished experimental scientist who has discovered and patented many aspects of electron charge clusters, including their $COP > 1.0$ characteristics {390}.

According to his experiments, one of the most remarkable characteristics of these charge clusters seems to be their dramatic reduction of the permittivity of space {391}. Shoulders has noted the remarkable removal of **positive** charge during the self-formation process of the clusters {392}. In our opinion, the involvement of the supersystem of these charge clusters is shown by that phenomenon. We hypothesize that an accompanying Dirac hole current is shown by the experimental occasions where — in

addition to the Shoulders' negative charge clusters — additional charges unite but show effects of having opposite charge {393}. Such changes would change the permittivity of space, which Shoulders has noted. They could also create a time-reversal zone (TRZ), which would account for the clustering of like charges since in a TRZ the law of attraction and repulsion of charges is reversed. In such a zone, like charges attract and unlike charges repel. This could explain why Shoulders has observed both negative charge clustering and positive charge clustering.

This would also explain the remarkable separation of the positive charges from the negative charges — they are simply *repelled* by the negative clusters in a TRZ.¹⁷⁷ This of course immediately involves curvature of spacetime effects, including local changes in the speed of light etc. As stressed by Shoulders, the entire area cries out for extensive and sophisticated experimental investigation on a continuing basis, as well as some powerful new theoretical work. Shoulders has also noted both "black" and "white" (dark and bright) clusters, including their combination and separation, strongly suggesting Dirac holes as well as the electrons in the charge clusters. He has proposed a form of "inertial propulsion" based on some of the mechanisms and asymmetrical forces observed in his experiments, and such asymmetry is possible in curved local spacetime conditions.

The relation of Shoulders' effects to cold fusion phenomena was shown by an experiment in which a deuteron-loaded palladium cathode was impacted by a charge cluster {394}. An explosive-like reaction occurred, and an X-ray analysis of the impact crater showed a number of elements not seen in the nearby palladium surface away from the impact site. Elements such as oxygen, calcium, silicon, and magnesium were detected in the impact site, but not in the surrounding palladium lattice. We would suggest the presence of TRZ-based nuclear transmutation reactions (via quasi-nucleus formation followed by quark-flipping in nucleons as the

¹⁷⁷ Since the same TRZ phenomenon generates specific nuclear transmutation reactions at low spatial energy, explaining the anomalous transmutation of elements in cold fusion electrolyte experiments, a strong indication exists that it is a viable mechanism. In our mechanism proposed for the flow of time, a TRZ is produced for charges whenever antiphoton interactions predominate over photon interactions. This indeed implies a change in the permittivity of the local space, local curvature of spacetime, and local changes in the speed of light — all phenomena Shoulders notes in his experiments.

TRZ decays to a time-forward zone). Additional information on this charge cluster phenomenon has been given by Fox {395}.

Other Shoulders patents are pending and his research is continuing. It is our understanding that at least one application is presently being developed for the market.

6.3.5 Mills's Hydrino Energy Cells and Developments

Dr. Randell Mills {396a-396c}, {397} has proposed a cosmic sea of hydrinos (the hydrino is a proposed reduced energy state of the hydrogen atom) to explain his tested energy cells. He envisions — and produces a theory for — hydrogen that is reduced to a lower energy state (the "hydrino"). He has gathered considerable evidence for his theory, and has accounted for some sixty or so infrared spectral lines in the sun's radiation that have previously not been explained. Independent tests appear to have validated his energy production claims.

Several major companies are presently working with Mills and his parent company, BlackLight Power, Inc. Progress can be followed from the company website, www.blacklightpower.com. Developments are ongoing in light, power, plasma, and new compositions of matter. A technical book by Mills {398} is freely downloadable from the website, giving his overall theory, as are other publications by Mills *et al.* {399a-h}. Critical objections to various parts of Mills' theory have been given, e.g., by Zimmerman {400}, with Mills responding strongly and — in our opinion — successfully.

Certain concepts utilized by Mills are, in our opinion, valid and insightful - whether or not the classical quantum mechanics developed by him is found to hold, and whether or not it agrees with ordinary quantum mechanics (which has problems of its own). The point is that *the experiments work*. It is thus the job of the theorists to find what changes must be made to the theory for it to remain consistent with experiment. If they do not like Mills' theory, the proper procedure is to advance one that **is** consistent with all the experimental results, and also to show where Mills' theory is inconsistent with the results.

In our own view, an *observed* positive charge is the output of an ongoing time-reversal process and therefore represents a "time-reversed entity" as observed. Before observation (imposition of d/dt operator), the positive **charge** is thus a negative 4-charge comprised of qt , not q . From that viewpoint, the H^+ ion, which is just a hydrogen nucleus (a proton) without an electron shell, may be regarded as a time-reversed 4-entity prior to observation. Further, any energy change in and of the hydrogen atom

results in a change in the local energy density of spacetime (ST) *a priori*, hence a change in the local ST curvature.

If we regard the entire hydrogen atom as a set of such ST curvatures and their dynamics, then Mills' consideration of a lower positive energy state *hydrino* simply implies the addition of an additional negative ST curvature to the ST curvature set associated with the normal hydrogen atom. We note that binding energy of the nucleons is already negative energy, and thus just such a negative spacetime curvature. But the binding energy is itself a spacetime curvature *capable of being increased*, as can be any spacetime curvature. In the supersystem, addition of such ST curvature is possible, and it is *doable* electrodynamically, particularly when Heaviside's normally unaccounted huge energy component is accounted and utilized.

In our opinion, Mills' theory should probably be recast into a higher group symmetry electrodynamics — such as $O(3)$ — which has been shown to be intimately connected with Sachs's unified field theory. This would provide an adjusted model that is not only testable but also *engineerable*. Nonetheless, the concepts of Mills' theory and the theory should be closely examined as they stand, and at least some of the key concepts are engineerable as witnessed by his successful experimental results. That is better than what the critics have offered! A higher group symmetry recasting would enhance and expand his theory even more, and correct any errors that might be present. It would also allow a full theoretic treatment (i.e., a supersystem treatment) of Mills' main concepts, which we believe have much merit.

Further, given Mills' hydrino as we approached it, two hydrinos will each possess such a set of spacetime curvatures (each will possess such a *vacuum engine*). Later in this book — and elsewhere {401} — we have pointed out that, in a time-reversal zone (TRZ), the law of electromagnetic charge attraction and repulsion is reversed. Accordingly, in a TRZ two or more hydrinos will attract each other so closely that each enters the now-reduced strong force region of the other, forming a quasi-nucleus. As the TRZ decays away back to a normal time-forward zone, because of their power law form the strong forces restore back to normal much faster than the electromagnetic forces do. Hence during its "decay", the quasi-nucleus is energetically compacted into a permanent nucleus, either flipping quarks or giving off one or more particles as necessary to balance its new energy state in the process. We have previously argued that a similar process where a TRZ induces formation of quasi-nuclei also yields the major transmutations {402} demonstrated in a large number of cold fusion experiments worldwide.

The present author has previously proposed an engineerable mechanism (the totality of all photon interactions with a mass) that generates the flow of that mass through time {403}. By manipulating the arrow of time between forward vector and reversed vector, the strong forces in a nucleus (or for a particle) can be directly manipulated in magnitude (and to some extent, even in sign although the latter involves gluon and quark manipulations in the nucleons). By adroit use of these manipulated strong forces and TRZ formation and decay, the energy states of nuclei can indeed be manipulated, including reduced in energy level —just as Mills assumes and presents experimental evidence for, and as cold fusion experiments present experimental evidence for.

We note that two such interacting hydrinos must each possess a specific vacuum engine (specific set of ST curvatures and dynamics). Novel new interactions are available in TRZ's because of manipulation and even reversal of electromagnetic forces, strong forces, etc. and because of nuclear fusion of like charged particles into quasi-nuclei followed by decay into stable nuclei, etc. These novel new particle interactions caused by manipulation of strong spacetime curvature engines and their magnitudes are presently missing from particle physics. Mills, however, does come at them from a somewhat different direction in his own concepts.

The reason for the absence of dominant general relativity effects in most particle physics is that the "total photon interaction" mechanism generating the flow (persistence) of a mass or field through time has not been recognized and used. Consequently, in general only those far weaker ST curvatures due to the weak G-force have been considered. To Mills' great credit, he is aware of the gravitational significance of manipulating much stronger forces and spatial energy densities such as the electromagnetic fields and their energy densities.

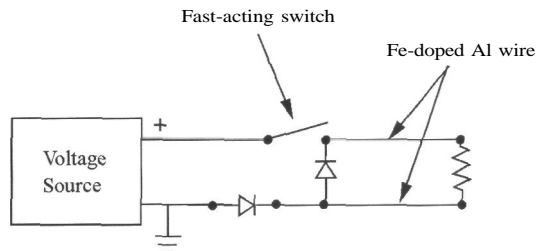
The U.S. Patent and Trademark Office then refused a new patent to Mills on one of his processes, and revoked another Mills patent even after already agreeing to award it within two weeks. BlackLight Power, Inc. initiated and lost a lawsuit against the Commissioner of Patents, seeking to reverse this unusual action by the U.S. Patent Office. However, the company's patent portfolio has continued to grow, with extraordinary international applications {404a, 404b}, and several European patents have been filed appropriately. BlackLight Power Inc. seems well funded (some millions of dollars) and well staffed, and we expect to see BlackLight Power, Inc. products entering the market place. Those products will

probably be related to fuel cells, plasmas, power converters, generators, separation methods, and novel compounds materials.

and

6.3.6 Switching Circuits with Extended Electron Gas Relaxation Time

See Figure 6-16. Suppose an instantly applied voltage to the high side of the circuit instantly potentializes a pair of circuit conductors, with the other acting as ground. The charges in the conductor are thus instantly potentialized and excited, so that through the external circuit there exists an E-field E , where $E = -\nabla\phi$ between the high side of the circuit and the ground return side. An acceleration force on the energized electrons thus exists. It requires a finite time for the energized electrons in this force field E to break their static friction or inertia, move, and accelerate to the requisite slow drift velocity down the wire. During that delay or "electron relaxation time", no current is initially in progress, then a little current is flowing, and finally all of the current is flowing. This delay time is called the electron gas relaxation time.



Note: May use many strands of Fe-doped Al wire instead of one, for each conductor

Figure 6-16 Extended-relaxation-time circuit with diodes.

In the usual copper conductor, the delay time arguably may be on the order of 10^{-16} sec. This is so slight a delay that it can be ignored, for all practical purposes. Current — with resulting dissipation of the collected potential energy — usually occurs "as soon as" we apply the voltage, for all practical circuit work. However, suppose we could increase that electron gas relaxation time to, say, one millisecond? Then for an appreciable number of microseconds, there would be essentially no current flowing at all in the now-potentialized circuit.

We previously proposed a mechanism whereby a degenerate semiconductor alloy (say, of a tiny bit — perhaps 2% or so — of iron

alloyed in aluminum wire) is utilized for the conductors of the external circuit. This should give a vastly extended electron relaxation time, somewhere on the order of a millisecond. By obtaining a millisecond, one can excite the circuit with current-free potential alone, which becomes pure regauging during the electron relaxation period.

We strongly point out that this is an asymmetrical regauging; the E-field previously mentioned is present, but the electrons are still frozen in the circuit since their relaxation has not begun. The gauge freedom principle, recognized in quantum field theory, assures us that we do not have to perform work to simply inflow potential energy to change the potential energy of the system. In real circuits, we may have to pay a tiny bit for switching to connect and disconnect the external potentialization source, but we can be at pains to make that very efficient and minimal {405}. The point is, other than minor switching costs, the dramatic change in the potential energy of the system is cost-free and no current is drawn from the external potential source. Hence — in the language of the electrical engineer — we draw no power from the source of potential, during this potentialization time.

Suppose we switch away the excitation source prior to its decay while the electrons are still frozen. Simultaneously, we complete the "freed" potentialized circuit with a strategically placed diode, as shown in Figure 6-16. Again, we pay a little switching cost, but it can be minimized. The electrons in the *now asymmetrically potentialized circuit* are still frozen, so no power has yet been drawn by the system from the external power supply furnishing the voltage only. In this way, pure asymmetrical regauging is used to excite the circuit with additional potential energy, without requiring work (except minimally for switching).

A little more time passes, and suddenly the electrons in the potentialized circuit wake up and move. We stress again that the full emf is acting on the electrons, and now they are finally free to move. There is a net nonzero regauging E-field (force field) also. The excited closed current loop circuit then discharges in normal Lorentz symmetrical fashion, killing the source dipolarity as current is driven back up through the diode, but all the work in the load is "free". The circuit specialist will also recognize the usefulness of additional components associated with the shunt, such as a capacitor or even an LC oscillator for AC work.

If LE is load work obtained and SE is switch energy utilized, this approach yields $COP = LE / SE$ and $COP > 1.0$ is possible. The reason is that the *primary* source dipole providing the potential for potentialization of the

electrons and regauging of the circuit is removed from the closed current loop circuit and the effect of current through the back emf. Thus the primary source dipole is not destroyed faster than the load is powered. It is only depleted by the small amount of switching energy we utilized. This appears to be a major way to avoid the $COP < 1.0$ limitation of the usual closed current loop circuit.

This is a circuit with legitimate $COP > 1.0$ capability, without violation of the laws of thermodynamics or physics. We break the Lorentz condition between the initial "external circuit" and the primary source dipole for the regauging energy. After regauging, we "cut loose" the circuit with its own primary dipolarity and newly transferred "separate source dipole". *By such adroit use of electron gas relaxation time, we can use one source dipole to freely make another of equal intensity, without any depletion of the first.*

The difficulty is in getting the Fe-Al alloy wire, which must be made in an inert atmosphere since Al corrodes easily and the two elements have very different melting temperatures.

Alternatives can be visualized, such as to utilize a capacitor whose plates are made of the Fe-Al alloy. This might be useful in the triode-capacitor, to be discussed next. A series of pulses might then be used to charge the capacitor, without depletion of the primary source dipole in the external source of potential, if it is repeatedly switched in and away. An interesting question arises if such a capacitor with tailored "hysteresis" in its charging is utilized in various circuits and schemes containing a coil of useful time delay also, particularly since the electron gas relaxation phenomenon involves decaying oscillations. Interesting phase angle results can be constructed in such circuits, but we leave the resolution of this question to future experimenters.

6.3.7 The Triode-Capacitor and Other Curious Components

See Figure 6-17. In this rough concept by the present author, the notion is to implant a grid of very small copper wire mesh inside the dielectric and near one or both of the capacitor plates, and then to utilize grids as if they were grids of a triode tube, for gating and controlling the displacement current in the capacitor and the dielectric strain. As an example, when charging the capacitor, the grids can be used to increase the displacement current (which also increases the voltage on the capacitor and dielectric strain). This increases the charge and energy in the charged capacitor, without putting in as much "enhancement and gating" energy as the extra energy obtained in the charged capacitor. If desired, we can also

incorporate the 2% Fe-doped Al wires in the grid, or connected to it, to further move the grid toward a "pure current-free potential" operation.

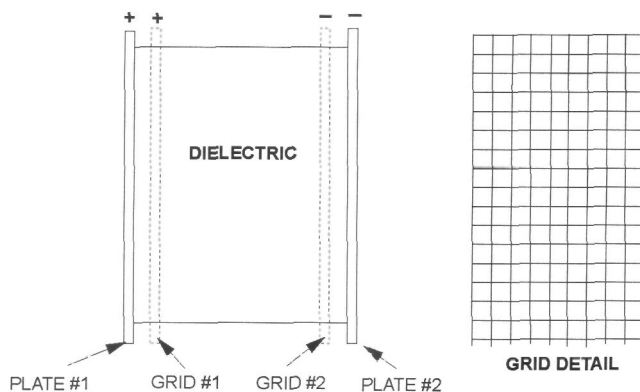


Figure 6-17 The triode-capacitor concept.

The scheme is that a voltage on this grid will intercept only a small current during charging of the capacitor, but can have an appreciable voltage upon it. The charging potential is placed across the capacitor, and simultaneously the grid has a similar potential placed upon it. The external source of charging potential is then disconnected, and the capacitor charges with more energy rearranged in its circuit than the energy one dissipates in the grid. The similarity to an old vacuum tube triode is apparent. For the purist, additional grids with tetrode and pentode functions can also be added.

One or more inventors has unwittingly tried to approach this in one way or another, but have not directly incorporated this schema and have not used the grid. They do not seem to have obtained positive results with those different schemas without the grid, nor have they specified the difficulties and phenomenology encountered, etc. We were curious about possible results of combining this (the triode grid in the capacitor) with the known elimination of capacitor losses by appropriate pulse charging {406a-b}. It seems that experimentation and research with the triode capacitor and its variations is definitely indicated.

We were also curious about the Davis non-inductive resistor {407a}, which is a special kind of "capacitor" that becomes an inductance-free resistor. One may argue that the resistor may be multiply inductive after all, though it is *net* noninductive. It may well be "equally and oppositely

inductive," which is quite a different thing altogether, since it produces an artificial stress potential (and in the presence of AC, it produces a longitudinal EM stress field wave) in spacetime even though it produces a *net* zero reactance. In short, it produces a Lorentz-regauging, directly, and this can be a varying Lorentz regauging producing longitudinal EM stress waves. Whether this odd characteristic can be utilized in a $COP > 1.0$ process remains to be seen. Preliminary indications are that it can be so utilized.

The various versions of the biwound coil, wound with two conductors at once and then the currents passed through the conductors in opposite directions, also presents interesting capabilities. Here again, it is multiply inductive, but may be tuned and adjusted to be *net* noninductive. We strongly suggest comparison with the well-known hairpin dual dipole antenna.

In short, this biwound coil arrangement — with various variations — can produce (and modulate) a magnetostatic scalar stress potential in the local vacuum and, in the case of AC, a longitudinal EM wave. This would appear to be a direct change (and oscillation) of the stress potential of the vacuum itself, which can be decomposed via the Whittaker process into a harmonic set of phase conjugate longitudinal EM wavepairs. The potential longitudinal EM wave communication possibilities can be seen, although one might require a Fogal transistor to receive the longitudinal EM wave modulations of such signals.

Further work in this area of unusual capacitors and components is left to the interested reader for his or her experimentation and research.

6.3.8 A Surprising Thing About Thermodynamics and Reservoirs

Thermodynamically, it is fashionable to state that one cannot take energy from a reservoir at constant temperature. That is true for *equilibrium* conditions, but not for *nonequilibrium* conditions {408}. That is, we cannot take energy from a reservoir *in equilibrium* at constant temperature. We can indeed take energy from a reservoir at constant temperature *but not in equilibrium*. More exactly, we can take energy from a nonhomogeneous reservoir at constant temperature.

We quote Hsu-Chieh Yeh {409} for a vivid statement of this little-recognized fact:

"From Planck's statement of the second law of thermodynamics it is generally inferred that it is impossible to construct an engine which produces work at the expense only of heat taken

from the air or the ocean. ...[It is demonstrated that]... when the air and the ocean are combined as a nonhomogeneous reservoir of uniform temperature, it is possible to construct an engine which produces work by extracting heat from the said reservoir. This does not constitute a violation of the second law of thermodynamics, rather that the "reservoir" in the Planck's statement must be clearly stated as being in equilibrium. "

Yeh's article falsifies the general, mistaken inference that Planck's statement of the second law of thermodynamics requires it to be impossible to construct an engine that produces work at the expense only of heat taken from the air or ocean. The experiment described in Yeh's paper demonstrates that when the air and the ocean are combined as a nonhomogeneous reservoir of uniform temperature, it is possible to construct an engine that produces work by extracting heat from the said reservoir. This does not constitute a violation of the second law of thermodynamics, but rather shows that the "reservoir" in Planck's statement may be in equilibrium or disequilibrium, and the statement holds only for the equilibrium case. Also, an entire reservoir can be in "overall" equilibrium, but in raging disequilibrium between various parts of itself. Classical thermodynamics only applies with the reservoir or part of it that is used by the system in its supersystem, when that part is in equilibrium.

We bring this out to show the analogy to our concept of the two additional components of the supersystem as the "reservoir" or external environment of the system itself.

We also point out that the concept of temperature itself is not strictly defined under disequilibrium conditions, as pointed out by Gabriel Laufer {410}.

The proof and a schematic diagram of a machine to do just such an energy extraction process at constant temperature in an environment in disequilibrium are shown by Yeh {408}.

6.J.9 Latent Heat Work of the Correias

In addition to their glow discharge work previously discussed, Paulo and Alexandra Correa have demonstrated a method to optimize some anomalous form of energy from the sun, which transduces into heat, producing an anomalous $T_0 - T$ difference registered in Orgone Accumulators¹⁷⁸ invented by W. Reich in 1939-1940. They have also

¹⁷⁸ **This** is Reich's terminology, not used in conventional physics. We suspect that **proper** application of quantum field theory with its four photon polarizations could

employed the optimized difference in this "latent" heat — their term — to drive a low dT Stirling engine of the MM6 type, to perform free work {41 1a-b}. The Correias employ their own new theory of the aether {412} to explain the effect.

Against the assertion that this is just normal solar energy warming, they have demonstrated the successful driving of the Stirling engine for several hours during nighttime {413}. With their latest improved version, they report speeds of the Stirling engine of 150 rpm during daytime (with dT values reaching 22.5°C), and speeds of 30 to 80 rpm during nighttime (with dT values of 3.1 to 9°C). There appears to be no obvious standard thermodynamic explanation or standard theory to explain how the anomalous heating occurs — although once it does occur, the explanation from then on is thermodynamically normal.

The Stirling energy is driven on a difference in temperature created between the top plate and bottom plate of a box by this anomalous energy. It is the production of the heat that is anomalous, not the driving of the engine. For comparison, imagine a bank of solar cells that would somehow operate at night, when no normal radiation from the sun was striking them. The Correa effect demonstrates such an anomaly.¹⁷⁹

Dr. Eugene Mallove, an excellent scientist with impeccable credentials, has personally observed the Correa accumulator system driving the Stirling engine, and has examined it inside and out {414}. Though small, the heat and the motive power are real and the engine is really driven, in the absence of any kind of conventional batteries or other known power source.

be applied to transform the notion of "orgone" energy into specialized EM energy. We further suspect that orgone energy is really the transduction of the time-polarized photon energy into normal photon energy. We are assured by quantum field theory and the giant negentropy solution to the source charge problem that the instantaneous scalar potential involves this process.

¹⁷⁹ We point out that local regions of the sun may well produce Aharonov-Bohm effects, and probably do. Such reactions in the sun would localize some of the B-fields and emit curl-free magnetic vector potential radiation into space, striking the earth. Close examination and analysis of the possible reaction of uncurled A-potential radiation with the accumulator box and plates in the Correa process might yield a novel mechanism for the observed heating (scattering) effects, including the difference between daytime and nighttime levels, periodic variations, etc.

While the Correas utilize some of Reich's orgone and aether terminology, they are quite aware that the energy being converted is not normal transverse EM wave energy. Quoting {415}:

"Aetherometry demonstrates that what traverses space is not transverse electromagnetic radiation (and certainly not sensible heat), but longitudinal electric ambipolar radiation emitted from the sun. All that electromagnetic radiation consists of is a local production of photons (for those who care to listen): aether energy is not composed of photons, actual or virtual. "

We can generate sympathy for that statement, although we would still not rule out time-polarized (scalar) photons and longitudinal photons from quantum field theory, each of which is individually nonobservable, but when paired the two comprise an instantaneous scalar potential. As we previously discussed, the classical notion of the EM force fields E and B implicitly assumes interaction of the unseen causal "field-as-it-exists-in-massfree space" with charged mass having been accomplished, with the E and B being the 3-effect of this interaction after observation. Thus these force fields E and B are 3-effects (after interaction and after observation) rather than 4-causes prior to interaction and observation. We suspect that the Correas are trying to get at the causal 4-photon, rather than the usually assumed 3-photon. Further, a virtual photon spends much of its time existing as a dipole comprised of a virtual electron and a virtual positron. Therefore it spends much of its time in the presence of the giant negentropy 4-circulation, involving transduction of time energy into spatial energy and vice versa. It is this negentropy circulation represented by the virtual photon (or accompanying it, whichever one chooses) that the Correas are confronting as the "aether energy".

As previously discussed, an analysis of the Drude electrons in the electron gas of a detector builds a convincing case for EM waves in space existing in longitudinal EM waves, *if the spinning and longitudinally restrained electrons precess and act as gyros*. The detected transverse EM waves are in fact transverse precession waves of the gyro-electrons when perturbed by incoming longitudinal EM waves (longitudinal photons appearing in 3-space from the time-domain's scalar photon couplet). As Feynman put it {416},

"We may think of $E(x, y, z, t)$ and $B(x, y, z, t)$ as giving the forces that would be experienced at the time t by a charge located at (x, y, z) , with the condition that placing the

charge there did not disturb the positions or motion of all the other charges responsible for the fields."

The E and B force fields — and transverse photons — are not the form in which EM energy *causally* exists in 4-space prior to its interaction with charged mass. In that causal form, EM energy seems to exist in field-free form, as a direct curvature of spacetime — at least in Sachs's unified field approach. Further, this form may be represented as the causal precursor of longitudinal EM waves accompanied by time-polarized EM waves.

We will not repeat our past discussion of the great necessity to change the very notion of "propagation through 3-space", but that is the issue. In our opinion, the Correas have had to struggle with the use of this causal EM energy as it exists in 4-space prior to interaction with charge and prior to observation. Hence their view is solidly based that the photon does not exist until after the interaction — which in fact has much support once we remove the still-present assumption in classical electrodynamics that a material ether exists.

Our own recommendation is that this anomalous energy should be deeply investigated with the view that all EM energy in 3-space comes from the time-domain and the 3-space aspect is in terms of longitudinal photons, as we have proposed in our solution to the source charge problem previously cited. That is the only way that the nature of the EM wave in vacuum can be reconciled with quantum field theory's findings {19} and with Whittaker's decomposition of the scalar potential {85}, slightly corrected {12}.

Mallove also points out {417} that, if this aether energy view of the Correas has validity, it "*...suggests that physics is not just wrong, it is profoundly wrong — catastrophically wrong about even the most fundamental questions of existence, such as: 1) Is there an energetic aether? and 2) What is the nature of light?*"

We profoundly agree with Mallove's observation, and we believe we have explained the reason why physics is indeed profoundly wrong (widely substitutes effect for cause). Further, classical physics is decidedly wrong about the nature of light — from quantum field theory, experimental proof of superluminal communication, and action-at-a-distance effects.

In our view, the Correas presently have a replicable experiment that, once independently and thoroughly investigated, may force a deeper examination of the foundations of physics. Hopefully, the Correas'

experiment and others like it will finally force the separation of effect from cause, presently so mangled in physics and particularly in electrodynamics.

If the National Academy of Sciences and the National Science Foundation can be convinced of the horrible manglement of cause and effect in physics and especially in electrodynamics, perhaps they may yet wake from their long slumber and get the foundations corrected to eliminate such non sequiturs. If so, we shall have a magnificent new physics as a result.

If not, then the NAS and NSF will continue to profoundly reduce the security of this nation, since several nations have already made and weaponized such corrections to physics to produce what is called "energetics". Further, extraordinarily powerful energetics weapons have **already** been developed and deployed (and even employed), putting the U.S. at a strategic disadvantage because of the continuing reluctance of the NAS and NSF to correct the glaring and extraordinary errors in both physics and electrodynamics — and especially in electrical engineering.

Meanwhile, we believe that the work and experiments of Paulo and Alexandra Correa are at the forefront of capturing and transducing energy from the vacuum, in whatever form one chooses to consider the vacuum energy itself. They are also pointing the way to the corrections and changes necessary in the "old physics" if we are to better understand the world we live in.

6.3.10 Swiss Overunity Converter

We must also include the "Testatika" devices invented by Paul Baumann in a religious commune, Methernitha, adjacent to the village of Linden in Switzerland¹⁸⁰. Figure 6-18 shows one of the machines, which over a period of 20 years were developed in various output sizes up to 30 kilowatts. Once started, the device is self-powering while also powering a very substantial external load (up to 25 kW). Many engineers and scientists have observed the machines in observation, examined them, and measured one or more in operation, so there is little doubt of their **authenticity**.

¹⁸⁰The website for Methernitha is www.methernitha.com. One may read the statements of the religious group for oneself.

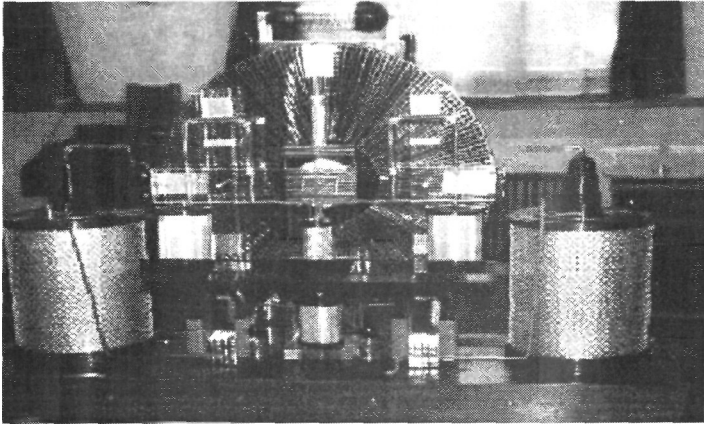


Figure 6-18 Swiss Methernitha machine.

However, there the science stops and mysticism and speculation begin. The religious commune releases no real details, except deliberately tantalizing clues. When questioned, the reply is that humankind in its present state cannot be trusted with such free energy. Almost all those examining the device have thought in ordinary electrical engineering terms, so very little comes from their examination because standard electrical engineering does not contain any theoretical explanation of $COP > 1.0$ electrical power systems whatsoever. Baumann himself sometimes cryptically replied that his study of lightning discharges in nature gave him the operational principle. As we shall see, that may indeed be a very substantial clue as to the possible technical $COP > 1.0$ mechanism, and one that does not exist in conventional classical electrodynamics.

The Methernitha (Baumann) machine resembles a Wimhurst machine with contra rotating static wheels, made of plastic or other insulating material with copper ribs and structures on one side and aluminum on the other. Use is made of the discharge into and from large capacitors and large coils. Also, at least one horseshoe-shaped permanent magnet assembly at the bottom is utilized. The major operating feature seems to be the contra rotating disks of a "Wimhurst" static generator machine, a magnetic field at right angles, and the sharp discharge of high voltage into and from large capacitors and large coils. The voluminous material on the Internet and in articles about the machines is mostly of little real use in contributing understanding or in proposing any legitimate mechanism.

We have not "solved" the machine's mechanism, since that would require close study of the device for a protracted time, and there has been no opportunity or time for that — although Baumann invited this author to come and see the machine some years before he died. Regrettably, I was unable to make the trip, and Baumann himself has now been dead for some years. We will therefore offer some technical suggestions pertaining to mechanisms that may be operating in the machine (or others like it).

First, we call attention to a paper by Aguirregabiria {418}. Quoting:

"An ohmic ring that rotates with constant angular velocity in an external uniform magnetic field is considered as a simple model for a current generator. Under the assumption that all quantities vary slowly in time, the lowest-order approximation to the surface charge density is found. The flux of the Poynting vector through the loop surface is also computed. Unlike the examples that are given in textbooks, this flux is not always incoming: It has the outgoing direction around the loop parts where the electrons are moving against electrostatic forces. "

In other words, contrary to textbooks, there are positions where such a ring produces currents in one direction, and positions where it produces current in the other direction — *in fact moving against the voltage and E-field, and thus serving as a true negative resistor in those latter regions*. This may be a profound clue to the negative resistor operation of Baumann's machine.

This unexpected negative resistor effect is in theory usable to provide a true negative resistance. If there are transformers in the machine (and there are in some of them at least), then if a true negative resistor were used as an external shunt across the external circuit connected to the secondary of a transformer, the transformer could be operated as a true COP>1.0 device. The back-field connection from secondary to primary would be reduced by the fraction of the return current to the secondary that is shunted in parallel to that current "pumped" back up through the secondary.

This should be considered as an important possibility in the Baumann machine's operation.

Second, a charging and discharging capacitor involves not only energy flow in a direction perpendicular to the plates, but also an energy flow in a direction parallel to the plates {419}. Each of the rotating "plates" is actually a rotating capacitor of sorts, with a dielectric between two plates

of special construction and dissimilar metals. The dielectric and the plates thus involve a complex intermingling of the negative resistor effect, a positive resistor effect, magnetic energy flows (both in entropic and negentropic manner in various regions), etc.

Baumann once handed two dissimilar plates, with a dielectric between them, to an engineer who measured it and found a startling several hundred volts across the plates! To date, no one is known to have been able to reproduce that effect.¹⁸¹ We suggest that, if the dielectric material is layered and photorefractive in nature, it may be related to the negative resistors built by Chung {420}. If so, the physical pressure of the plates against the layered dielectric may also be quite important. By varying this pressure, Chung and her team found that their device could be made to exhibit negative resistance, positive resistance, or zero resistance. This leads us to speculate that Baumann may have used a "stressed dielectric" capacitor as a device having a built-in negative resistance. In that case, build-up of such a surprisingly high voltage would indicate high stress locked into the negative resistance dielectric.

We also call attention to a paper by LaPointe {421}, which will be discussed later under inertial propulsion and antigravity. Essentially, true Dirac hole current in the adjacent vacuum/space can be generated by powerful electrical discharges, particularly from capacitors or coils. When the unaccounted Heaviside energy component is also considered as well as the Poynting component, LaPointe's despair at the difficulty of obtaining sufficiently large voltage gradient across a very tiny distance is dispelled.

¹⁸¹ We are reminded, however, of the peculiar phenomenon that can occur in large power capacitors stored on a warehouse floor. If their leads are not shorted, the capacitors will build up a self-charge gradually, and this can become quite lethal. For that reason, such large capacitors when stored will have their leads shorted, to prevent this "free cumulative charge and energy" from appearing and posing a serious hazard. To our knowledge, there has been no complete scientific explanation advanced for this "self-charging" effect in large storage capacitors. Our own hypothesis is that it is probably an effect of unaccounted Heaviside nondiverged energy flow components associated with various field/charge interactions in the area and with ordinary Poynting EM energy flow in the area, including within the earth itself. Further, with respect to the surface of the earth there is an increase in potential with altitude. Hence from any point above the earth's surface and a point on the surface, there exists a dipolarity and a "Kron open path". The broken symmetry of that dipolarity means that within it a continuous 4-circulation of EM energy flow occurs as well as point-dipole polarization.

If this speculation holds, then in examining lightning strikes and their more bizarre phenomena, Baumann may well have hit upon the fact that such discharges also generate negative energy as well as positive energy, although it appears that the technical concept of negative energy was foreign to him, at least in such terms. In short, he could have been unknowingly charging his large capacitors by Dirac sea hole currents, somewhat similar to Bedini's process.¹⁸² In that case, most of the "negative resistance" operation could be explained by Baumann's transduction of large bursts of negative energy into large bursts of positive charging energy and current in his capacitors.

Or, said another way in terms of Aguirregabiria's effect, Baumann may simply have been charging capacitors in that "negative resistance" Aguirregabiria region where the current does flow backwards against the voltage.

At least we have proposed some known though rare phenomena, which Bedini and my four colleagues and I have discovered in independent efforts. We strongly suggest that the Baumann device may unwittingly incorporate several of these mechanisms, but that neither Baumann nor the other members of Methernitha seem to have any technical notion of them.

With that, we leave it to the interested researcher to perform his or her independent Baumann-type system experiments and build-ups. Eventually, as is always true in science, the experiment must determine the truth of what is really happening. Given the successful experiment, then a model must be contrived or fitted that (i) explains the new effects produced, and (ii) complies with normal EM operation of normal $COP < 1.0$ systems.

6.4 Some Magnetic Processes of Interest

There are some 200 or more magnetic effects in the literature, and only about half of them are well understood. Of the remaining half, some are

¹⁸² Bedini and the present author have filed a patent application upon this exact **mechanism** and process, and typical embodiments for accomplishing it. Bedini discovered the effect and used it for two or more decades, and after some intense struggle with the problem I was able to find the exact technical mechanism, including literature justification. This becomes a system to close-loop a "unitary" **type** of $COP > 1.0$ system, which is covered in the patent application also. A different **system** can be used to close-loop a non-unitary $COP > 1.0$ system, and that method is contained in the second MEG-type patent application of my four colleagues and I who invented the motionless electromagnetic generator (MEG).

partially understood and some are not understood at all. The COP>1.0 researcher interested in magnetic systems would do well to study magnetic materials science {422a-422c}, known magnetic effects, and particularly those magnetic effects that are still anomalous such as in leading edge superconductivity research. The new area of *spintronics* {423}, e.g., is rapidly advancing and will have future impact on COP>1.0 magnetic systems. We do not further discuss spintronics in this book, but merely call this rapidly emerging area to the attention of the interested COP>1.0 researcher.¹⁸³

Let us examine a very few magnetic effects of interest, as a sampling of what we are referring to.

6.4.1 Self-Powered Magnetohydrodynamic Motors

Interesting self-powered magnetohydrodynamic motor work has been shown by Bednarek {424}. He shows a multi-branch rotor in a galvanic cell composed of sulphuric acid electrolyte with copper and zinc electrodes. The unit develops an emf of about 1 volt, with the rotor placed in a vertical magnetic field such as from a large rectangular permanent magnet, where the field of the magnet is a few teslas in strength. The electrolyte and the rotor revolve in opposite directions. To change the direction of revolution of the rotor, the magnetic field direction is reversed. A linear self-powered magnetohydrodynamic motor is also shown, and has a similar principle of operation.

The interesting point is that these motors work, but less efficiently, when a water solution of table salt is used as the electrolyte. With the worldwide availability of seawater, this becomes an interesting possibility of "renewable energy" application. We leave it to the reader to further investigate this proven experimental technology as desired and to determine its practicality.

6.4.2 Multivalued Magnetic Potential

Conventional system designers work with conservative fields, as shown in Figure 6-19. Conservative fields arise from a single-valued potential — a potential that has only one value at each point in 3-space that it occupies. Consider a rolling ball of mass m on the "oval track" shown in Figure 6-19, starting from point A and rolling on the right side path. With the ball at

¹⁸³ For technical information, see (a) Michael Ziese and Martin J. Thornton, Eds., *Spin Electronics*, Springer-Verlag, 2001; (b) D. D. Awschalon, N. Samarth, and D. Loss, Eds., *Semiconductor Spintronics and Quantum Computation*, Springer-Verlag, 2001.

rest at point A, we give it a slight push to velocity V_i adding kinetic energy $K_i = \frac{1}{2} m(V_i)^2$. At point A, the ball has its maximum potential energy P_A due to gravity.

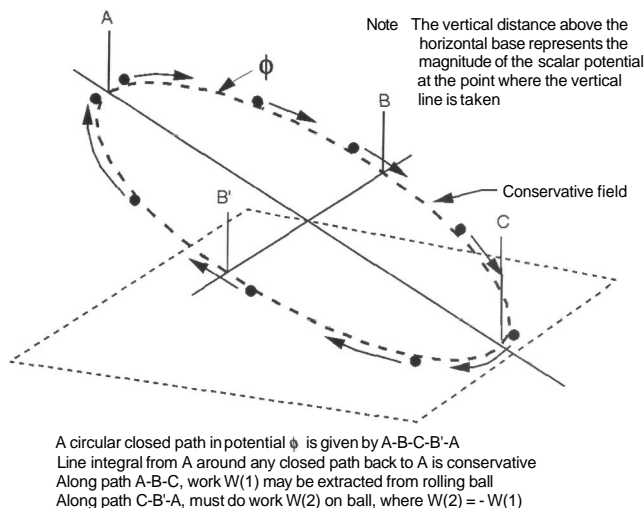


Figure 6-19 Conservative field use (single-valued potential).

As it moves to the right because of our push, the ball will accelerate due to the force of gravity and increase its kinetic energy until it reaches point C at the bottom, reaching its maximum linear velocity V_c and kinetic energy K_c at point C. Its change ($P_A - P_c$) in potential energy at from point A to point C has been converted to kinetic energy $[\frac{1}{2} m(V_1)^2 + \frac{1}{2} mVg^2]$ at point C.

Continuing on around on the left half of the path, as the ball rises toward A again, the portion $(P_A - P_C) = \frac{1}{2} mVg^2$ —of the ball's kinetic energy at C that was added by the force of gravity from A to C—is returned to potential energy P_A . The ball reaches its lowest kinetic energy $\frac{1}{2} m(V_1)^2$ at A and also its lowest velocity V_1 . For a perfect lossless system, once started in motion the ball would rotate around the track indefinitely, freely changing potential energy into kinetic energy and then back to potential energy. Nevertheless, it would not do any outside work, for that would represent losses or dissipations of energy from this conservative system. Consequently, the ball would quickly run down if work were being done, even if the system were otherwise "perfect".

If one integrates the change in potential energy around the track, the net change in potential energy is zero. The work done on the ball by increasing gravity to increase the ball's energy in one half-cycle, is taken back from the ball back when it climbs back out into decreasing gravity in the other half cycle. If one integrates the changes in kinetic energy around the track, once the initial velocity and kinetic energy are produced by outside forces in a perfect system, the net change in kinetic energy is zero. Of course, it is easily seen that the ball gains kinetic energy on its downward half of the track, and then returns the kinetic energy on its upward half of the track.

This situation is said to involve a *conservative fields* and the system will not produce any net energy to use as free work. Indeed, a real system will almost always have some friction and other losses around the path {425}, so the ball will gradually lose net initial energy given it, slow down, and eventually come to rest at point C, the lowest potential energy of the system.

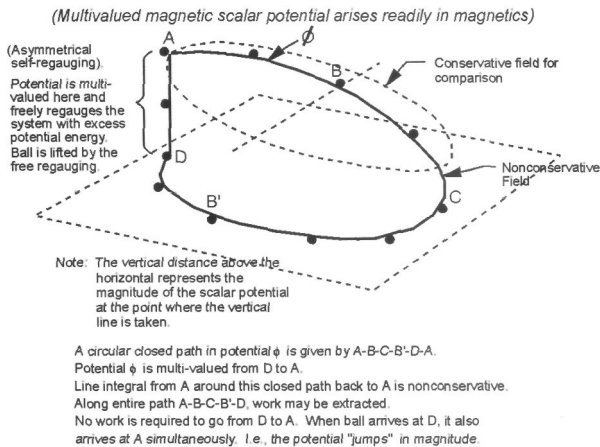


Figure 6-20 Field may be non-conservative for a multivalued potential.

A charge circulated through a closed current loop circuit also moves through a conservative field region in similar manner. Hence, there is no net excess energy input available for such a conventional circuit. It follows that one must arrange for inputting all the input energy (intercepted and collected by the circuit) that is then dissipated from the circuit's loads and losses. Unfortunately, half the collected circuit energy also goes to destroying the dipole, with less than half powering the load. Therefore, that circuit always exhibits $COP < 1.0$.

Now see Figure 6-20, where we provide an analogy using a rolling ball around a circular track, in a gravitational potential. In this case, the potential has a multiple magnitude A and D at point A-D, which is the same point (we plot a point in the potential's magnitude, not a point in 3-space, although there can be close approximation).

Approaching magnitude D from point B', the value of the potential is steadily reducing and is much lower prior to reaching A-D than it was when leaving magnitude A. During this phase, the ball is gaining kinetic energy from the gravitational potential, and can be used to perform useful work (up to all the energy gained, in a perfect system). Upon passing through point A-D, instantly the ball is again at point A on the right. We accent that the "instantaneous jump" on the diagram represents a free insertion of excess energy (asymmetric regauging energy) from outside the system. Rigorously that is a broken symmetry, which also breaks the internal energy conservation of the system. In short, the "ball" has been instantly "lifted" (in this simplified analogy) back to a higher potential by a free insertion of excess energy from the external environment. The main point is that a surge of potential energy into the "ball system" occurred, freely input by nature and the environment. The system can now go through the "doing work" routine again, traversing from A back to D and through it.

Note that this is a nonconservative system, because it continually receives a free and sudden input of excess energy from its environment. So this system — because of its broken symmetry — can continually do work and keep on going.

Indeed, so long as that free energy input from the environment occurs without fail, this is a "self-powering" system, completely complying with **the** laws of physics and thermodynamics. It violates the equilibrium thermodynamics because the system is periodically not in equilibrium with its environment. Consequently, the system can exhibit those five magic functions we spoke about previously. It can exhibit (i) self-organizing (in this case, freely getting that little ball from low potential energy D back to high potential energy A), (ii) self-oscillation or self-rotation (the ball will continue to go around and around the loop, even doing a little work in the process), (iii) output more energy than the operator inputs (in this case, the operator is not inputting any energy at all, so the energy output is indeed more than the operator furnishes), (iv) power itself and its load simultaneously (all the energy is being input from the external environment at the insertion of excess energy at point D to move the ball **back** to position A), and (v) exhibit negentropy.

This is an analogy to a nonconservative field and a multi-valued potential. In the case where a potential has discontinuous values at a single point, with the value depending upon whether the detecting charge (the "ball", so to speak) is to the left or to the right of that point, one has a *multivalued potential*. This multivalued potential actually represents a change of potential energy in the system, freely occurring without operator input. In short, it is an asymmetrical self-regauging, violating Lorentz's symmetrical regauging condition.

Actually, multivalued *magnetic* potentials arise naturally in magnetics theory, but —foolishly, in our view — theoreticians do all in their power to minimize or eliminate their consideration {426a-k}. They consider such a nonlinear change as being embarrassing and troublesome, and to be gotten rid of at all costs! However, if deliberately used and optimized, rather than eliminated, incorporating a multivalued magnetic potential can provide a *nonconservative magnetic field* (analogous to the illustration), where $\oint \mathbf{F} \cdot d\mathbf{s} \neq 0$ around a rotary permanent magnet loop. The multivalued potential represents a broken symmetry that further produces a nonconservative field.¹⁸⁴ In theory, such use of the multivalued potential and the resulting nonconservative field can enable a "self-powering" permanent magnet rotary engine, operating as a negative resistor freely extracting and using magnetic energy from the broken symmetry in the system's energetic exchange with the active vacuum.

However, note that the multivalued potential represents a point of sharp "self-regauging asymmetrically" by the circuit, with the regauging potential energy coming from the external environment. It requires that some external process in the exchange between environment and system must be automatically invoked at the multiple-value point, so that there is a sharp and sudden entry of excess potential energy received by the circulating ball (or by the circulating charges in an electrical circuit, or by the circulating flux in a magnetic circuit).

One such means of evoking such a sudden surge of excess energy at a point, momentarily, is given by Lenz's law, as discussed in the magnetic Wankel engine. Another means is by Johnson's sudden evocation of the

¹⁸⁴ In physics, the appearance of a force and its subsequent action to perform work is nature's way of restoring symmetry to a situation where symmetry has been violated. As can be seen, the net force can be used to translate something (such as current) and do work, thereby dissipating the excess potential energy received from the broken symmetry condition.

exchange force, which momentarily can produce a pulse of energy density even several hundred times as strong as the usual field energy at that point. For example, imagine that the ball in Figure 6-20 represents a magnetic rotor in a magnetic potential represented by the height of the ball above the dotted line base. The point (D-A) then represents the results of the system having suddenly injected an instantaneous exchange force at point D, to freely increase the potential and potential energy of the rotor system back to point A. The rotor is immediately lifted back at its starting potential energy situation at point A, freely, by this sudden and free evocation of the exchange force. We will briefly discuss the exchange force in our discussion of the Johnson engine.

6.4.3 Dromgoole Effect as an Example of a Novel Magnetic Effect

An example of a novel magnetic effect is the *Dromgoole effect* {427}. This is an interesting phenomenon where a voltage placed on a solenoid wrapped around a longitudinally magnetized iron wire may be increased up to 300 times in magnitude by twisting the wire through 90 degrees. If a scheme can be worked out whereby this dramatic increase in voltage potentializes and moves very substantial current, then perhaps the extra output can — at least momentarily — produce more output energy than the work required to twist the wire.¹⁸⁵ At least that could be a working hypothesis from which to launch experiments to see if it is possible.

The reason this may be possible is that any amount of energy W one wishes can in theory be collected from any finite potential intensity ϕ , according to the simple equation $W = \phi q$, where q is the collecting charge exposed to and interacting with the potential intensity ϕ . In the case of magnetics, q is analogous to the pole (magnetic charge), where the north pole is positive magnetic charge. The ϕ then becomes the magnetostatic scalar potential.

So if we can produce ϕ with only a little expenditure of energy, and then have that ϕ potentialize a very large amount of charge q , we can collect upon the charge q much more energy than what we ourselves expended. The ϕ produced is a change to the local vacuum potential, and hence the collection of energy W on charges q is actually a collection of EM energy from the local altered vacuum potential itself. Any potential we make

¹⁸⁵ The scheme must prevent *at least an appreciable fraction* of the spent electrons- from the external circuit and load — from being forcibly rammed back up through the coil against its back EMF. Otherwise the Lorentz symmetry condition applies and the arrangement will not produce COP>1.0.

becomes a change to the local vacuum potential, and hence a change to the local active vacuum. That does not seem to appear in electrical engineering, which model does not even incorporate modeling the active vacuum or its potential, much less a change to it.

While we discuss a few interesting magnetic effects in this paper, there are many more. The interested researcher is referred to such easier sources as Burke {428} and Cullity {429}. For more complex scientific sources and explanations, other publications are available {430a-430r}. In addition, it is helpful if the researcher is aware of some of the foundations problems in physics and electromagnetics {431a-431e}. Our point is that there are more than 200 known effects in magnetics, and only about half of them are well understood. For the other half, the understanding ranges from "partially understood" to "not understood at all." The latter half of the magnetic effects provides a rich ground for investigation by researchers seeking an asymmetrical self-regauging mechanism.

The COP>1.0 researcher must be prepared for an extended self-education period, and appreciable study and work. Some research discipline is highly recommended, such as starting one's own database and rigorously maintaining it up to date with one's latest interests. For the experimenter, a good lab notebook, meticulously kept and regularly posted, is an absolute necessity. Reading and searching the scientific literature is also highly recommended. It is not as simple as applying the principles one learned in university or technical school. Those techniques and principles are involved, but at some point in the circuit they must also be violated. Else COP>1.0 systems would long ago have been developed and marketed by sharp young students, graduate students, and post-doctoral scientists.

6.4.4 Exchange Force and Johnson's Approach

Refer again to our discussion of conservative versus nonconservative fields, above.

If one wishes to build a self-powering rotary permanent magnet motor, obviously one must evoke a condition whereby $\oint \mathbf{F} \cdot d\mathbf{l} \neq 0$ around a single full rotation of the rotor (and where \mathbf{F} is the instantaneous magnetic force between stator and rotor). For permanent magnets without any external switching, etc., that condition can only arise if an excess force is freely triggered by changes occurring freely in the magnetic materials themselves.

Fortunately, magnetic materials are almost always highly nonlinear, and so such self-triggering opportunities abound. They can occur because there are a multiplicity of mechanisms (dozens and dozens) going on

simultaneously in the materials of the magnets of both the rotor and the stator, and not just the standard polarity and field repulsion and attraction that electrical engineers use. These materials processes also involve direct and ongoing exchange of energy between the active vacuum and the local materials in the magnet.

The trick is to take one of these automatically ongoing processes that is already there and freely available but just not adroitly used, and deliberately evoke and enhance it to induce excess energy at the appropriate time, with a force in the appropriate direction. In simple terms, if you have eight more horses available to put into the harness to pull the load, and you only have two normal horses but wish to pull more load, then by all means you should hitch up and use at least one more additional horse, and take him from the six that are usually just standing by and not working at all. They may run back and forth a bit, while watching the others work, but that of itself contributes nothing.

One such additional force and free regauging mechanism always available is the exchange force, which can be checked in Feynman's three volumes of physics {433} and also in the reference by Cullity {429} previously cited. Good science dictionaries {432} also include helpful information. Reading the literature will add enormously to one's data base of effects and methods.

Howard Johnson's approach is to arrange highly nonlinear assemblies of geometrically asymmetrical magnets into complex configurations. At certain points in a magnetic field, these Johnson assemblies will trigger the sudden brief self-generation (actually a sudden release) of *exchange force* between stator and rotor. The exchange force is a known phenomenon {432, 433, 434}, though still not completely understood theoretically. It **can** be evoked asymmetrically by evoking electron-spin flipping, for example, which has led to the development of a new field of technology, **spintronics**. *Microscopically*, the exchange energy is much greater than the magnetic field energy, sometimes by a factor of 10^3 to 10^4 {435, 436}. *Macroscopically*, the resulting exchange energy can momentarily still be many times the magnitude of the ordinary magnetic field energy; e.g., by a factor of 200, which Johnson often achieves.

If **the** stimulated momentary exchange forces are oriented to always add to the thrust upon the rotor in the "powering rotation" direction, then the **multivalued** potential condition and $\oint \mathbf{F} \cdot d\mathbf{l} \neq 0$ are met. In that case, self-powering is permitted, if enough of these exchange force triggerings occur

so that the extra potential energy added to the rotor is sufficient to overcome the load and the losses being powered.

The self-triggering of each exchange force appearance produces an excess burst of force and energy¹⁸⁶ input into the system from its active supersystem environment. Thus, repeatedly the system is momentarily converted (in each exchange force burst) into an open system in disequilibrium in its energy exchange with its active environment, freely receiving excess energy from it. Because the exchange force "input energy burst" is short, multiple such "input bursts" must be used in a single rotation cycle so that the total energy input by all of them is significant.

In that case, $COP > 1.0$ performance is permitted by the laws of physics, thermodynamics, and nature. Conservation of energy is not violated. Classical equilibrium thermodynamics with its infamous second law does not apply to the Johnson system, since the system is periodically an open system far from equilibrium and receiving excess energy from its active environmental exchange. *A priori* the Johnson system has increased its negentropy overall, and that negentropy (increased order or increased potential energy) can then be dissipated (disordered) to produce free shaft horsepower if the bursts of exchange force are properly coherent in direction and timing.

We diverge for a moment: As is well known, the equilibrium condition in a system is the condition of maximum entropy in the system; any disequilibrium condition reduces the entropy *a priori* because it is an excited state of the system containing additional potential energy. It is worth rigorously clarifying the infamous second law of thermodynamics. Quoting Lindsay and Margenau {437}:

"[The]...statement of the second law: (a) the entropy... is a variable of state, (b) Its value, for a closed system, can never decrease."

*... "Non-equilibrium conditions cannot be specified by variables of state, and their entropy cannot be computed.
...the condition of equilibrium is the condition of maximum entropy."*

¹⁸⁶ Technically speaking, the exchange force is not a magnetic field force, but a force that arises independently due to quantum mechanical considerations. Nonetheless, it is a real force arising in magnetic materials and affecting magnetic materials, as in permanent magnets.

In the first statement, the reader should note the assumption of a closed system in the first subparagraph, and the absolute requirement that the calculated entropy be a variable of state.

Also, the quotation can be falsified. Oddly, the "closed system" in classical thermodynamics is defined (illogically) as a system that does not exchange mass across its boundary, but may and often does exchange energy across it. We negate any absoluteness of that statement by Lindsay and Margenau by citing a counter example of a "closed" system with continuously increasing energy, fed by transfer of energy from the environment, and with no escape of the energy or very little escape of it. A specific example is a photon absorption by a mass particle. This system achieves increasing energy (order) as the process continues, hence achieves negentropy. This may be considered a fluctuation, of course, but it still places severe limitations on this law of thermodynamics and in fact negates any absoluteness of it. For such reasons, in this book we have redefined "closed system" as one that exchanges neither energy nor mass with its environment, and we recognize that there are no such systems in the universe. We have defined an "open system" as a system that exchanges either energy or mass or both across its boundary, so that we do not encounter the problem of the counter example cited. Further, general relativity requires an increase in the mass of any system that increases its potential energy, and a decrease in the mass of any system that decreases its potential energy. Hence energy exchange at all with the system, involves mass exchange since mass and energy are the same thing. The classical thermodynamic definition of a "closed system" has thus been falsified since 1915, with the definition becoming only an approximation rather than a generally valid definition.

In the second subparagraph of that first statement by Lindsay and Margenau, the reader should note that the closed-system assumption must be violated *a priori* if the entropy does decrease, and vice versa. If the system is broken into a set of subsystems, then the only way the entropy of the overall closed system to decrease is for one or more of the subsystems to be open (new definition!) and energy (order) to pass out of the system. Then an interesting thing emerges: For order (energy) to remain in the system as such, the subsystems taken as a whole must produce as much negentropy as they do entropy. Energy from an ordered subsystem can be emitted in disordered form, but then it has opened that subsystem and has entered the space between parts (subsystems) of the overall system. In other words, in a closed system, *any increase in entropy requires the subsystems to become open subsystems*. Again, the statement of this law of

thermodynamics eats itself. To stay in the overall system, this scattered energy *outside the subsystems* must then interact totally with another part of the system, and so on. This introduces disorder to the succeeding parts that interact. Therefore, the second law of thermodynamics itself *internally* violates its own "closed system" assumption because, to operate at all, the law requires continuing interaction between the active local vacuum environments and the subsystem components. In short, it requires a very special kind of overall or average equilibrium in an unavoidable energy exchange between the local vacuum and all the parts of the system. The source charge problem already demonstrates the universal violation of the second law and the thermodynamic definition of "open system", but both classical electrodynamics and classical thermodynamics have ignored this source charge problem for more than a century. Our solution to it was published in 2000.

Quite simply, there is no such thing as a truly closed system in the first place. Kondepudi and Prigogine come close to this statement in the following quotation¹⁸⁷:

'Anyway, equilibrium thermodynamics covers only a small fraction of our everyday experience. We now understand that we cannot describe Nature around us without an appeal to nonequilibrium situations. The biosphere is maintained in nonequilibrium through the flow of energy coming from the sun, and this flow is itself the result of the nonequilibrium situation of our present state in the universe.'

In short, all systems on the planet — and we ourselves — are immersed in a nonequilibrium state a priori. Rigorously there is no such thing as an absolute equilibrium state on the planet, except as an approximation.

Now consider a perfectly insulated system, so that no heat can pass from the system outside it. An interesting constraint then exists on those "open subsystems" producing disorder (entropy). Unless equal reordering occurs in the subsystem-to-subsystem reactions, then disordering (heat) grows a priori. But this is not observed to happen in well-insulated systems approximating our theoretically perfect example! Otherwise, the temperature of a well-insulated system would increase until system rupture and failure. And experimentally that does not happen.

¹⁸⁷ Dilip Kondepudi and Ilya Prigogine, *Modern Thermodynamics: From Heat Engines to Dissipative Structures*, Wiley, 1998, p. xii.

It follows that, to maintain the internal equilibrium between subsystems and a constant internal temperature, a negentropic process is clandestinely involved. We submit that this process is revealed in our discovery of giant negentropy of the negative charge, and what may be said to be the giant entropy of the positive charge — i.e., in the discovery of the common "4-circulation" of energy surrounding a dipole from the time domain to the negative charge of a point dipole in 3-space (thereby entering 3-space once emitted by the negative charge), thence to the positive charge of the point dipole, and thence back to the time domain. For a single charge, the well-known vacuum polarization provides virtual charges of opposite sign, to convert the "isolated charge" into a set of composite dipoles, as previously explained.

The second law of classical thermodynamics, considered in a more modern light, appears to conceal hidden giant negentropy and hidden giant entropy, in the ongoing 4-circulation of EM energy in the supersystem. *It is not possible to eliminate the supersystem or the interchange between its parts; particle physics told us in 1957 that there is no equilibrium of any system without this ongoing exchange.* Any thermodynamics attempting to discard the supersystem exchange (which involved both mass and energy) is at best an approximation for special "reasonably well-behaved" situations.

If the entire system is not in net equilibrium with the external environment (i.e., if there exists disequilibrium between the separated parts of the supersystem), then classical thermodynamics does not *absolutely* apply to that system. The system is no longer *absolutely* describable by "variables of state".

Those objecting to $COP > 1.0$ in an EM system on the grounds that it would violate the second law of thermodynamics (which already violates itself), would be well-advised to restudy the very notion of the second law and the thermodynamics definition of *open system*. Compare relativity's equating mass as energy. Then ponder the thermodynamics of open systems far from equilibrium with their active environment. Every system in the universe is open, and it has an ongoing exchange with its proven active environment (local active vacuum and curved spacetime). This exchange includes and exchange with every particle in the system. As pointed out by Lee:¹⁸⁸

¹⁸⁸ T. D. Lee, *Symmetries, Asymmetries, and the World of Particles*, U. Wash. Press, Seattle, 1988, p. 46-47.

"...symmetry implies conservation. Since our entire edifice of interactions is built on symmetry assumptions, there should be as a result a large number of conservation laws. The only trouble is that almost all of these conservation laws have been violated experimentally. "... this difficulty could be resolved by introducing a new element, the vacuum. Instead of saying that the symmetry of all matter is being violated, we suggest that all conservation laws must take both matter and vacuum into account. If we include matter together with vacuum, then an overall symmetry could be restored."

The *system itself* is always in disequilibrium; only the supersystem can exhibit equilibrium. The second law of thermodynamics specifically does not and cannot apply to a system far from equilibrium, because of its implicit assumption of overall equilibrium without the active vacuum exchange. Also, a deeper balance is required between the hidden asymmetries existing between the subsystems and their local vacuum (and local spacetime curvature).

Indeed, *one cannot even calculate* the entropy for a system that — overall — is far from net equilibrium with its active environment. We quote Lindsay and Margenau even more strongly {438}:

"Equilibrium states are the only ones that are capable of explicit analysis in thermodynamics..."

And again {439}:

"... variables of state have meaning only if they define an equilibrium state. Hence the quantity we are seeking will be meaningless unless it refers to equilibrium states."

While we are at it, let us also address a serious flaw in the first law of thermodynamics. We again use Lindsay and Margenau for a succinct statement of the First Law {440}:

"First law of thermodynamics. A complete statement of the first law comprises two assertions: (a) heat is a form of energy, (b) Energy is conserved."

All that really says is that energy is conserved. It does not state that it is conserved in an object. It states that, whether the system is in equilibrium or not, energy is conserved. If heat is taken as disordered energy, then it

merely states that overall the energy is conserved, whether ordered or disordered with respect to some ordering criterion. It does not state that the disordering is conserved, and it does not state that disordering must increase or decrease. But *it does implicitly assume that all energy at some most basic level is ordered, else it cannot be energy (order)*. So it assumes that, at higher levels, energy can be disordered (incoherent). However, at the underlying basic level, it is and remains perfectly ordered — else it could not remain "energy and could not be conserved. As an EM example, in so-called "heat", *every scattered photon retains its perfect order; it is only the photon ensemble that is "disordered"*.

In short, each "basic piece" of energy is perfectly ordered, but the *ensemble* of the pieces may be disordered. Therefore, entropy applies only at a level higher than the basic energy quantum. Contrary to the assumptions of classical (macroscopic) thermodynamics, processes which directly engineer the basic energy quanta¹⁸⁹ — more exactly, the *action* quanta, consisting of *energy x time*, since energy cannot be "engineered" or changed in 3-space without also being engineered "in time" as well — are time-reversible. Hence they can be negentropic — simply because every observable system is "open" to, and in continuous energy exchange with, its active time environment (and also its active vacuum environment). Also, no system changes its spatial energy in any fashion, including ordering or disordering, without interacting with spacetime and spacetime curvature dynamics. It also changes its time-energy.

So in our view the notion of "disordering" and "disordering of energy" must be carefully reconsidered, as to exactly what is and is not being disordered, when the assumed "disordering" occurs, at what level it occurs, where and how the compensating reordering occurs, etc. We also point out that the simple discovery of giant negentropy {12} as the solution to the long-vexing source charge problem already removes the "absoluteness" of classical thermodynamics. Giant negentropy already violates the assumptions of classical thermodynamics at the elemental level in every physical system. Indeed, every charge in the universe already falsifies any "absoluteness" of the assumptions of classical thermodynamics.

This problem in the old classical thermodynamics has long been indirectly solved in particle physics, with the discovery of broken symmetry. As Lee states so clearly {441},

¹⁸⁹ Actually, energy is discretized, not quantized. Energy x time (i.e., *action*) is **quantized**.

"As we expand our observation, we extend our concepts. Thus the simple symmetries that once seemed self-evident are no longer taken for granted. Out of studies of different kinds of interactions we are learning that symmetry in nature is some complex mixture of changing plus into minus, running time backward and turning things inside out."

We point out that a symmetry involves a conservation law, such as are stated in classical thermodynamics, and a broken symmetry involves a broken conservation law. So the discovery of broken symmetry in physics was a profound change affecting all physics, including the staid old classical thermodynamics. Lee further points out the new complexity of concepts {442} such as symmetry (which is behind every conservation law, including the first law of thermodynamics):

"At present, it appears that physical laws are not symmetrical with respect to C, P, T, CP, PT and C. Nevertheless, all indications are that the joint action of CPT (i.e., particle \leftrightarrow antiparticle, right \leftrightarrow left and past \leftrightarrow future) remains a good symmetry."

So unless the first law is stated in terms of modern CPT symmetry, it does not absolutely apply! Further, every charge is changing time-energy into spatial energy or vice versa. Yet there is nothing about time-energy and its transduction into spatial energy, or vice versa, in the present textbook statements of the thermodynamics. The term "heat" does not refer to the presence of energy at all, but to the scattering (disordering) and escape of energy.¹⁹⁰

Considering heat as "energy of the system", or "heat energy" of the system, is a grand non sequitur. Rigorously, "heat" refers to the reduction of higher levels of ordering of energy, and since the gist of energy is ordering, reduction of ordering is the very antithesis of energy! "Heat energy" thus is an oxymoron. Before the "escape", there is no "heat energy" (ugh!) in

¹⁹⁰ Think closely: We never take the temperature of a "system"! We take the temperature of the disordered energy (heat) leaving that system or its subsystems. We do measure the effect of the emitted disordered energy. But that has already left the system and is in the local vacuum (a second component of the supersystem). Thermodynamics might be usefully redone more exactly in terms of the supersystem. We leave that task to some budding young future thermodynamicists for a recommended doctoral thesis.

the system at all. The energy is present in the system *not as disordering, but as ordering, a priori*. If it were in the system, it would not have escaped nor would it be escaping from the system. More energetic molecular motion, e.g., is actually more energetic ordering, simply at an excited state (of greater energy!).

We stress again (and strongly advise the researcher to read) Romer's strong objection to the use of heat as a noun {443}, and we suggest that the entire subject of classical thermodynamics needs a thorough revision to tighten up its terminology, correct its definition of closed system, eliminate its conflict between the first and second laws, and remove its inappropriate consideration of heat as "energy". Otherwise, the presentation and general interpretation of thermodynamics itself will continue to be one of the great confusion factors one encounters in trying to think clearly about extracting EM energy from the active vacuum environment to produce and utilize COP> 1.0 systems.

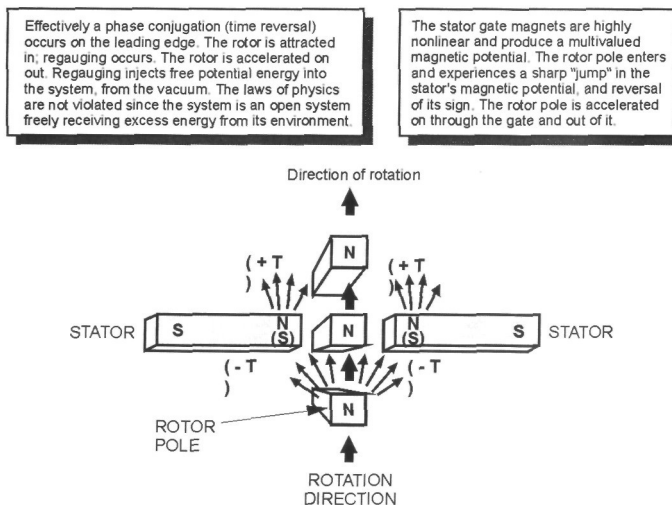
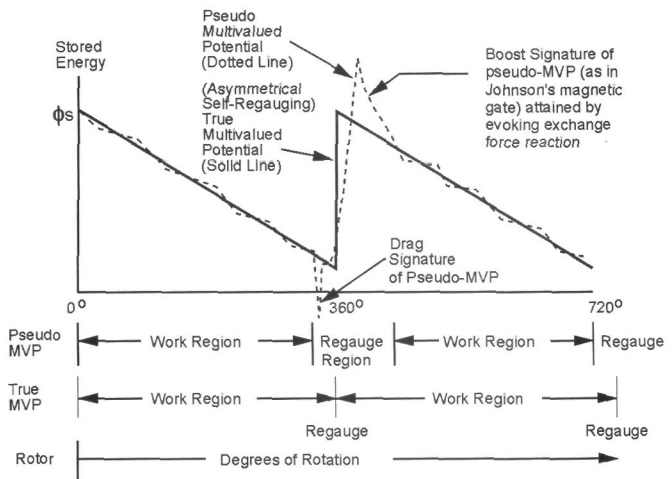


Figure 6-21 Concept of operation of Johnson's patented magnetic gate.

Johnson's approach produces a peculiar kind of multivalued potential. One **part** is conservative and of magnetic energy in nature, and the other part is nonmagnetic, being direct exchange force and energy effects on the **participating** atomic nuclei arising from quantum mechanical considerations. Nonetheless, the net *hybrid* potential can be multivalued at various points around the stator, and that is all that is required for broken

symmetry. If $\oint \mathbf{F} \cdot d\mathbf{l} \neq 0$ around a closed path, regardless of which set of forces \mathbf{F} represents, then that overall composite force field acting upon the rotor or object moving around the closed path is nonconservative. In that case, self-powering is permitted.

Figure 6-21 diagrammatically illustrates the operation of a nonconservative force-producing magnetic gate in Johnson's approach to a permanent magnet motor. As Johnson has shown, by using a multivalued hybrid potential (MVP) in his gates so that the resulting excess exchange force is properly oriented in direction and timing, a rotor magnet is attracted into a highly nonlinear stator gate region where the MVP is located. When it enters the MVP region where the exchange force is initiated, the rotor encounters a dramatic jump in the net potential with a change of polarity as the exchange force suddenly fires automatically. In turn, this produces a sudden accelerating tangential force in the region, usually against the prevailing magnetic force in the normal back mmf region!



Note Single regauging per notation shown Johnson uses multiple regaugings per rotation

Figure 6-22 Johnson's "refueling" a permanent magnet engine by asymmetrical self regauging. A multivalued potential is momentarily created by precisely evoking an exchange force reaction.

Johnson often confounds professors of electromagnetics by showing them that his special gate can produce attraction between like poles, with a north rotor pole being drawn into a north stator pole in that exchange force region. This can be understood by tracing the spin field flow patterns, but

cannot be understood by simple "like poles repel and unlike poles attract". In short, Johnson knows he is adding a force completely different from the magnetic force the professors have in mind as the sole acting force. It is rather like pushing two like poles of two little magnets together. You can do it because an additional force — your mechanical force pushing them together — is acting and overcomes the normal repulsive force between the two poles.

The sudden exchange force burst produces a sudden accelerating tangential force in the normal deceleration (back mmf) region of the stator-rotor arrangement. In short, Johnson utilizes a deliberately evoked burst of exchange force to freely overcome most or much of the back mmf (back-drag) region. This in turn produces a net driving force around the rotor's complete rotation, because the overall field combination is nonconservative.

Rigorous force meter measurements taken at 0.01-second intervals prove that this occurs as the rotor enters and passes through Johnson's gate. The results of one such experiment are given in Figure 6-22.

Johnson thus uses highly nonlinear magnet assemblies of novel design to create a special kind of multivalued potential in his magnetic gate by adroitly evoking exchange forces — *extra quantum mechanical forces* in addition to the usual magnetic field forces. The MVP produces a sudden extra rotational force, backwards to the back-drag (back mmf) region of the stator-rotor magnet arrangement where the rotor magnet assembly is entering and passing through the conventionally repelling like-polarity situation. The result is that a net north rotor pole is seemingly attracted in¹⁹¹ to the otherwise repelling stator north pole region, then accelerated out the other side by the normal magnetic repulsion.¹⁹² Net drive force results, instead of a net zero force. Engineer Ken Moore, a close colleague of the present author, independently tested a Johnson gate and verified the net driving force effect {444} within the limits of our little laboratory.

¹⁹¹ In reality it is "forced in" against the repulsive magnetic force, by a superior force of a different nature, suddenly evoked.

¹⁹² I.e., as the exchange force dies, the forces now acting are the normal repulsive **magnetic** forces, but the rotor has moved to a position where now this repelling force accelerates the rotor in the "load powering" rotational direction. In other words, the observer sees a like pole suddenly "attracted" into a like polarity region, move partially through it, and then suddenly be accelerated out the other side. But the "attracting in" force and the "accelerating out" force accelerate the rotor in the load-powering rotational direction.

Technically, Johnson's apparatus asymmetrically and suddenly regauges its exchange forces in such a manner as to momentarily overpower the back mmf region of the engine's rotation, thus producing a net multivalued potential and a net accelerating force around the overall rotation loop. However, correlated distant effects in magnetic materials are known. If distant compensation does occur, then the closed-loop capability might conceivably be defeated, if the total compensation is sufficient to provide an $\oint \mathbf{F} \cdot d\mathbf{l} = 0$ overall condition. Hence the research probably demands attention to maintaining both *local* asymmetry and *distant* asymmetry. If the distant correlation effects occur, only in that manner can an overall nonconservative field represented by $\oint \mathbf{F} \cdot d\mathbf{l} \neq 0$ be maintained around a completely closed magnetic loop.

This may be the problem with which Johnson appears to have been struggling for so long. He did solve the problem once, and produced a self-rotating permanent magnet motor that the present author personally tested over a period of about 2 hours. During a two-hour test period, the motor apparatus was allowed to self-rotate for up to 15 minutes at a time. Shortly after it became known that Johnson had successfully produced such a prototype, his laboratory was mysteriously broken into. The only thing taken was the magnet assemblies on that specific little successful demonstrator — in a laboratory with more than a hundred thousand dollars worth of magnets and magnetic assemblies of many kinds present.

As a personal aside, I have been associated with Johnson, off and on, for many years. He is a man of the highest integrity and an indefatigable researcher. It is my fervent hope that Johnson will succeed in his permanent magnet rotary motor project. All I can say as this goes to press, is that he is getting very close again, now that he has help and good machining accuracy, etc. for higher precision buildups. In the near future, I hope to be among the first to drink a good glass of champagne to celebrate his success.

6.4.5 Radus Effect: Magnets with Preferred Flux Path Memory

In the early NASA space program, magnetic boots for holding the astronaut to the skin of the space vehicle when outside it were required. A Westinghouse engineer named Raymond J. Radus had found that a permanent magnet applied to a dual flux path (Figure 6-23) would "remember" the flux path taken initially, until switched to the other flux path in an initial condition, after which it would remember that path as preferable {445a-445c}. A permanent magnet with such "memory" will split its flux in two parallel flux paths by some ratio, e.g., 20% in the non-preferred path and 80% in the preferred path. This preference can be

switched at will by proper manipulation. So Radus developed switchable magnetic astronaut boots for the space program, using his magnetic memory and flux path switching technique {446}.

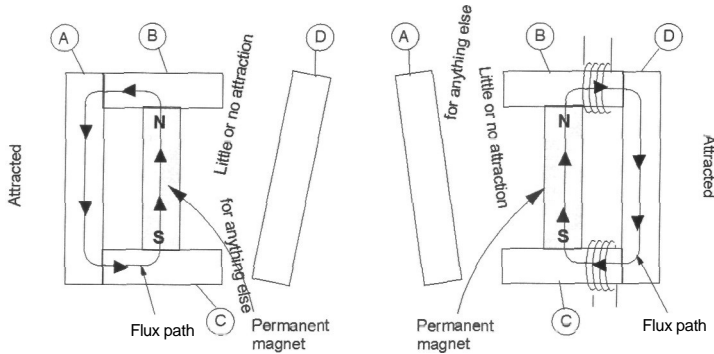


Figure 6-23A.
Once the magnetic circuit is made, there is little attraction for anything else

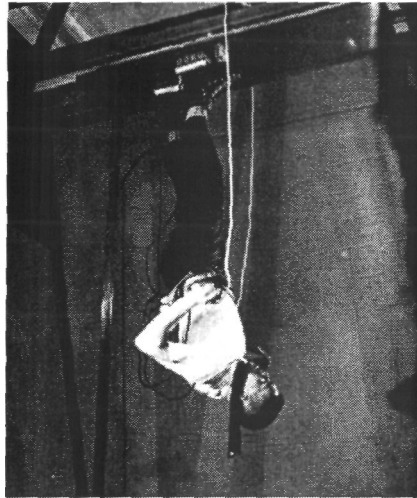
Figure 6-23B.
A single pulse through a coil can reverse the direction of the flux path

Figure 6-23 One example of the Radus effect.

The Radus circuit differs from ordinary permanent magnet circuits in three ways: (i) It exerts strong magnetic force at one end while exerting hardly any at the other, (ii) the strong and weak magnetic poles can be switched end-for-end easily and at will, thus, in effect, turning the magnetism on and off at one given side of the circuit, and (iii) once switched, it remembers its direction of greatest magnetic pull indefinitely.

The original Radus boots were excellent. For the acceptance tests, an engineer clad as an astronaut walked across the bottom of a steel beam in a high bay research area, upside down against the pull of Earth's gravity (Figure 6-24). He *stepped as he walked*, putting his foot "down" and then picking it "up" {447}.

There is no problem in finding modern magnets strong enough to hold the astronaut firmly in such an upside position. The problem with simple magnetic boots using such strong magnets is that, once the foot is planted, the astronaut cannot pick up the foot again. Consequently, the best the astronaut can do with such magnetic boots is walk rather laboriously by "scooting" the foot forward, with the boot remaining in contact and the astronaut unable to pick it up.



Engineer *walked* upside down on the underside of a steel beam in a high-bay area, wearing the RADIUS boots. He used a stepping movement, not shuffling

Figure 6-24 Acceptance test of the RADIUS astronaut boots.

The RADIUS boots completely solved that problem. The permanent magnet fields are switched away from the "boot sole contact with the beam" for that foot that the astronaut wishes to lift, so he can lift it easily and take another step. Then the fields are switched back in again so that the strong field is on the boot sole as he places his foot down. This switching of the fields allows him to walk in a manner resembling normal walking, though a little slower. To do that switching by normal "battery and electromagnet coils" would be prohibitively bulky and heavy — and awkward. With the RADIUS boots, the astronaut could walk in a manner very similar to slow but normal walking.

However, it is easily seen that an adaptation of the RADIUS process could conceivably be used to produce a self-switching, self-powered permanent magnet motor. Being a permanent dipole, a magnet is already a particular kind of "free energy generator", since it continuously extracts magnetic energy directly from the active vacuum due to its dipole asymmetry in the virtual photon flux of the vacuum.

The RADIUS boots were abandoned quickly. NASA then developed the present inferior "shuffler" kind of magnetic boots where the astronaut cannot lift his boot from the surface, but must "scoot" his feet along in a sliding and painfully awkward fashion {448}.

Even today, it is little known that in many virgin magnets fresh from the factory, their very first use conditions them with a Radus-type memory! *Thatfact can be used, e.g., to create magnets whose fields appear normal, but which deviate from the normal behavior of ordinary magnets, and which produce anomalies in their magnetic fields.*

The Kawai engine {31} uses a novel means of switching the flux path itself instead of overpowering the magnetic poles in an electromagnet. As this is written, Bedini has been notified that his patent with a "path-switching" effect control method has been accepted and will be issued. Although control of the Kawai engine was seized by the Yakuza, we expect to see that some of the first COP> 1.0 motors on the world market will be magnetic motors using the Radus effect or other flux path switching method.

6.4.6 Hole Currents and Electron Currents

In a conducting solid, there are both hole currents and electron currents moving in response to a forcing electric field. In the simple case, electrons move in one direction along the conductor and lattice holes move (migrate) in the other. However, when additional fields are added, the situation can become very complex. The holes and electrons can move oppositely or together in the same direction, depending on the arrangement of the fields and voltages. One can even use fields at right angles to the conductor to affect the currents, and even stop them. This is a rich subject for the inventor, and one that does not appear to have been adequately explored for potential energy and power purposes. This is particularly true when the conductor material is bent or shaped, etc. This area is so broad that it will not be treated here; instead, we refer the reader to Burke {449} for a basic idea of some of the effects and current combinations that can be obtained. From there, an interested experimenter should search the materials science literature on electron and hole current responses of materials.

6.4.7 The Magnetic Wankel Engine

For baseline comparison, Figure 6-25 shows a conventional linear magnetic motor. As can be seen, due to the difference between magnetic poles, a magnetic field exists along the line of the linear track, from the **end** having the magnets separated the least to the end having the magnets **separated** the most.

Figure 6-26 diagrammatically shows the scheme of operation of the magnetic Wankel engine. It is basically a linear magnetic motor, wrapped **into** almost but not quite a complete circle. A set of permanent magnets, **each** at an angle to the various radial lines of the device, comprises a

slightly widening spiral stator that forms most of a circle. A circular rotor with a sector magnet is mounted inside this spiral stator. An end gap exists in the stator as shown, so that the stator is not a completely closed ring. The direction of rotation of the rotor is clockwise as shown. For demonstration of the principle, the beginning air gap between rotor and stator is 0.1 mm and the ending air gap is 5 mm.

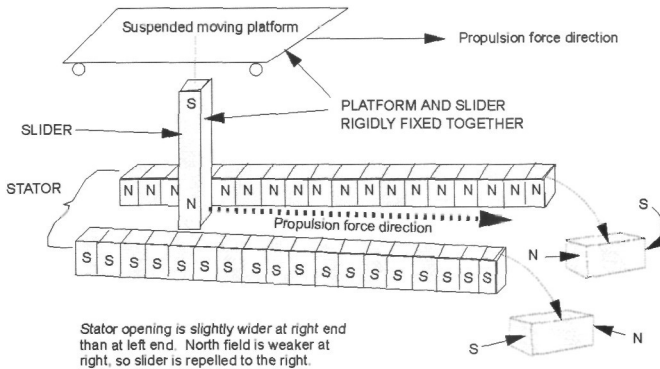


Figure 6-25 Type of conventional linear magnetic movement device

An electromagnet is mounted along the perimeter of an angular sector of the rotor, completing the stator gap. The electromagnet is weakly magnetized by a weak trickle current in the associated coil, furnished by a coil with a make-and-break magneto point gap. The electromagnet is magnetized, say, with the north pole facing radially outwards, and the south pole facing radially inside. In the stator, the permanent magnet north poles are facing radially inward toward the rotor, but at an angle, and the south poles are facing radially outward but at an angle.

Tangentially the north pole of the rotor is in a nonlinear magnetic field, and it will experience a clockwise force and acceleration from position 1 where the air gap between rotor and stator is the 0.1 mm minimum, to position 2 where the air gap reaches the 0.5 mm maximum.

If this were all that was involved, the engine would not produce $COP > 1.0$ because the tangential field is conservative unless additional *free* energy is introduced to overcome the back mmf region in the stator gap. When the rotor crossed the end gap in the stator between point 2 and point 1, very sharp and dynamic magnetic braking due to the back mmf would be done back upon the rotor magnet by the field of the stator magnets at position 1.

Since any real machine will have at least some friction and drag, the actual COP would be less than 1.0.

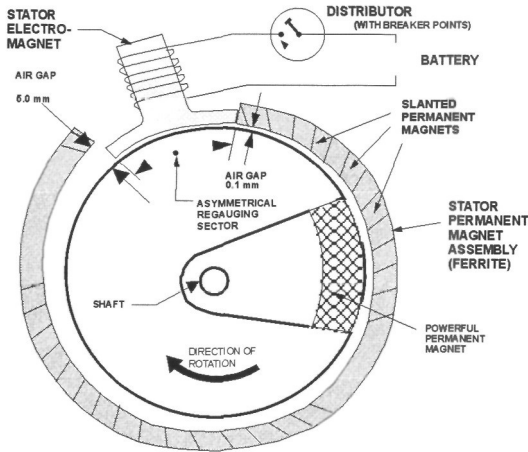


figure 6-26 Magnetic Wankel engine with asymmetrical regauging section.

Let us use the notion of the magnetostatic scalar potential (roughly, magnetic pole strength) to examine a new situation in the end gap.

Technically, let us regard a single unit north pole in the rotor, going from position 1 to position 2 (the acceleration cycle, where the engine will deliver shaft horsepower against a load), and going from position 2 to position 1 (where the magnetostatic scalar potential must be suddenly regauged asymmetrically to equal or exceed the potential at position 1, in order for the rotor to continue unabated or with even further acceleration.

That is, when the rotor enters the "back mmf" end gap between position 2 **and** position 1, a sharp and sudden increase in the "stator magnetostatic scalar potential" must be accomplished, so that the potential in that region is equal to or greater than the potential at position 1. This effect, nearly freely obtained, is what is required for a self-powering magnetic Wankel engine.

In normal machines, conventionally this asymmetrical regauging part of the cycle is where the design engineer forcibly inputs energy from outside the system to do brute physical work on the rotor to forcibly "reset" the

machine, and to forcibly wrestle its potential energy storage back to initial conditions. In short, the operator himself arranges to furnish all the excess energy from outside the system that is required to brute force "regauge" the potential at that point, thus effectively creating a multivalued potential instead of a single valued potential. A multivalued potential achieved only by the operator himself furnishing the extra potential energy will not produce $COP > 1.0$. It will in fact produce $\int \mathbf{F} \cdot d\mathbf{l} \neq 0$ of the motor section, but only at the expense of extra energy that the operator himself had to input and pay for. In that case and in a real system with some system losses, the net work out because of $\int \mathbf{F} \cdot d\mathbf{l} \neq 0$ will still be less than the total energy input by the operator.

The forcible "reset" work is conventionally done by simply overpowering the field and reversing it (building it up equal and opposite in the other direction), but with energy totally input by the operator and not "free energy input from the environment" at all. The operator first pays to "kill" the existing field, and then pays to establish a field in the opposite direction.

To obtain $COP > 1.0$ and self-powering, we must trick something else or some other process into furnishing that asymmetrical regauging energy — or most of it — for regauging of the magnetic Wankel engine in that stator gap zone. In other words, instead of engaging in the conventional wrestling match against the back mmf, we must let something else provide most of the energy for the wrestling.

During rotation of the stator from position 1 to position 2, we have been maintaining (and paying a little for) a tiny trickle current and small voltage from the battery into the coil around the electromagnet. As the rotor enters the stator gap, suddenly a sensor sharply breaks the distributor points, momentarily inducing a sudden powerful voltage in the coil. With a very short delay, a very sharp surge of current appears in the coil, producing a sharp and suddenly increased magnetostatic scalar potential (pole) in the gap region. That is the "multivalued potential" effect, where we pay a little to achieve it suddenly at that point, by invoking Lenz's law.

The effect is that suddenly the rotor is raised to the same or greater magnetostatic potential as exists at position 1, and "almost freely though not quite". If equal, the rotor suddenly is in a region with no back mmf, hence it experiences no deceleration braking. If the sudden potential is greater than the potential at position one, the stator in this normally back mmf region now actually experiences a further acceleration (a forward mmf) in that region.

Note that no *radial* mechanical work can be done on either the electromagnetic pole piece (part of the stator) or on the rotor, since neither the stator nor the rotor can move *radially*. However, there momentarily exists a clockwise circumferential magnetic field on the rotor in the stator gap, due to the gradient between the sharply regauged pole piece magnetostatic potential and the potential at position 1.

So we pay a little energy continuously (tiny trickle current, sharply broken breaker points) to get much more energy density momentarily in that small back mmf gap region only. The former back mmf in the stator gap is sharply eliminated by the Lenz force and converted to forward mmf. The rotor experiences a continuous acceleration throughout a complete rotation, due to the judicious use of an artificially induced multivalued magnetostatic scalar potential.

If the average shaft power output during the complete rotation cycle is made greater than the average power input to the asymmetrical regauging circuit during that same rotation cycle, the engine will produce $COP > 1.0$. This type of engine is also easily close-looped, since the excess output is **not** electromagnetic energy but mechanical shaft rotation energy.¹⁹³ Hence the problem of the Dirac sea hole current (discussed in Chapter 9) is eliminated.

Such engines have been built and placed in an automobile to power it, in Japan {450}, though there is no information on the exact overall COP. The design was lighter and smaller than a gas engine of the same power, and it was a pygmy when compared to other electric engines of similar power. **The** prototype 45-hp unit weighed 155 pounds compared to 440 pounds for a comparable electric motor. The rotary engine was compact enough to fit inside a two-foot cube. The engine was in development by Kure Tekko, a sizable firm that supplies auto parts to Toyo Kogyo, the Mazda maker. To my knowledge, no hard data on the input electrical power utilized for the trickle current and current-breaker has been made available by the Japanese. The principles, however, are quite clear and easily analyzed.

This may be one of the Japanese $COP > 1.0$ engines suppressed by the Yakuza.

¹⁹³ For example, a geared or belted arrangement can be used to drive a very small but efficient DC generator that replaces the battery. Many other efficient arrangements are possible.

The researcher might like to consider using a strategically-placed Wiegand wire sensor (discussed in the next section) as the free "generator" providing a pulse of electrical energy to the pulse-magnetizing coil in the stator gap region at the precisely appropriate time. If that or some other similar "self-furnished" pulse of sufficient power can be delivered to the pulse-magnetizing coil, then the system would self-initiate a multivalued magnetic potential in that gap region. In that case, the driving magnetic field around the loop need not be conservative, and self-rotation would be possible without violating any laws of nature or electrodynamics. At least a small toy demonstration model might be possible, simply to illustrate the principle. Presently we know of no one who has tried it.

6.4.8 The Wiegand Effect

If a Permaloy® or other suitable magnetic wire is properly tensioned and worked by repeated torsion while under tension, the skin of the wire is work-hardened and caused to have different magnetic characteristics from that of the internal core. This type of wire is called a *Wiegand wire*, or *pulse wire*, or "self-nucleating magnetic wire" (SNMW™).

When the pulse-wire experiences a certain level of ambient magnetic field strength, it will automatically switch its magnetic state, very sharply, producing a sharp magnetic field pulse. The effect is generally called the *Wiegand effect*.

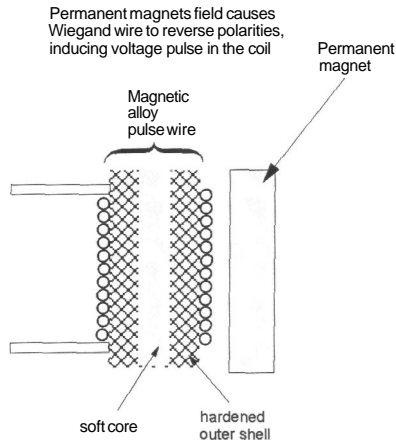


Figure 6-27 The Wiegand effect

If a coil of many turns of fine electrical conductor is wound around the Wiegand magnetic pulse wire, then when the wire suddenly alters its magnetic state, the sudden magnetic field pulse "cutting" the conductor bundle will produce a sharp electrical pulse. Thus the apparatus produces a sharp pulse of electrical energy, when the ambient magnetic field intensity reaches the pulse-initiation value. No input of outside energy is necessary. The apparatus simply gates the energy from the vacuum when it sharply changes its magnetic polarity.

Wiegand effect sensors may achieve voltage pulses up to a nominal 12 volts, in a typical application.

Numerous patents were issued to Wiegand prior to his death {451a-451h}.

Figure 6-27 diagrammatically shows the primary parts of a typical Wiegand sensor application, where the Wiegand wire is also known as a *pulse wire*. The operation of the pulse wire itself is shown in Figure 6-28. Figure 6-29 shows a typical rotary Wiegand effect pulse transmitter.

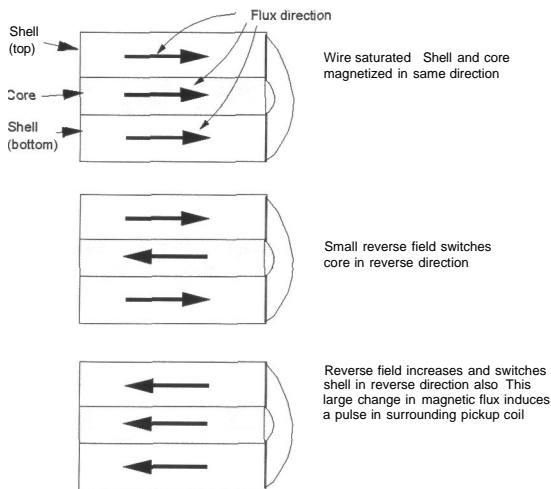


Figure 6-28 Operation of the Wiegand effect in a pulse wire.

Pulse wires find many modern "switching" uses, since one does not have to connect them to a power supply in order to obtain the electrical signal pulse generated in a magnetic field as it changes. The magnetic experience of **the** wires can be arranged (using a "resetting magnet") to automatically **reset** the pulse wire to its original condition after the initiation magnet has **fired** it. Many identification cards for personal access to restricted facilities

use these wires. Some magnetic memories use the effect. At least one European automobile firm has even used Wiegand wires to trigger the timing of automotive ignition systems.

The pulse characteristics created internally by the Wiegand wire represent a sharp, asymmetrical, self-regauging of the magnetics. The combined magnetic field consisting of the ambient magnetic field and the Wiegand wire magnetic pulse is momentarily a nonconservative magnetic field. It follows that a closed-loop integration $\oint \mathbf{F} \cdot d\mathbf{l}$ around some paths in the combined magnetic field of the system do not sum to zero.

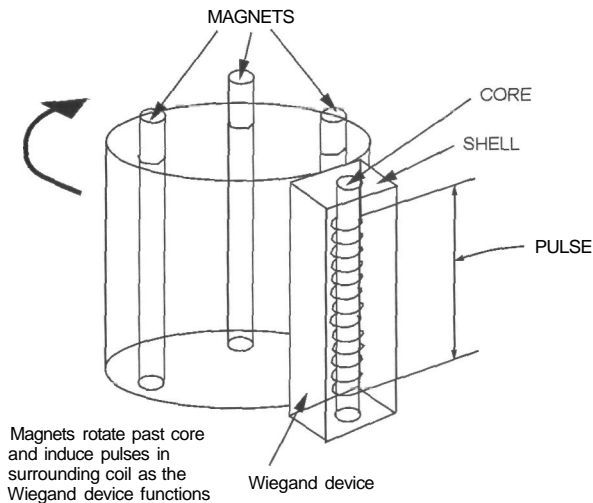


Figure 6-29 Operation of the rotary Wiegand pulse generator

In theory, at least, it should be possible to utilize something like the magnetic Wankel engine together with exactly self-triggering and self-resetting Wiegand units to form a self-powering permanent magnet motor. In short, referring to our discussion of the magnetic Wankel engine, it might be possible to use a special Wiegand sensor and pulse generator to furnish the properly timed pulse to the coil that enables the continuous operation of the Wankel engine. Obviously this type combination would have occurred to the Japanese scientists working on the magnetic Wankel engine.

We accent that the resulting system would be an open dissipative system, far from equilibrium in its energetic exchange with the vacuum during the Wiegand pulsing. The disequilibrium is achieved by the momentary self-regauging of the magnetic gap in the magnetic Wankel engine.

My colleagues and I have experimented with Wiegand wires and Wiegand sensors to a limited extent. The effect is quite real, fully documented in the scientific literature, and the wires and sensors are not too expensive. A typical coil of 1,000 turns on a 3-cm Wiegand wire will produce pulses of about 2 volts in a 1,000-ohm resistor. The pulse width (half maximum height) is about 20 microseconds. Essentially the Wiegand wires are immune to stray magnetic fields. Viewed on an oscilloscope, the pulses are very clean without spurious oscillations or hash. The field required to switch a typical Wiegand wire is typically about 150 Oersteds. The resetting field is quite a bit smaller, being about -20 Oersteds. With further work, it is probably possible to come up with Wiegand wires whose coils produce up to 20 Volts in a 1,000-ohm resistor. If 25 of these 20-volt Wiegand pulse generators wired in series could be induced to fire simultaneously across a 1,000-ohm resistor, something like a momentary half-watt device could be built. That might be enough to operate a very small version of the magnetic Wankel engine, etc. purely for demonstration purposes.

For practical power, of course, one would need to find a way to increase the power output in each Wiegand generator pulse. So far, no one has been able to successfully find a way to do it, at least to our knowledge. If the reader finds a way to do that, then the reader should certainly patent the process and use it in a self-powering magnetic Wankel engine!

So to those experimenters wishing to experiment with something relatively inexpensive, we would suggest investigating the possibility of incorporating Wiegand units into a magnetic Wankel-type small magnetic motor, and attempt to get a self-powering little unit, or try to build a self-powering version of the rotary Wiegand pulse generator. It is at least possible in theory, and if achieved in practice it will prove that self-powering EM engines are perfectly possible.

6.4.9 Kawai Path-Switching Motor

Japanese inventor Teruo Kawai has invented a process for adroit self-switching of the magnetic path in magnetic motors, rather than directly overpowering the magnetic field and then forcibly reversing it. The process reduces most of the back mmf in an otherwise rather conventionally switched magnetic motor, and results in producing a COP

that is approximately double the stated efficiency rating of the unmodified motor. Understand, the Kawai motor always has an efficiency less than 100%, even when its $COP > 1.0$! Hence if one starts with a *high efficiency* magnetic motor — e.g., efficiency of 0.7 or 0.8 — one can obtain a modified motor having a COP of 1.4 to 1.6. Two Kawai-modified Hitachi high-efficiency magnetic motors were tested by Hitachi engineers, and the tests did indeed show COPs of 1.4 and 1.5, respectively, under rigorous and totally independent testing conditions.

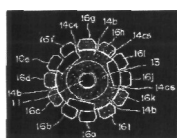


Fig 6-23A

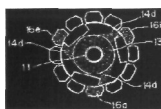


Fig 6-23B

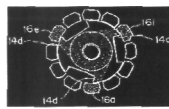


Fig 5-23C

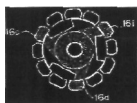


Fig 6-23D

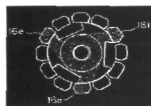


Fig 6-23E

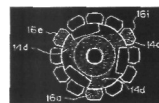


Fig 6-23F

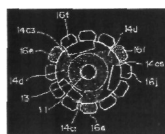


Fig 6-23G

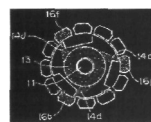


Fig 5-23H

Figure 6-30 The Kawai path-switching process.

Figure 6-30 shows eight snapshots A, B, C, D, E, F, G, and H of the rotor advance of a typical Kawai engine, taken from Kawai's 1995 patent {452}. This is one end rotor/stator side of a two-rotor device, where a similar rotor/stator device is on the other end of the central shaft 11. In snapshot A, pole piece 14 had three outward teeth 14b dispersed equally around the circumference, alternated with three notches. An end magnet 13 provides the source of flux passing through the pole piece. With the electromagnets DC-energized, their core materials 16c, 16d, 16g, 16h, and 16k, 16l are shown shaded by flux from central magnet 13 out through teeth 14b.

In snapshot B, electromagnets 16a, 16e, and 16i are energized. The shaded area shows the sharp convergence 14d of the flux from magnet 13 through pole piece 14 and the edge of teeth 14d. Since the electromagnets are magnetized in attracting mode, the rotor will experience a torque tending

to widen the flux path from magnet *13* to the activated electromagnets. Thus a clockwise torque exists on the rotor, and it will start to rotate clockwise.¹⁹³ Note that each electromagnet is operating independently of the other two.

As shown in snapshots C, D, E, and F, the rotation of the rotor continues clockwise, widening the connecting flux path to the three activated electromagnets. During this time the torque on the rotor is clockwise.

In snapshot G, the flux path to the activated electromagnets is fully widened. In addition, the leading edges of the three teeth are just beginning to enter the domains of the next electromagnets *16j*, *16b* (see snapshot A) and *16f*. This is getting symmetrical to the original position shown in snapshot B.

Now the electromagnets *16i*, *16a*, and *16e* of snapshot G are deactivated, as shown in snapshot H, and electromagnets *16j*, *16b*, and *16f* are activated. This action asymmetrically self-regauges and resets the engine back to the original situation shown in snapshot B, but one more electromagnet beyond. The action cycle begins anew. As can be seen, in each complete rotation of the shaft, each of the three teeth of the rotor will be asymmetrically self-regauged multiple times. So multiple total asymmetrical self-regaugings, resettings, or "refuelings" are utilized per shaft rotation.

In each motor coil, at energization a tooth is just entering that coil, Energized in attractive mode with respect to the ring magnet around the shaft, the flux in the pole piece jumps from fully widened flux (and small **or** vanishingly radial torque on the rotor) to angled and narrowed flux (with full radial clockwise torque on the rotor). This is an asymmetrical self-regauging action. As previously explained, the narrowed flux and its angle exert a clockwise accelerating tangential component of force upon the rotor. By the asymmetrical self-regaugings of the engine, each coil is de-energized prior to beginning to exert radial back emf—which it would do if it remained energized as the trailing edge crossed it and again narrowed the flux path).

So the Kawai engine uses normal magnetic attraction to accelerate the **rotor** for a small distance, and then asymmetrically self-regauges to zero

¹⁹³The Kawai patent contains a small error of misstatement. It states at first that the torque and rotation are counterclockwise, and then shows it moving correctly clockwise from figure to figure in the series.

attraction to eliminate the back-mmF drag portion of the attractive field. It regauges to zero as the reset condition.

For appreciable power and smoothness, the typical Kawai engine uses an extensive number of asymmetrical self-regaugings per axle rotation, for example 36 times on each end, or a total of 72 times for the two ends. The force field of each coil, accompanying its increased magnetostatic scalar potential, is oriented radially inward, so that radial work cannot be done by the coil on the rotor because the rotor does not translate radially.

Advantage is taken of the initial clockwise acceleration force initially produced, and self-regauging eliminates the counterclockwise decelerating drag force that would be produced without the regauging.

The major benefits are that (a) multiple self-regaugings occur for a single rotation of the rotor assembly, enabling high weight-to-power ratio, (b) each electromagnet is energized only when positively contributing to the clockwise torque that drives the rotor, and (c) each coil is de-energized to asymmetrically self-regauge the system during those periods when the coil would otherwise create back-drag (counterclockwise torque) if it remained energized.

A conservative cycle is one in which the work done in the back-drag (mmF) region is equal to the work done in the forward boost (forward mmF) region. Self-eliminating the back-drag portion of the cycle is a form of asymmetrical self-regauging, and makes the net field highly nonconservative. The Kawai approach is thus permitted to attain $COP > 1.0$. In his U.S. patent, Kawai quotes performance measurements showing $COP = 3.18$. As we stated, Hitachi engineers measured two Kawai-modified Hitachi magnetic motors which exhibited $COP = 1.4$ and 1.6 respectively.

Since the output is shaft horsepower, in principle the Kawai engine can be close-looped for self-powering, without consideration of the Dirac sea hole current. With its external close-looping system (not shown), it falls within the second close-looping class, that of an "outrigger" system. Only the unitary system closed-looping class requires consideration of hole currents in the Dirac Sea.

The Kawai process and several other Japanese overunity systems have been blocked from further development and marketing by the Japanese Yakuza. The present author and the Board of Directors of CTEC were physically present and in final negotiations (having reached agreement!) with Kawai to market his self-powering motors worldwide, when control

of the Kawai company and process were suddenly seized on the spot in our presence.¹⁹⁵

6.4.10 Bedini's Skin Depth Magnetic Switching

Bedini found a most interesting variation of flux path switching: he switches the direction of just a little fraction of the ongoing magnetic flux in a material flux path, on the skin of one side of it and with only a slight "skin depth".¹⁹⁶

Suppose a flux path material is used as the stator pole of a permanent magnet motor. A large permanent magnet is used to magnetize that short length of flux path, as shown on the left in Figure 6-31, which illustrates a concept for a magnetic motor. For convenience, imagine that the small magnet on the right is not yet placed on the material flux path extension. The flux path extension is energized by the south north pole of the large permanent magnet on the left, and used as the stator in a rotary magnetic motor.

¹⁹⁵ To anyone who understands Japanese culture, Kawai paid me one of the greatest compliments possible. After his company representative called from Japan, Kawai shipped his *original proof of principle engine* — which first successfully demonstrated his flux-path switching process without being optimized for COP>1.0 — to me, here in the U.S. In the Japanese manner, he had entrusted me with his single most valued possession. From years of aikido experience, I fully understood the meaning of this unprecedented gesture, and expressed my deep appreciation accordingly. From our first meetings with Kawai and his group, I have and always shall have the utmost respect for Teruo Kawai. In my view, it is a sad loss to humankind to have his engine buried and withheld so brutally. Kawai had already achieved a closed-loop self-powering version, and it is this version upon which we reached agreement. In less than 24 hours after that agreement, the Kawai engine and company — and Kawai's own fate — were seized and no longer in Kawai's hands. For those unfamiliar with the deep spread of the Japanese Yakuza, the following are recommended: (a) Brian Bremner, "How the Mob burned the Banks: The Yakuza is at the center of the \$350 billion bad-loan scandal," *Business Week*, Jan. 29, 1996, p. 42-43, 46-47; Michael Hirsh and Hideko Takayama, "Big Bang or Bust?" *Newsweek*, Sept. 1, 1997, p. 44-45; Adam Johnston, *Yakuza: Past and Present*, downloaded from the Internet, Committee for a Safe Society, Organized Crime Page: Japan: History and present status of Japanese organized crime.

¹⁹⁶ Close colleague Ken Moore also independently discovered this effect in his own experiments, but then we found that Bedini had discovered it earlier. That was fine with Ken; he greatly admires Bedini and the marvelous discoveries Bedini has made. I greatly admire both of them, and am happy to call them best friends. After all, science has a human side as well as a materials side. Without one's close colleagues and best friends, science alone would be a miserable enterprise!

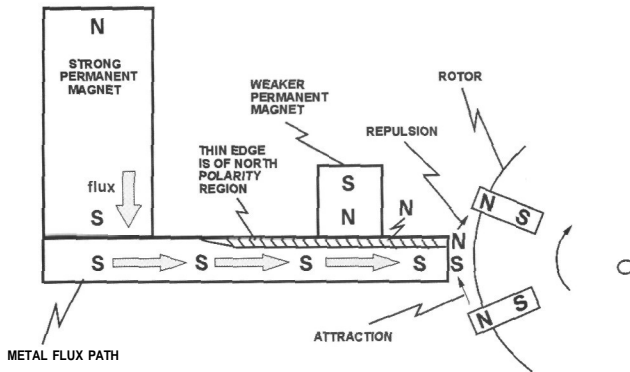


Figure 6-31 Bedini skin depth magnetic edge switching.

As can be seen, the north pole of the rotor, shown in the figure, is attracted to the resulting south pole of the stator. Power can be taken from the shaft of the rotor while it is being attracted in to the extended north pole of the stator flux extension. As it begins to pass the extension end, obviously if nothing else is done it will develop back mmf "drag" by being attracted back toward the north pole of the flux extension as it passes it.

However, suppose that —just when the rotor south pole is passing dead center of the stator north pole extension, one suddenly pulses a small flat coil placed on the face of the extension, which serves the function of the small permanent magnet shown on the right of the material flux path extension. Further, suppose the magnetic field produced by the coil is oriented as the field of the small permanent magnet, but is much weaker than the magnetic field of the large permanent magnet on the left. A very curious effect then occurs. This energized coil magnetizes the edge of the flux path extension, to a small "skin depth" as shown, with a *north* polarity. The magnetic flux is now bidirectional in that same material flux path extension.

Further, this edge-switching action is performed so that it is this "partial north polarity" of the now-altered extension that faces the rotor north pole as it begins to pass the extension and enters what previously would have been a back mmf section. Instead, now that former back mmf section is a weakened forward mmf region, *further accelerating the rotor*. This action breaks the Lorentz symmetry around the rotation path of the rotor, resulting in a net nonzero (nonconservative) magnetic field. Hence the entire rotor exhibits a net drive force around its loop. The rotor will

accelerate until the mechanical work performed upon the shaft, friction, etc. is equal to the net magnetic energy furnished to the rotor.

The beautiful part of this motor is that one does not have to "overcome" by brute force — and then reverse — the north polarity of the entire stator extension. In theory, the overall energy added to the rotor is greater than the energy that must be added for the "edge switching" of the magnetic flux path extension, because the entire back mmf of the motor has been eliminated and replaced by a weaker forward mmf. If the process of furnishing the "skin depth" weaker magnetic north field to the edge of the flux path extension is made sufficiently efficient, this engine also can be made self-powering, at least in theory.

The former "motor" design has been converted to a "motor/generator" design, by the addition of the edge-switching action. The novel factor is the use of bidirectional flows of magnetic flux in a single material flux path.

An additional improvement is to rig a Wiegand sensor and pulse generator or sensors in conjunction with the rotor action, to freely furnish and kill the edge-switching pulse to the face-magnetizing coil on the flux path extension, at the appropriate times. This is an area where even high school students will be able to experiment.

Bedini's patent on the edge switching process and its various embodiments and improvements has been issued {453}.

6.4.11 Bedini's Flux Path Switching with Energy Capture

One additional embodiment of the Bedini flux path switching motor is shown in Figure 6-32. Here the entire flux path is switched, by moving a small coil on the bottom side of the material flux path, as shown in the figure. As Radus showed {454}, it turns out that a much weaker magnetic field in that left bottom position will switch the flux path of a powerful permanent magnet field at the left top of the path, as shown.

Now, however, Bedini adds a transformer coil around the right end of the core (the right end of the extension is still the stator pole in the magnetic motor diagrammatically shown in Figure 6-32). When the flux path is switched back and forth, this transformer coil produces an AC signal output, which can power a load as shown, and can even be used to power the switching power supply. The trick is that it requires less energy to make the vertical flux path preferable to the horizontal flux path, than the energy delivered into the flux path by the permanent magnet. The potential for self-powering of a sufficiently efficient magnetic motor is obvious.

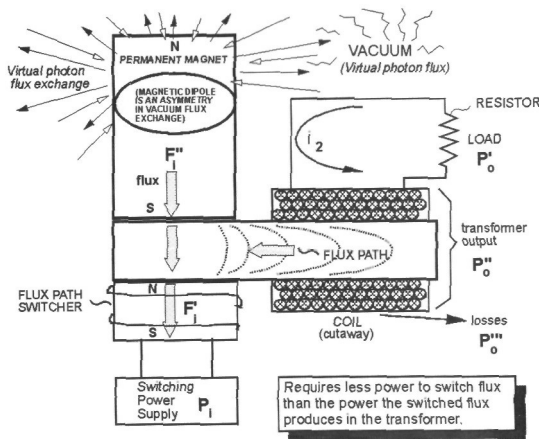


Figure 6-32 Bedini's total path switching and energy recovery process in a transformer.

So the motor can be powered while simultaneously acting as a partial generator. For efficient switching, this motor/generator can in theory develop $COP > 1.0$ and can even be made close-looped and self-powering. We strongly accent that the primary excess energy input to the system is from the vacuum itself, via the broken symmetry of the large permanent magnet dipole at the left top of the material flux path. As we have repeatedly stated, the only energy problem is how to capture and utilize the EM energy freely received, transduced, and poured out from the vacuum by the source dipole's broken symmetry, without using half of it to destroy the source dipole.

6.4.12 Transformer Secondary Shunted by a Negative Resistor.

See Figure 6-33. This embodiment assumes the availability of a true negative resistor — possibly an adaptation of a point contact transistor or other device. As shown in the figure, a transformer exhibiting $COP > 1.0$ can be developed by adding a shunting *true* (not differential!) negative resistor across the terminals of the secondary, adjacent to the secondary. In this manner, the Lorentz symmetry of the closed unitary current loop containing the external loads and losses, and normally the secondary of the transformer in series, is broken.

Part of the return spent current is now "pumped" back up from ground side to power side of the transformer secondary without passing through the secondary. The pumping work is providing by dissipation (in the negative resistor) of energy freely obtained from the active vacuum environment. In short, one adds a negentropic process in parallel with the secondary coil, in

the secondary external circuit, breaking the otherwise enforced Lorentz symmetrical regauging of the discharge of the collected EM excitation energy in the secondary circuit. This provides the capability for a permissible $COP > 1.0$ transformer.

ON EACH HALF CYCLE, ONE OF THE NEGATIVE RESISTORS SHUNTS PART OF THE RETURN CURRENT AROUND THE SECONDARY, FROM LOWSIDE TO HIGH SIDE, THUS DECREASING THE BACK-FIELD COUPLING FROM SECONDARY TO PRIMARY ACROSS THE TRANSFORMER. THIS LESSENS THE ENERGY DISSIPATION REQUIRED IN THE PRIMARY FOR A GIVEN ENERGY FLOW TRANSFER FROM PRIMARY TO SECONDARY

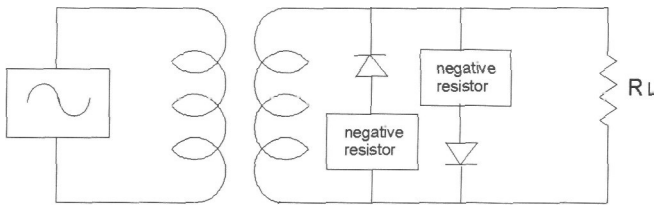


Figure 6-33 Transformer shunted by a negative resistor.

In theory, if the negative resistor can bypass all the current in the secondary, or almost all of it, the transformer can become a $COP \gg 1.0$ device.

This overunity transformer can use step-up of the voltage from primary to secondary, and exhibits an asymmetry in its forward and backward field coupling between primary and secondary. Thus the dissipation of energy in the primary circuit need not be as great as the dissipation of energy in the secondary circuit. The *energy flows* are of course in perfect conservation, but there is no law of nature requiring the *energy dissipations* to be conservative between the primary and the secondary. It is strictly the backfield coupling from secondary to primary that enforces equal energy dissipation in the primary as in the secondary, in normal transformers. And that backfield coupling's strength is a function of the return current through the transformer secondary. By reducing that current, the back coupling to the primary is reduced, which in turn reduces the current draw of the primary from the external power supply.

No laws of physics, electrodynamics, or thermodynamics are violated by the asymmetrically coupled transformer power system with broken symmetry in its secondary to primary circuit couplings. In short, there is

less backfield coupling from primary to secondary than there is from secondary back to primary. The additional energy dissipated in the secondary circuit is freely extracted from the vacuum by the negative 4-resistor shunt.

Again, this application assumes the availability of a true negative resistor, to use as a shunt of the secondary.

The beauty of this application is that, once achieved, such a $COP > 1.0$ transformer can easily be close-looped for self-powering by standard "governed" positive feedback. No concern as to hole current effects usually need be accounted for unless the COP becomes very large.

6.4.13 Eddy Current Multiplier.

Figure 6-34 shows an example of an eddy current multiplier, adapted from Burke {455}. This is given as a somewhat unusual system which may exhibit novel effects and possibly can be adapted into a $COP > 1.0$ system (e.g., by using permanent magnets instead of the coils and triggering things into unbalanced condition using a rotary pulse wire generator. We simply list it here as a candidate for the experimenter.

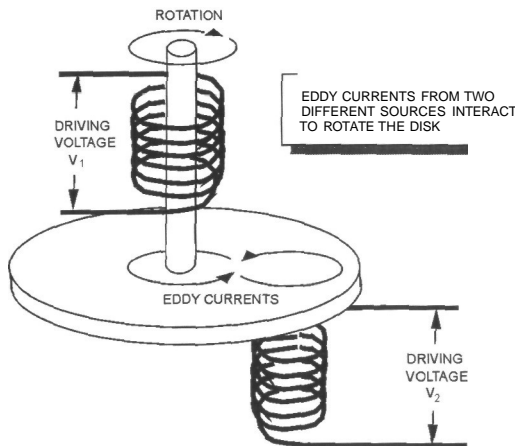


Figure 6-34 Eddy current multiplier.

In Figure 6-34, the shaft of the conducting disk is connected to a rotor, which could have arrangements for rotary type of Wiegand pulse generator of Figure 6-29 (with self-initiation and self-recovery) around it (not shown in Figure 6-29). One would start the rotating disk by hand. These Wiegand sensors would then automatically and repeatedly deliver a series of electric

pulses to the coils, momentarily generating the two eddy currents shown, so that dynamic force and rotary acceleration is obtained during the endurance of the pulses. In short, one would "electrically kick" the coils so that they continually deliver a propulsive "magnetic kick" to the conducting disk to repeatedly generate eddy currents to rotate it. The rotor is powered as shown by the interactions of the two unbalanced induced eddy currents. Such an arrangement could possibly exhibit $COP > 1.0$.

To experiment with such an apparatus, the major parts that must be developed are (i) the rotor and coils arrangement (the motor), (ii) the integrated rotary Wiegand effect pulse generator with self-recovery, and (iii) the proper timing arrangement. Each should be developed and optimized individually in the researcher's experiments, then combined and optimized together. This is an experimental area that can be cheaply investigated, e.g., by a college student or high school student for a science project. Whether $COP > 1.0$ is achievable or not depends upon the efficiencies that can be obtained with the various processes involved. It is possible, at least in theory, for such an arrangement to be self-rotating once rotary motion is underway.

6.5 CONCLUSION

In this chapter we have advanced many approaches to $COP > 1.0$ systems, that have been tried or considered by various inventors and researchers in the field. Many of these experimenters have attained concrete, replicable results, including results published in the hard literature.

We hope this sampling shows the reader that indeed we can have "self-powering" electrical power systems and $COP > 1.0$ electrical power systems whenever the scientific community will come out of its preoccupation with the present seriously restricted electrodynamics and electrical power engineering practice and fund the necessary research. Simply funding a few graduate students for research and doctoral theses in these areas would be very useful and immensely more productive for electrical energy purposes than all the billions and years spent on chasing hot fusion.

Hopefully the iron dogma of the scientific community against $COP > 1.0$ electrical power systems is slowly changing. If so, and if the community will turn loose those sharp young graduate students and post-doctoral scientists on the problem, very shortly there will no longer be an electrical energy problem on Earth, ever again. We strongly refer the reader to Deffeyes' book {456} to rigorously validate the coming increase of the price of oil, in the middle of the present decade. See particularly the

quotation from Deffeyes in our Endnote {342}. With the present extreme volatility of the MidEast and the continuing war on terrorism, the probability is high of eventual severe disruption of oil supplies and the energy infrastructure of the U.S.

An independent review of Deffeyes' book is given by Young {457} and we recommend that the reader digest that commentary also.

If the scientific community will fund the necessary research on permissible $COP > 1.0$ Maxwellian systems, the quick results will solve the energy crisis, clean up the biosphere — including much cleaner air in our cities for the populace to breathe — provide cleaner streams, and result in far less polluted oceans. It will stop the pollution-caused destruction of species, and dramatically reduce the hydrocarbon combustion contributions to global warming. There will no longer be a necessity to consider "burying" in the bottom of the sea the excess CO_2 from massive hydrocarbon combustion to provide the much-needed electrical power, because it will no longer be necessary to burn the oil, coal, and gas to get the power. And there will no longer be any necessity for expensive and highly vulnerable nuclear power plants with their resulting nuclear wastes that will remain radioactive for thousands of years.

If cheap, clean EM energy from the vacuum is rapidly developed, we may *finally* get the scientific community's head wrenched back out of the big nuclear power business, as a colossal waste of research manpower and taxpayer dollars — as well as providing ticking time-bombs for the terrorist teams now already in the United States to attack and destroy. It is so easy for a person with appropriate technical knowledge to build a portable electromagnetic pulse (EMP) "shooter" that one shudders at the consequences of in-country terrorist teams that can do so. Try imagining what we would face when the electronic controls of one or more operating nuclear power plants are suddenly disabled and destroyed with the reactor on line and providing power. Chernobyl might look like a mild spring breeze in comparison, should we have one or more actual meltdowns.

It is not a pleasant consequence to contemplate, and that alone may eventually dictate the overwhelming urgency of achieving decentralized, vacuum-energy-powered electrical power systems as soon as humanly possible. The present centralized, cumbersome energy infrastructure is vulnerable beyond all sanity, considering the thousands of terrorists already in country, with weapons of mass destruction as well as more conventional sabotage means. As a single example, the former Soviet Union clandestinely brought in nuclear weapons into the U.S., and

Spetsnaz teams to detonate them on order. Such weapons (and teams) are already in large U.S. cities and population centers. The reader is referred to Lunev's book,¹⁹⁷ for details about how the nuclear weapons were introduced.

After all, we do have to live and survive in the real world, and not just in an idealistic scientific environment. We are already at war, with alerts of potential danger to our nuclear power plants already having been given on several occasions. In the present very disorderly and very dangerous world we live in, many of the former options we have had for decades are rapidly ending. That includes the option for the leaders of the scientific community to continue "business as usual", if they wish this nation and their own families to survive. There is an old adage in war: *Whatever your determined enemy can do to hurt you desperately, he will do as his highest priority*. Sadly, in my opinion the leaders of the scientific community — unwittingly — are presently doing almost everything they can do to insure that the energy infrastructure goes, the national economy goes, a nuclear meltdown possibly occurs, and this nation and much of civilization perishes in a new dark ages.

¹⁹⁷ Stanislav Lunev (with Ira Winkler), *Through the Eyes of the Enemy*, Regnery, Washington, 1998. Lunev is the highest ranking GRU defector. He is a former Colonel in the GRU, the military counterpart of the KGB. On p. 22-33, he summarizes the Spetsnaz capabilities. On p. 22-27, he summarizes Spetsnaz use of nuclear weapons already on American soil. On p. 26, he gives some of the ways in which the Soviets easily brought nuclear weapons into the U.S. On p. 30 he confirms **Russian** seismic weapons. Use of EMP weapons is on p. 30-31. Use of very, very low frequency weapons to destroy the human brain, put people into a zombie-like state, and aid in brainwashing is confirmed on p. 31. The present war on terrorism has many more facets than are presented by the conventional news media.

Just as the dinosaurs were confronted with a new and dangerous threat, and failed to adapt, the electrical power infrastructure is now confronted with a potent threat against its very vitals and — so far — is completely failing to adapt. It is going to have to adapt or perish, which presently implies that we all perish along with it. Those who make it their nefarious business to see to it, will see to it.

So let us "see to it" first, scientifically, as rapidly as human research and development can do the job. The very existence of civilization may well depend upon it.

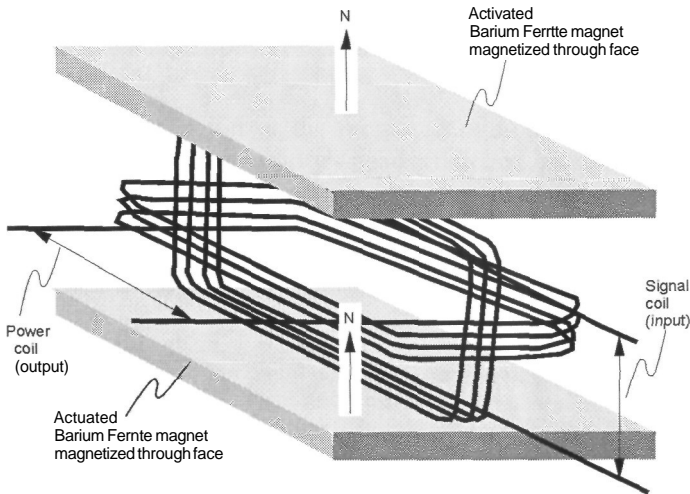


Figure 6-5 Sweet vacuum triode amplifier (VTA) construction.

Chapter 7

Aharonov-Bohm Effect, Geometric Phase, and the Motionless Electromagnetic Generator (MEG)

[Decision that hydrogen fuel is the future]. *"We are at the peak of the oil age but the beginning of the hydrogen age. Anything else is an interim solution. The transition will be very messy, and will take many technological paths ...but the future will be hydrogen fuel."* [Herman Kuipers, Royal Dutch Shell.].

[Vacuum energy is real] *"...the acceptance of a structured vacuum described by an $O(3)$ gauge group leads directly to the existence of novel charges and currents in the vacuum. These are conserved, or Noether, currents and charges and are clearly topological in origin. They spring from the fact that the vacuum is a topological space. Four such entities emerge: [1] A topological vacuum electric charge, also proposed empirically by Lehnert et al. [2] A topological vacuum electric current, also proposed empirically by Lehnert et al. [3] A topological vacuum magnetic charge, proposed also by Barrett and Harmuth. [4] A vacuum topological magnetic current, proposed also by Barrett and Harmuth.*

Each of these four objects can provide energy, which can be loosely termed 'vacuum energy': energy coming from the topology of the vacuum. " [Evans] {458}.

[Aharonov-Bohm effect] *"...the Aharonov-Bohm effect is a local gauge transformation of the true vacuum... [which] produces a vector potential from the true vacuum. [This gauge transformation] produces topological charge..., the electromagnetic field, which carries energy, and the vacuum charge current density first proposed by Lehnert ... and developed by Lehnert and Roy... ".* [Evans and Jeffers] {459}.

[Geometric phase] *"The concept of the geometric phase is closely related to the effect of a state function acquiring a non-zero phase factor after a quantum system undergoes a cyclic evolution. This means, that if a system after some time returns to its original state, the result of such an evolution will be recorded in the phase of the wavefunction. Moreover, this phase factor can be measured by interfering initial and final states. ... Although there are no widely recognized practical applications of the geometric phase, its experimental observations have been reported in many fields of science. The largest group of experiments have been carried out on polarized light ... and polarized neutrons ... The geometric phase has also been observed in magnetic resonance experiments ..., mesoscopic structures ... and molecular systems ... Analogues of GP — the Hannay angles — have been shown to exist in classical mechanical systems ..., the most famous example of which is the Foucault pendulum."* [Aleksiejunas]¹⁹⁸

[Practical use of geometric phase]. *"The motionless electromagnetic generator is the first practical macroscopic use of the geometric phase."* [T. E. Bearden, 2001, to a correspondent].

[Impact of extracting energy from the vacuum] *"If they [quantum fluctuations of vacuum] can be [tapped], the impact upon our civilization will be incalculable. Oil, coal, nuclear, hydropower, would become obsolete — and so would many of our worries about environmental pollution."* *"Don't sell your oil shares yet — but don't be surprised if the world again witnesses the four stages of response to any new and revolutionary development: 1. It's crazy! 2. It may be possible — so what? 3. I said it was*

¹⁹⁸I am much indebted to Dr. Rimvydas Aleksiejunas for this clear statement of the geometric phase. See his very elegant summary, "Introduction to The Geometric Phase Decomposition," on his Internet website at http://signalogram.free-hosting.lt/Research/gp_dec.htm. His own publications in scientific journals and proceedings are also listed on the website, and many are available for downloading. His doctoral thesis dealt **with geometric phase** and he is a specialist in that field.

a good idea all along. 4. I thought of it first." [Arthur C. Clarke] {460}.

7.1 Introduction

In this chapter we give a history, some information, and comments about the Aharonov-Bohm effect {473}, which was generalized by the Berry phase {477} for adiabatic conditions, which itself was further generalized by Aharonov and Anandan {480} to remove the adiabatic limitation. The modern all-inclusive term is *geometric phase*, which has been found to be involved in a very wide variety of physics areas. In its embodiments, the motionless electromagnetic generator (MEG) does utilize the Aharonov-Bohm effect (geometric phase) in a unique manner that we explain. We also remark on what we hypothesize may be some related new aspects of the curl-free magnetic vector potential itself.

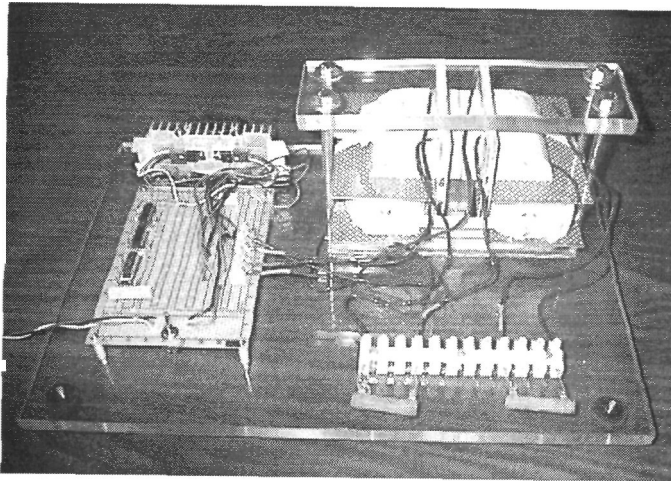


Figure 7-1 Motionless Electronic Generator (MEG)

The motionless electromagnetic generator (MEG) (Figure 7-1) was invented by Patrick, Bearden, Hayes, Moore, and Kenny {461} after years of research and experimentation. It has been technically described elsewhere {462}, and scientific explanations of the fundamental mechanism by which it successfully extracts useful EM energy from the active vacuum have been published in the recognized literature {463, 38a, 464}. Other closely related papers on extracting EM energy from the vacuum have been published or are submitted and in review {465a-465h}.

A version of the MEG has also been independently replicated by Naudin {466}, and in fact by others who did not wish to publish their results. By permission, Naudin's Mark II MEG replica is shown in Figure 7-2. Consequently, the MEG is a validated and replicated $COP > 1.0$ system, as required by proper scientific methodology. Further, sufficient information has been released for any competent laboratory team to replicate a version of the MEG.

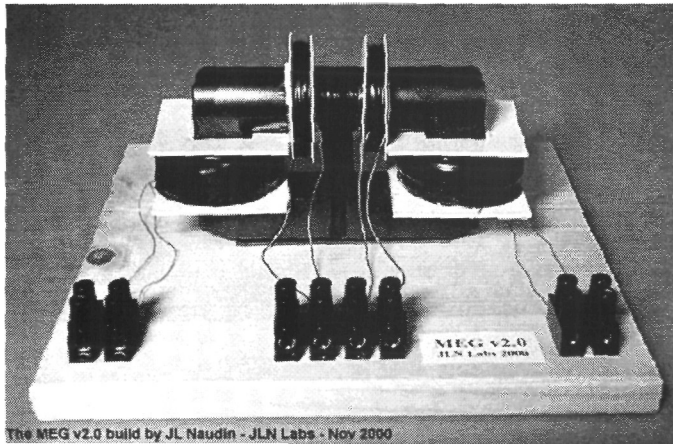


Figure 7 2 Nuadin's Mark II Replication of the MEG.

We give an overview of the MEG, the principles of its operation, the status of the project, and some indication of future plans.

7.1.1 Status

As this is written, the first MEG patent has just issued {37}. A second Provisional Patent Application has been filed, and at this writing is in process of being replaced by a formal regular patent application. Two other patent applications are in preparation. All rights to the MEG are assigned to Magnetic Energy Ltd., Huntsville, Alabama, U.S.A., whose CEO is Dr. James L. Kenny.

In addition, Bedini and the present author have filed a provisional patent application on the process and embodiment for close-looping a $COP > 1.0$ system for self-powering operation, and are in process of replacing it with a regular patent application also. Magnetic Energy Ltd. has permission to utilize the Bedini-Bearden close-looping process. In addition, Magnetic Energy Ltd. has its own proprietary close-looping process, for which a patent application is being prepared. The Company is also involved in

serious discussions with several large companies and financial groups for potential financing. When that funding is obtained, we will open a substantial research and development laboratory here in the United States, serving a separate production company to be set up with our financial partners to produce and market the MEG. Meanwhile, laboratory work to complete the research and development of the MEG is also ongoing under a cooperative arrangement with the National Materials Science Laboratory of the National Academy of Science of a friendly foreign nation formerly under the Soviet bloc.

7.1.2 Future Plans

Our plans are straightforward. We will continue to pursue and update our patents and file additional ones as additional discoveries are made. We will continue our negotiations with major financial parties until satisfactory and mutually beneficial capitalization is obtained (we expect that to occur before the end of 2002). At that time we will establish a modern Magnetic Energy Ltd. U.S. laboratory devoted to advanced research and development, as well as a separate production company in partnership with our funding partners. The final research necessary on the MEG (four areas of physics as well as the electrodynamics) will be completed in somewhat less than one year after setup of the lab and lab team, and the production company is expected to have the first engineering development production prototype at the end of that first year. We expect it to be a self-powering unit. We will simply put the first MEG units into production and on the world market immediately thereafter.

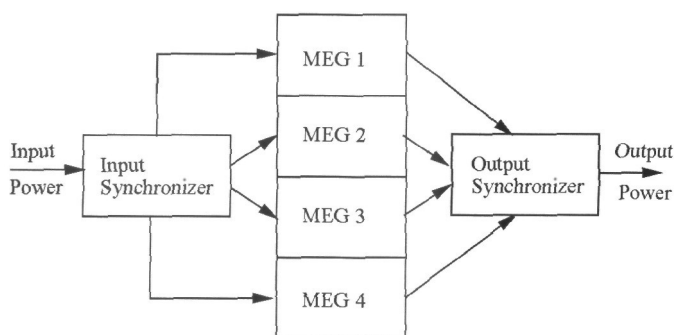


Figure 7-3 Block diagram of envisioned modular MEG design.

See Figure 7-3. The first production MEG is envisioned as a modular 2.5 KW unit together with a synchronizer unit simultaneously developed, so that up to six 2.5 KW MEG units can be synchronized in a power system

array. This will yield power units from 2.5 to 15 KW. We are struggling to have the closed-loop process completed and ready in that same first year, and if possible the very first MEG units will be close-looped and self-powered. At the end of the second year or before, we plan to have the close-looped basic MEG unit in 10 KW size, again with synchronizer so that up to six MEG units can be synchronized in an array. That will cover the 10 - 60 KW power system size, which is ideal for homes and small businesses. Once the units go on the world market, we believe that the market will be extraordinarily dynamic and productive. We intend to license multiple companies for production and competition for various markets, with no single company being given total monopoly worldwide.

7.2 Aharonov-Bohm (Geometric Phase) Effect

The Aharonov-Bohm (AB) {473} effect, or geometric phase (GP) {477, 480} effect, is now well known {467} in quantum mechanics and quantum electrodynamics, but does not exist in classical electrodynamics. The effect proves the reality of the potentials and their primacy over the fields. Further, it shows that electron effects can be generated by the magnetic vector potential A even in the absence of the magnetic field B .

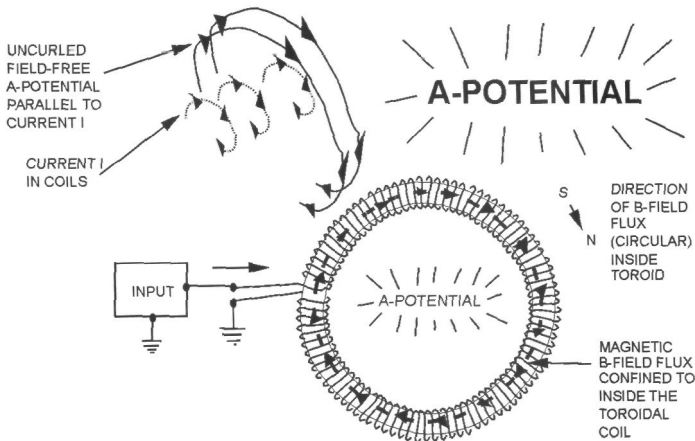


Figure 7-4 Aharonov Bohm effect for a tightly wound toroidal coil.

According to Feynman {468}, it required 25 years for quantum physicists to clearly face the issue eventually pointed out in 1959 by Aharonov and Bohm of the primacy and separate action of the force-field-free potential, in regions where no force fields were present (Figure 7-4) {469}. After the

effect was experimentally demonstrated by Chambers {474} in 1960, it then required another 25 years before physicists would accept it. Even today, another 16 years after full acceptance in 1986, to our knowledge the Aharonov-Bohm effect has not previously been utilized in any practical electrical power system {470}, much less one that has a $COP > 1.0$. As Aleksiejunas¹⁹⁸ states (see his quotation at the beginning of this chapter), there have not previously been any widely recognized practical applications of the geometric phase. Now there is a practical application of major worldwide importance, since the operation of the MEG depends upon the geometric phase (Aharonov-Bohm) effect to produce real electrical power from the active vacuum itself.

We also believe that the curl-free potential may not have been adequately investigated, particularly along the lines of its utilization in the MEG.

7.3 Abbreviated History of the Geometric Phase

The earliest work with a state function acquiring a non-zero phase factor after a quantum system undergoes a cyclic evolution was published in 1956 by Indian scientist Pancharatnam {471}. Pancharatnam noticed phase shifts of cyclic evolutions in optical phenomena. This means that, if the system leaves its original state and after some time returns to it, the result of the system's evolution will be recorded in the phase of its wavefunction. In addition, this phase factor can be measured by interfering the system's initial and final states.¹⁹⁸ Sadly, Pancharatnam's anticipation of the geometric phase factor did not receive the attention it so justly warranted, and his paper languished almost unnoticed for nearly four decades, when it was finally rediscovered. This was an excruciating scientific tragedy to Pancharatnam, comparable to that which befell Waterston {472}.

The effect of the field-free potential and the geometric phase issue were pointed out strongly by Aharonov and Bohm {473} in 1959 in a leading U.S. physics journal, causing much consternation in physics. Before that paper, most physicists still believed that all electromagnetic forces and effects were induced only by the force fields,¹⁹⁹ and not by the potentials.

¹⁹⁹ Indeed, the force fields do not even exist in mass-free space, but only in matter. Force is defined as $F \equiv \partial/\partial t$ (mv) so that mass is a *component* of force. Feynman states: "...in dealing with force the tacit assumption is always made that the force is equal to zero unless some physical body is present... One of the most important characteristics of force is that it has a material origin..." "...the existence of the positive charge, in some sense, distorts, or creates a "condition" in space, so that when we put the negative charge in, it feels a force. This potentiality for producing a

In the prevailing belief, when the fields were zero there were no EM effects. Indeed, the potentials were largely regarded as mathematical conveniences.

Another point of consternation was that the A-potential is not uniquely determined, but is determined only up to a particular gauge transformation. So there can be two (or even more) magnetic vector potentials A and A' corresponding to a specific magnetic field. Aharonov and Bohm raised a disturbing question: How can two different "causal" A potentials produce the same effect? We will rigorously answer this question shortly.

While the experiments suggested were difficult, they were performed shortly after the publication of the Aharonov-Bohm paper. The very next year, in 1960, Chambers {474} experimentally demonstrated the Aharonov-Bohm effect, though not with complete decisiveness. A 1983 paper by Tonomura *et al.* {475} was significant, and a 1986 publication of further work of Tonomura *et al.* was decisive {476}.

In 1984, Berry generalized the Aharonov-Bohm effect into the geometric phase {477}. In 1985 the Tonomura effort plus experimental work by Webb *et al.* {478} settled the matter, as strongly stated by Schwarzschild the next year {479}. In 1987, Aharonov and Anandan {480} further generalized Berry's geometrical phase, freeing it from its adiabatic

force is called an electric field. " So Feynman was fully aware that not the force field but only the potential (i.e., the potentiality) for producing the force field exists in mass-free space. The electrodynamicists continue to be confused on that point. E.g., on p. 28 of his *Classical Electrodynamics*, 2nd edition, Wylie, 1975 Jackson states: "...the thing that eventually gets measured is a force..." , confirming that force is an observable and thus a d/dt operation imposed upon spacetime LLLT to give a purely spatial entity LLL. On p. 249, Jackson also states that "*Most classical electrodynamicists continue to adhere to the notion that the EM force field exists as such in the vacuum, but do admit that physically measurable quantities such as force somehow involve the product of charge and field.*" The two parts of the conventional assumption, as stated by Jackson, contradict each other. We point out that Jackson's book has been a standard of excellence for years, and no EM library is complete without it. It merely shows the extraordinary difficulty of rooting out the exasperating and mind-numbing confusion in physics between the observed effect and the unobserved cause. Force is an effect, after interaction (observation or measurement), hence cannot be the cause (which exists prior to interaction or measurement). Else, there is no difference between cause and effect, which destroys causality itself. This confusion is still there in even the hoary old classical mechanics, now some centuries old. By that standard, electrodynamicists have a long time remaining before they will have propagated this non sequitur" as long as the mechanical physicists have.

restriction and generalizing the geometry. Much discussion of the AB effect and Berry's geometric phase occurred {481a-481c}, but the scientific consensus was in: *The Aharonov-Bohm effect is real and the geometric phase is a widespread fact of nature.*

In 1985, Olariu and Popescu {482} published a very good overview and discussion of the AB effect up to that time, with hundreds of references.

Thousands of papers on the AB effect, the Berry phase, and the geometric phase have since appeared in the literature, and continue to appear at a rather steady and prolific rate. A few are listed for a sampling {483a-483k, 484a-484i}. The original Aharonov-Bohm effect has now expanded and spread widely through physics and into a myriad other effects and areas, such as the scalar AB effect, the Aharonov-Casher effect, magnetic vector potential vortices, quantum tunneling, chemical reactions, chaotic oscillation, and others. These related extensions are far beyond our interest here. We are, however, interested in what we hypothesize may be a new aspect of the perturbed curl-free magnetic vector potential A . We shall address that aspect briefly.

7.4 A Possible New Aspect of the Curl-Free Magnetic Vector Potential

We propose what may possibly be a unique new aspect of the curl-free A -potential — and thus of the Aharonov-Bohm effect — that has been uncovered in our MEG experiments. We caution, however, that this is a tentative interpretation and remains to be further validated.

First we state that the equation, $\mathbf{B} = \nabla \times \mathbf{A}$, usually accepted as the "definition" of the magnetic vector potential A , is not even a definition, because no equation is a definition.²⁰⁰ If we rewrite the equation as the identity $\mathbf{B} \equiv \nabla \times \mathbf{A}$, then it is a proper definition — though not of the A -potential, but of the B -field itself, *given* that the A -potential exists and is primary. It also states that the B -field is simply a magnetic vector potential having swirl; i.e., the notion of the B -field captures that swirl aspect of a swirling A -potential. Hence the statement that $B = \text{zero}$ implies only that **the** A -potential remaining is swirl-free and hence a linear EM energy

²⁰⁰ No equation is a definition, *a priori*. It merely states the relationship of the total magnitude of the entities on the left to the total magnitude of the entities on the right. It does not define any entity on either the left or the right. One of the gross non-squeiturs in physics texts is to continue to present equations as "definitions".

current flow. Note that the $B = 0$ condition does not specify the magnitude of the remaining A-potential, but *only* specifies that it has no curl. This is a rigorous answer to the original question posed by Aharonov and Bohm of how two different A-potentials can have the same magnetic field B (the same swirl). It is no more mysterious than two different rivers having a whirlpool of exactly the same swirl magnitude.

At least to first order, it appears we have arrived at a "semi-definition" of the A-potential along these lines:

The magnetic vector potential A is an EM energy current in 4-space, which can be swirling or linear, or can have two components where one is swirling and the other is linear. The swirling component of the A -potential is also known as the B -field, and the linear component is known simply as the "curl-free A -potential". The A -potential exhibits a remarkable property: If its swirl component is localized and confined, the remaining space where the swirling A without localization would have been is filled by a remaining unswirling linear A -potential energy current. In short, by swirl-localization the swirling A -potential can be freely 'regauged' into two separated entities, with the sum of their energy being greater than the apparent energy of the previous swirling A -potential. Hence swirl-localization is a method of asymmetrical self-regauging of the A -potential itself with the excess energy coming directly from the active vacuum.

If we take the view that any curled A is identically a B -field, then the "natural" A is not curled, because it requires a curl operation applied to it to produce a "curled A " or B -field. Therefore the "natural" magnetic vector potential A is simply a magnetic energy current in space, since it is a vector and has direction {458}. That is a *longitudinal EM energy flow process*?²⁰¹ We shall be very interested in the uncurled A -potential; i.e., in that linear energy current in space that is uncovered and freely produced

²⁰¹ Interestingly, around a toroidal localization zone, the uncurled A -potential does curve, but is only linearly following the curving current and the moving E -field from the moving charges in the current. In the MEG, the uncurled A -potential is even more complex, since we use each half of the toroid-like localization zone differently, with the B -flux going one direction (say, counterclockwise) in the left branch and the B -flux going in the other direction (say, clockwise) in the right branch, and with a crossover point in the middle.

when the B-field is localized. Indeed, we shall perturb it to make a large E-field, which we intercept and use to furnish emf to the secondary circuit and power loads.

Given a localized B-field so that we have an uncurled A-potential outside the localization region: If we now increase the magnitude of the A, that produces an increased linear energy flow rate outside the localization zone, in addition to increasing the B-field in the localization zone. If we decrease the magnitude of the A, that produces a decreased nonlocalized energy flow rate and a decreased localized B-field. In our view it follows that, when we oscillate the magnitude of the A-potential by any means whatsoever, we oscillate the nonlocalized linear EM energy current flow rate as well as the localized B-field. In fact, that creates a normal oscillation of the localized B-field, and also creates a nonlocalized *longitudinal wave* of electric field E by the equation $\mathbf{E} = -\partial\mathbf{A}/\partial t$, if the conditions localizing the curl operator — and hence localizing and holding separate the concomitant B-field produced by a changing E-field — continue in effect.

We have produced a mechanism for generating a nonlocalized longitudinal E-field wave without a nonlocalized B-field component being allowed to act outside a confined locality. We stress that a B-field component is produced, but remains localized in the special core material (that is one of the conditions required in the MEG).

We have also produced a mechanism for generating a nonlocalized longitudinal E-field wave with another very novel feature: the magnitude of the E-field and thus the magnitude of its energy density (its intensity) does not depend on the *magnitude of the input energy* used to perturb the A-potential, but only depends on how sharply we perturb it. Thus we have produced a mechanism for energy intensity amplification and magnification, freely. This is possible because the system is an open system far from equilibrium with the active vacuum, and specifically with the curl-free A-potential as an energy current at large in the local vacuum where it can be intercepted, collected, and used to power loads. The energy intercepted from the uncurled A-potential by the output section(s), is *additional* energy in excess of what is intercepted from the E-fields generated in core material B-field magnetic flux changes.

However, see our discussions of the giant negentropy process, earlier in this book. Any longitudinal EM "wave in 3-space" is accompanied by a longitudinal EM wave on the fourth Minkowski axis, in the time domain. EM energy does not observably propagate continuously in 3-space, since

observed propagation is a series of frozen iterative observation processes a priori). The "energy flow" actually consists of a propagation in 4-space of a *continual local circulation* of EM energy from the time domain (time-polarized EM energy) to each interacting point dipole in 3-space via the negative charge of the point dipole, thence to the positive charge of that point dipole, thence back to the time domain. In a time-reversed zone, the circulation is in the opposite manner. So what spreads as the "longitudinal EM energy current in 3-space" is actually the spreading point polarization of the vacuum and this giant negentropy 4-circulation involved in every point dipole of that polarization.

We believe this previously unsuspected process is involved in the Aharonov-Bohm effect (which is a sort of polarization in the time domain), other aspects of the geometric phase, fundamental polarization of the vacuum itself, and the very notion of "propagation of EM energy through space". At any rate, the hypothesis does fit the phenomena observed to happen in the MEG, so it warrants additional careful experimental investigation as well as attention from leading theorists.

Further, the MEG is practical and produces practical electrical power, but with a *purely electrical reaction* in the output secondary coils of the transformer section.²⁰² Hence there is finally a very practical use for the geometric phase: It extracts additional *nonlocalized* EM energy from the vacuum (and local curved spacetime) in addition to extracting and retaining *localized* energy. Both the extra "free" nonlocalized EM energy and the localized EM energy from the vacuum can be intercepted, collected, and utilized to power practical fuel-free MEG-type power systems.

We point out that the rate of changes of all E-fields produced in the secondary and primary coils also produce B-fields proportional to the time rate of change of those E-fields in each case. These secondary B-fields are

²⁰² This follows from the localization of all B-fields in the core material — including the B-field of the permanent magnet, those B-fields produced by dE/dt operations, and those B-fields produced inside the secondary coils, etc. All E-fields produced, however, including in the changing flux of the core and in the dA/dt operations of the external uncurled A-potential — are free from that localization restriction and can pass out of the core and interact with the output coils of the transformer section. In short, we have produced the world's first purely electric "induction-free" magnetic transformer device. The voltage and current, measured directly across the secondary coil's ends, is in phase within 2 degrees and even that 2 degrees can be eliminated. We expect the theorists to have a field day in modeling these new phenomena.

retained in the core rather than reaching out into surrounding space. Their rate of change then further produces E-fields, which pass out of the core and interact with the coils. Hence there are very novel "multiple feedforward and feedback" regenerative loops in the MEG's highly nonlinear operation, as well as chaotic oscillations.

7.5 Use of the Aharonov-Bohm Effect in the MEG

From the standpoint of electrical power systems, our own interest in the AB effect focused upon one important characteristic: the clear separation (and localization) of the B-field (the swirl component of the A-potential), leaving the remaining "natural" uncurred field-free A-potential as a free linear flow of energy current in the vacuum. This operation is iterative, and is produced by the core for every B-field produced in the transformer section. So a localized dynamic B-field makes nonlocalized dynamic E-fields, which themselves make further localized dynamic B-fields, which then further make nonlocalized dynamic E-fields, and so on. The result is a very extensive chain of feedforward and feedback field energy loops.

7.5.1 Separation of the Swirled and Linear A-Potentials

The AB effect has long been known in toroidal coils and in long solenoids. In a theoretically perfect toroid, for example, the AB effect separates and localizes the entire B-field inside the toroid, while the *curl-free* magnetic vector potential A appears in surrounding space outside the toroid. By our new interpretation and hypothesis, based on AIAS theoretical work published in the literature, this curl-free A-potential represents a nonlocalized longitudinal EM energy current in space.^{203,204} Further, the curl-free A-potential is an extra flow of EM energy that can be intercepted, collected, and used while also still using the entire "normal" B-field energy localized in the core. The neat thing is that the E-field made from the

²⁰³ This is addressed in M. W. Evans, T. E. Bearden, and A. Labounsky, "The Most General Form of the Vector Potential in Electrodynamics," *Found. Phys. Lett.*, 15(3), **June** 2002, p. 245-261. See also M. W. Evans et al., "The Aharonov-Bohm Effect as the Basis of Electromagnetic Energy Inherent in the Vacuum," *Found. Phys. Lett.* (in review).

²⁰⁴ See also B. Lehnert and J. Scheffel, "On the Minimum Elementary Charge of an Extended Electromagnetic Theory," *Physica Scripta*, vol. 65, 2002, p. 200. In **extended** EM theory, the elementary charge may no longer be considered as a **fundamental** constant of nature, but is expressed in terms of the Planck constant and the velocity of light.

A-potential, and thus providing the actual intercepted and collected EM energy, can be made as large as desired, merely by manipulating the rise time and decay time of the pulses used to perturb the A-potential external to the core. Further, the same perturbation also perturbs the B-field flux in the core, giving rise to nonlocalized E-fields whose magnitude again depends upon the rise time and decay time of the perturbing pulses. Hence the dA/dt and the dB/dt become energy amplification causes, where all the excess F-field energy is furnished freely from the vacuum via a special kind of asymmetrical regauging and gauge freedom. In that sense, the MEG produces and applies a hitherto unrecognized form of direct field energy amplification by asymmetrical regauging.

We noted that this mechanism represents the formation of a locally curved spacetime²⁰⁵ and engineering of the magnitude of the curvature itself. By freely increasing the local spacetime curvature, the appearance of additional EM energy density in the region follows *a priori*. That is, one still has all the B-field energy produced by the permanent magnet, but it is just confined to the space inside the core. All the energy one "pays for" or inputs with current and voltage to the input coil, in the normal sense, is the energy to *perturb* the localized B-field and the curl-free A-potential. However, even before perturbation to evoke energy amplification, there is already additional energy current that has appeared outside the core, where the magnetic field B would have normally extended. All the A-potential energy²⁰⁶ is "extra" energy in addition to the normal B-field energy that

²⁰⁵ More accurately there is one specific curvature of spacetime in the core of the MEG, representing the confined magnetic field B (the localized swirling A-potential), and there is another different curvature of spacetime outside the localization zone, filled with the nonlocalized curl-free (non-swirling) A-potential as a nonlocalized linear energy flow in space. Further, in the MEG we freely change and increase the magnitude of those spacetime curvatures, by the *rate of change* of the input energy rather than by its *magnitude*, and hence we easily increase the magnitude of the energy density of local space both inside and outside the core. That is the fundamental principle of the MEG's energy amplification (free regauging).

²⁰⁶ Some scientists even deny that the curl-free magnetic vector potential has any energy! We answer that it produces energetic effects upon charged particles, hence must either contain energy itself or direct and gate the interaction of some local vacuum energy with those charges. In the MEG, the uncurled A-potential is oscillated, which does not appear to yield a *transverse* EM E-field wave at all. Instead, it appears to yield a *longitudinal* E-field wave with an associated scalar KM wave in the time domain. We also explained what appears to happen to the concomitant B-field wave produced by any changing E-field in the secondary

would otherwise have appeared out there but is now confined inside the core.

Further, the uncurled A-potential outside the core reduces its magnitude only inversely as the radial distance, whereas the normal B-field that would otherwise be there in the absence of localization would have reduced its magnitude inversely as the square of the radial distance. This far less rapid fall-off of the magnitude of the nonlocalized curl-free A-potential than the former nonlocalized magnetic field B can result in a remarkable increase in communications range — when a normal EM field antenna with oscillating EM field transmissions is compared to a curl-free A-potential antenna radiating the same power but as curl-free A-potential oscillating transmissions. Golden²⁰⁷ has applied that effect for long-range communications.

With the application *of the free* Aharonov-Bohm effect produced by the core material and permanent magnet combination, rigorously there has appeared much more available EM energy from the local vacuum than the energy one inputs to the device as one's input energy "payment". Again, this is because the system is an open system far from equilibrium with the active vacuum processes such as the appearance of the uncurled A-potential and the iterative appearance of powerful extra B-fields and E-fields. The rise time and decay time of the input perturbation pulses produces an energy amplification effect both in the core and in space outside the core. When one utilizes this extra uncurled A-potential energy, as well as the now-confined B-field energy, as well as the extra B-fields and E-fields appearing from the iterative processes, then one can extract and use more energy than one himself "paid for" or input to perform the perturbation. Indeed, one can easily extract and use more energy from the curl-free A-potential alone, than one has input. By simply controlling the rise time and decay time of the input pulses, the magnitudes of the resulting E-fields formed in the uncurled A-potential (and in the perturbed trapped B-field perturbations inside the core) can be controlled at will.

(output) coils of the transformer section, etc. The core material withdraws and holds localized, all such magnetic fields formed in the internal MEG core processes.

²⁰⁷ In the late 1970s Frank Golden demonstrated such an uncurled A-potential **antenna** which attained a range of 20 miles for a tiny CB radio, compared to a range of only 1 mile for the same CB radio with a normal EM field antenna. The energy density of the potential drops off inversely as the distance, while the energy density of the field drops off inversely as the *square* of the distance.

We also point out that all these amplified E-fields produced by multiple actions have both a conventional Poynting energy flow component and an unaccounted, much larger Heaviside energy flow component. Thus the total energy amplification factor can be very large (several orders of magnitude). With efficient interception and collection, in the future we expect to be able to produce at least 100 kilowatts of power out of the same size core and buildup now producing 80 watts or less in a highly nonoptimized set of laboratory experiment MEGs.

We again call the reader's attention to our previous discussions in this book, showing that all EM energy in EM circuits comes from the vacuum anyway (particle physics view) or from the time-axis (relativistic view). This has previously been hidden by the failure of classical electrodynamics to solve the source charge problem, which we also solved in this book after our paper {12} in 2000. Circuit theorists avoided it by indirectly assuming the source charges freely created from nothing all the EM energy in their fields and potentials. The use of the assumed fields and potentials and their Poynting energy was calculated, but never was the source of those fields, potentials, and their energy presented or accounted.

7.5.2 Using the Uncurled A-potential as a Linear Energy Current

A very simple equation allows utilizing the extra nonlocalized A-potential energy, even though it has no curl and therefore no magnetic B-field. That is $\partial A/\partial t = -E$. This equation means that, if one perturbs that large field-free A-potential outside the toroid, it produces an E-field, which we have argued must now be a longitudinal EM wave due to the perturbations *if the B-confining operation is still imposed*. By oscillating the A-potential perturbations, one produces an oscillating E-field that is also an oscillating longitudinal electric E-field wave without an accompanying B-field wave.

The oscillating B-fields in the core also produce E-fields proportional to $\partial B/\partial t = -E$. These extra E-fields are in phase with the E-fields produced by the perturbed external A-potentials, considering the wavelength of the frequencies at which the MEG is operating (30 to 80 kHz nominally).

Interestingly, the time-oscillating rate of change of the E-field in this longitudinal E-field wave does produce a magnetic B-field, but it is confined to only the core material and not in the nonlocalized external spatial region *because of the localization capability of the core material*. The core simply changes its permeability and holds the additional B-fields and their flux in there, thus forming additional uncurled A-potential outside the core. The E-fields produced by variations of the core B-field flux is not confined, but freely passes out of the core material

If that B-field (curled A) is sharply localized by an ongoing localization capability, the longitudinal E-wave has its produced magnetic B-wave component stripped from it and localized. In that case, the process produces a purely longitudinal E-field wave outside the localization region — with the possible exception that a longitudinal B(3) field wave component pioneered by Evans {485} may be produced as well. That is left as an open question presently unresolved in our MEG experiments. We tentatively believe that the B(3) field wave component is in fact produced, but also forcibly localized in the core along with the magnetic field B. If so, its perturbations will also contribute to producing extra E-fields.

See Figure 7-5. In the MEG, the localization is accomplished as a unique function performed freely by the special nanocrystalline layered core material. So contrary to the case of the solenoid or toroid, one does not have to "pay" any EM energy to the localizing component to obtain the localization function itself.

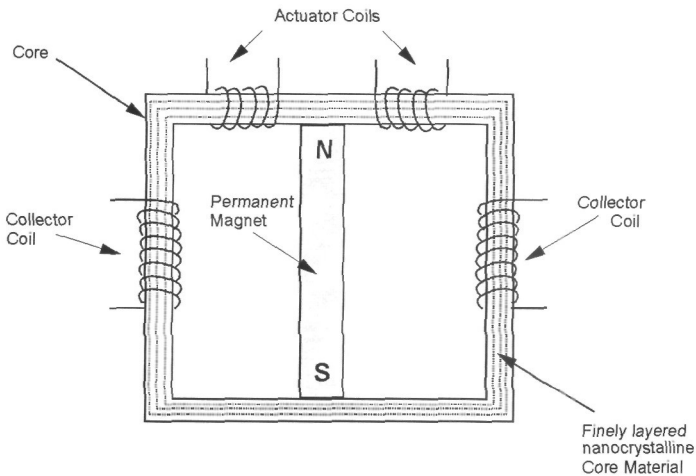


Figure 7-5 Diagrammatic drawing of the MEG.

Further, if one deliberately uses a nearly rectangular perturbing pulse that has very sharp rise time and very sharp decay time, the nonlocalized E-fields, resulting localized secondary B-fields, and resulting nonlocalized secondary E-fields produced can be made very large, with rapid rates of change also. In other words, the magnitudes of the nonlocalized E-fields and localized B-fields produced can be adjusted at will, including in their higher orders. The magnitudes of these evoked fields do not depend on the *magnitude* of the input perturbation energy, but on its *rate of change*. This

is very important, because it means the MEG permissibly achieves energy magnitude increase in its nonlocalized output E-field waves by simple instantaneous power deliberately prepared in its low-energy input perturbation waves.²⁰⁸ In short, the motionless electromagnetic generator uses perturbation of the Aharonov Bohm effect as an energy amplifying mechanism.

This also affects all the iterative processes, hence all the other E-field waves produced outside the core material.

With the localization process remaining and ongoing (simply because the core material remains), the B-field continues to be stripped away, leaving the perturbed A-potential to produce a longitudinal E-field wave (ignoring the possible presence of a B(3) field also). In the MEG transformer section, the output (secondary) coils are wound around the nanocrystalline core that performs a B-field and B-flux localization within the core itself. Hence a purely net E-field interaction occurs with the electrons in the secondary coils, and the output of these coils is an output having the output voltage in phase with the output current.²⁰⁹ The AC current in the secondary coils does in fact still produce magnetic field B-flux and B-waves in them, but the core material draws the extra B-flux and B-waves inside and localizes them within the core. The fact that localization is *not quite* 100% at the imperfect junctions of the ends of the permanent magnet and the core material, gives a tiny bit of leakage of

²⁰⁸ It also means that the MEG operation is highly nonlinear, with very extensive feedforward and feedback field transduction loops. For the MEG, its scale-up, mathematical modeling, and engineering simulation are not simple things at all, but highly complex. In addition, control and stability are more complex, since one must utilize nonlinear oscillation theory (including chaotic oscillation theory) as well as nonlinear oscillation control theory. In addition, a higher group symmetry electrodynamics is required for the modeling and simulation. Consequently, because of these considerations and the geometric phase aspects, as well as the additional close-looping considerations for self-powering operation, an expensive physics lab must be established as well as the usual electrodynamics laboratory aspects. The result is an expensive final research and development program required to complete the MEG to final production prototype units, ready to start rolling off the assembly lines. A minimum capitalization of \$20 million is required.

²⁰⁹ In the actual lab experiment MEG, there is a slightly imperfect junction between the ends of the permanent magnet and the core material. This results in a very tiny bit of leakage of nonlocal B-field —just enough to produce a 2° phase shift between the voltage and current in the secondary coil's output. With a better junction, this phase shift can be further reduced or eliminated.

B-field, so a tiny B-field component does escape, interact, and generate the 2% or so variation from the complete in-phase condition of the secondary output voltage and current. Again, that can be further reduced or eliminated by improving the junction.

So essentially there is a purely electric field interaction with the electrons in the output coil current of the MEG, hence the result that the output current is in phase with the output voltage — something previously unheard of in a simple secondary coil of a transformer. This is a major practical macroscopic application of the Aharonov-Bohm effect and therefore of the geometric phase.

7.6 Collection of Field Energy in the MEG

To collect and use EM energy in a power generating system, first the EM energy must be evoked from local spacetime (the local vacuum) by the broken symmetry of the source charges and dipoles in the circuit {12}. In the open system far from equilibrium in the resulting EM energy flow, the operator must usually pay for (i) the energy required to *initially* produce the requisite source dipolarity and (ii) the energy required to perform necessary switching and control functions, unless close-looping is incorporated. Using the permanent magnet as a source dipole in the MEG, and using the special nanocrystalline core material to generate the Aharonov-Bohm effect to furnish excess energy from the vacuum, the MEG operator does not have to *furnish* the evoked and available field energy at all. So the first "payment" is totally avoided. Further, the magnetic dipole is not destroyed by passing magnetic flux back through its back mmf. No additional input energy is required to continually restore the source dipole, since it is never destroyed.

In an open-loop MEG system, the operator only has to pay for the second part: the switching and control function energy. In later closed-loop MEG systems, a method of controlled and positive feedback has been developed so that, once the system is up and operating and powering its load, the necessary switching and control function energy can be siphoned off the output and fed into the input in governed fashion, first being transduced into positive energy input form. Once the process is properly synchronized and governing properly, the operator can throw a switch for feedback and transduction, and the unit will be "self-powering", or "fueled entirely by **the** local vacuum energy", so to speak.

Let us consider the open-loop MEG system we have presently attained in a series of embodiments.

The total emf force F collected from a given nonzero electric field E , e.g., depends only upon the amount of available intercepting charge, by the simple equation $F = Eq$. Similarly, from any potential ϕ the amount of collected EM potential energy W depends on the amount of intercepting charge q , by $W = \phi q$. Hence in the MEG a legitimate $\text{COP} > 1.0$ system is possible if (i) more energy is collected and used from the evoked EM energy flow than is input to gate that energy flow's appearance from the active environment, and (ii) none — or appreciably less than half — of the energy collected in the circuit is used to destroy the source dipolarity.

By invoking the AB effect in a local region, the vacuum contributes additional energy density in the space outside that region, and that energy density can be sharply perturbed so that substantial field energy amplification appears by asymmetrical regauging. The excess energy to provide $\text{COP} > 1.0$ performance is freely furnished from the active vacuum (and from the local curved spacetime) {38b, 38c}. The excess energy can be intercepted in the perturbed curl-free A-potential region outside the transformer section, collected, and used to power additional loads, in addition to being intercepted in the transformer secondary region to power the secondary circuit and main load.

Similar contributions of extra energy and extra energy collection outside the core localization region occur for the iterative processes also.

At the same time, the B-field inside the core material is perturbed, but the core material self-varies its permeability to adjust to the additional magnitude of the perturbed B-field. The production of any B-field oscillation inside the core does produce an electric field E , which is not localized in the core. Consequently, energy from the perturbed core-localized B-fields is transduced into nonlocal E-field energy, passing out of the core and interacting with the output secondary coils of the transformer section in purely electric field fashion.

Because of the purely electrical interaction, the voltage and current output from the secondary coils of the transformer section are in phase, and not 90° out of phase as in a transformer. The actual 2° experimental phase shift of current with respect to voltage is a measure of the slight inefficiency of the junctions of the permanent magnet ends with the B-localizing core material.

In the MEG, we are using a novel new kind of component: an *external-induction-free cored inductor*, which might alternately be called a *purely electrical inductor* — at least externally. In short, the inductive action

remains localized in the core, while the electrical action escapes the core and interacts with the coil to drive the current electrically. So here is another excellent, novel, and practical use of the Aharonov-Bohm effect and the geometric phase: Eliminate the inductive reaction of a coil's output, and transduce it into a purely electrical action. At this writing, we are preparing to file a separate patent application upon this latest application and process, and it will already be filed by the time this book is published.

We accent that any field or potential, once made, already involves an ongoing giant negentropy and overunity process {486}, as we previously discussed in this book. Simply calculate how much energy it requires to separate and form the source charge — which can be as simple as charging a tiny little sphere — and recognize that the field formed by that charge is an altered energy density of surrounding space and a polarization of the vacuum. Once the charge is formed, the corresponding alteration and sustaining of spatial energy density change and vacuum polarization freely moves radially outward at the speed of light from the charge, from the very moment it is produced. So a steady flow of observable EM energy is speeding out in all directions from the source charge. An enormous change in the energy density over that external spatial region surrounding the source charge occurs and spreads steadily, moving radially outward in all directions at speed c .

Hence a magnificent and rapidly extending curvature of spacetime — which energetically acts upon any available charged matter therein, by conventional general relativity — is formed and spreads outward in all directions from any source charge, once formed. How much effect on charged matter is exhibited by this freely created and spreading spatial EM energy density change, depends only on the amount of interacting/receiving charged matter in that surrounding space that is available to interact with the energy of the new fields and new potentials.

If **the** source charge or source dipolarity (in this case, primarily the magnetic dipole of the permanent magnet) is left alone and not destroyed, an unlimited amount of energy can be intercepted and discharged from a local load, again and again, from the charge's surrounding field or potential because the energy in the field and potential is steadily replenished from the active vacuum. The only problem is discharge the collected energy in the load(s) so as to leave the original source charges (the magnetic poles) inviolate, and not to destroy them. The MEG accomplishes this function.

This also rigorously follows from the gauge freedom axiom of quantum field theory. Consider this: the ability to freely change the potential — assumed by all electrodynamicists — can be applied directly to the load to potentialized it without any current moving, if there exists a somewhat lengthy electron gas relaxation time in that part of the load that is potentialized. After potentialization, one can switch the source of free potential away, and complete the load circuit separately, so that the excess potential energy is dissipated from the load, powering it. In that case there is no dissipation of the primary source dipole. *Gauge freedom already assumes one can produce EM energy from the local vacuum freely, anywhere and at any time.* In real life, one has to pay a little for the switching, but not for the energy input itself.

Why the scientific community for decades has fiercely opposed the funded experimental investigation of the implications of gauge freedom is quite inexplicable.

As can be seen from the conservation of energy law alone, in theory energy can be continually intercepted and collected from these free fields and potentials, once the source dipolarity (or source charge) creation has been paid for. Further, by applying gauge freedom to potentialized the load without energy dissipation, with a little adroit switching the collected energy can then be dissipated entirely in a separated external load circuit, so that the free potential energy completely exits that circuit without re-interacting with the source dipole and its back emf or mmf.

We predict that the above application of gauge freedom will eventually power most of the world's electrical systems, when the scientific community gives up its present "ostrich position". Once the engineers can build it, the scientists do not have to agree.

That such is not done in our conventional circuits is purely due to the limited vision of the scientific community and its refusal to fund appropriate research. To date, it has not even recognized what actually powers every electrical circuit, or that a common practice (the closed current loop circuit) has eliminated $COP > 1.0$ and self-powering Maxwellian power systems for more than a century. The entire electrical energy crisis hurtling at the nations of the world is due entirely to the shortsightedness of the scientific community, particularly since 1957.

Once the energy is pouring (transmitted) from the dipole and out of the terminals of the generator to fill space around the external conductors, then a straightforward energy transmission and reception problem exists. The source dipolarity produces the steady emission and flow of energy filling

space around the circuit. In the "receiving external circuit" the surface charges and their fields must intercept some of that available EM energy flow and diverge it into the conductors to power the circuit electrons. The intercepted and diverged component entering the circuit is the Poynting component, while the nonintercepted and nondiverged component missing the circuit and usually wasted, is the extra Heaviside component.

Fortunately, every source dipole pours out enormously more EM energy than our feeble conventional circuits intercept and catch to provide the Poynting calculations. So to produce $COP > 1.0$ in the MEG, all we have to do is insure that we have (i) a mechanism easing the interception and collection process, and (ii) sufficient "antennas" containing sufficient conduction electrons (and their fields) to intercept and collect more energy than we pay to make the source dipole and perturb it. Since we pay nothing at all to make the source dipole (which is the permanent magnet), and since the magnetic flux back through the permanent magnet does not destroy the dipole, then all we have to pay for is the perturbation and for switching and control.

The resulting field energy generated outside the core localization region is primarily a function of the rise and decay times for the input perturbation pulses and not the energy of those pulses. From a little input energy with fast little changes, we can easily generate very powerful oscillating E-fields and provide dramatically increased "antenna collection" area with **the** necessary magnitude of intercepting charge. It rigorously follows that $COP > 1.0$ is easily obtainable.^{210, 211}

²¹⁰ Again, for the MEG, changing and controlling the rise time and decay time of the input pulses is a method for directly engineering and controlling the general relativistic curvature of the local surrounding spacetime, because it controls the magnitude of the E-field that is created by $\mathbf{E} = -\partial\mathbf{A}/\partial t$ from the curl-free A-potential outside the core. This also directly engineers and controls the magnitude of the polarization of the local active vacuum. That simple fact allows the use of a unified field theory operation, with a net energy interchange between the system and **the** local active vacuum. To understand the MEG, one must think in terms of the *supersystem*.

²¹¹ All EM energy at any point in space must have been "gated" from the time-domain and it must return to the time domain (as, e.g., by the source charge for it). It **requires** quite a shift of one's mind to realize that all 3-space energy (such as "energy at each point in a potential") involves a gating process and a giant negentropic 4-circulation of EM energy ongoing at each point dipole. Much of the extraction of **energy** from the vacuum has been hidden by thinking in terms of "inputting energy" instead of "inputting or arranging energy flow gating" by the source charges and sourcedipoles.

The MEG is an open system far from equilibrium with its active environment (its active local vacuum and its active local curvatures of spacetime). By attending to the interception and collection part of the overunity problem, the MEG can permissibly collect and use more EM energy to power its loads than one oneself has to input to it. In short, one only has to input a little switching and perturbation energy with properly shaped waveforms, to generate very powerful fields and appreciable field energy available for collection and use. With sufficient collection mechanisms in place, the unit easily produces $COP > 1.0$. Then with proper closed-loop principles implemented, the MEG can be self-powering.

7.7 Experimental Path to Development of the MEG

In our experiments with the Radus effect previously discussed in Chapter 6, paragraph 6.4.5, we had already done extensive work with switching magnetic fluxes for less switching energy than can be intercepted from the switched flux. We had also experimented with various cores for transformer and coil variants, including eventually the new layered nanocrystalline cores.

In our experiments, we noticed a remarkable thing. With certain modern nanocrystalline core materials, and using a permanent magnet to provide B-flux, we found that *the core material would extract and hold essentially all the permanent magnet's B-flux inside the core*. Field measurements right against the outside of the poles of the powerful little neodymium-iron-boron magnet itself showed very little B-flux spilling out into space! In short, we had discovered how to make a magnetic system that *nonlocally* propagated only the uncurled magnetic vector potential A, without any operator energy input. We realized we had discovered a marvelous and free way to freely obtain an excellent Aharonov-Bohm effect, similar to the way a nearly perfect toroid would localize the B-field inside the core, with the uncurled A-potential appearing in space surrounding the toroid. The advantage of our approach over the toroid was that we did not have to furnish any current and voltage to obtain the localized B-flux and the non-localized curl-free A-potential energy.

Further, if we perturbed the B-field flux in the core, we consequently perturbed the uncurled A-potential in space surrounding the core. From both sources — the perturbed B-flux in the core and the perturbed

A-potential outside the core — we could produce very large E-fields and concomitant very large voltages capable of driving more "power" through the secondary coils of the transformer section than the power required to perform the switching and perturbation.

We could easily prove this by perturbing the localized B-flux (and the concomitant surrounding uncurled A-potential automatically) with weak energy. We proved that increasing the rate of the rise time and decay time of even a weak input EM energy perturbation could produce quite large E-fields, including 1,000 to 5,000 volts (or even 20,000 volts!) appearing in the secondary coil if desired. We also proved another thing: *the special nanocrystalline core material in some buildups self-adjusted its permeability, continuing to localize the perturbed and alternating B-fields and their fluxes while freeing the resulting E-fields and passing them out of the core.* In short, the permeability of the specially selected core material automatically adjusted with the perturbation of the localized B-flux and nonlocalized A-potential, so that all the oscillating B-flux remained localized in the core. Further, the highly layered nanocrystalline material produced essentially no eddy currents at all, hence no heating, even in the presence of dramatic B-flux oscillation and dramatic E-field intensities in the surrounding uncurled A-potential space and in the output (secondary) coils of the transformer section of the MEG.

The absolute proof that the core changed its permeability was in the lack of a phase lag between voltage and current in the output from the output coils. Here a remarkable thing was observed: the output current was in phase with the output voltage, within about 2° . In short, under certain circumstances the output coils wound around the nanocrystalline core would exhibit essentially a purely E-field interaction, with only minuscule B-field leakage — something deemed impossible in the typical electrodynamics textbook. This meant that the excess E-fields produced by the perturbed A-potential in space outside the core also reacted with the **output** coil's conduction electrons in a purely electrical manner! This was because the B-fields locally produced in the output coils by the interacting changing E-fields, *were in fact instantly drawn into the core material as they were produced, and were held there so they did not react in magnetic fashion with the electrons in the output current from the secondary coils.*

So this is a dramatic localization of Faraday's law of induction. Consequently, one entire group of embodiments of the MEG uses a purely electrical interaction with the secondary (output) coils of the transformer

section.²¹² Or more exactly, the core material draws in all the magnetic fields from the reactions of the output coils, leaving only the electrical reaction outside the core — including in the coil conductors, which obviously are wound outside the core material.

On the other hand, the perturbed localized magnetic B-flux inside the core material did produce the normal E-field to be expected, as a function of the time-rate of change of the B-field. Such an E-field is not localized in the core material, but extends outside the core and interacts with the electrons in the output secondary coils of the MEG's transformer section. Again, the magnitude of this E-field is a function of the time-rate of perturbation of the localized B-field flux in the core.

The nanocrystalline core also has excellent high frequency response, with negligible eddy currents. Thus we can "fine tune" the engineering of the rise time and decay time of the input perturbation pulses.

Hence we accomplish several kinds of "gated energy amplification" in the MEG: (i) the amplified magnitude of the external E-field interacting with the external collectors (such as the output secondary coils) due to perturbation of the nonlocalized external uncurled A-potential, (ii) the amplified magnitude of an additional E-field interacting with the external collectors (such as the output secondary coils) due to perturbation of the localized internal B-field flux inside the core material, (iii) a large number of additional derivatives of higher order B-fields and E-fields are formed and utilized, and (iv) adding additional collectors (either coils wound on the core or external "receiving antenna circuits" produces additional power for heavier loads, for a given perturbation input.

We had exhibited a cored output coil with a remarkable adaptation of the AB effect. Essentially the output of the secondary coil was driven by the large electric field component created from the uncurled A-potential perturbations *and* by the large electric field component created from the B-field flux perturbations inside the core. This peculiar transformer-like section operated from the E-field fluxes emerging or produced *outside* the

²¹² Again we accent that the magnetic field reactions do occur, and the B-fields are in fact produced. But the resulting B-fields are also extracted into the core material and localized therein. Even the magnetic B-fields produced in the input and output coils themselves, is so localized and not allowed to interact with the electron currents through the coils to produce the conventional 90° phase lag between voltage and current.

transformer core material, rather than from the magnetic field flux being produced and oscillated *inside* the core material itself.

Obviously we had found a remarkable but legitimate $COP > 1.0$ process and embodiment — in fact, a whole set of them. We had also invented a new kind of "transformer" or energy generator-transducer.

From that we progressed to discovering ways to a dual use of both the perturbed B-flux in the core and the E-fields from the perturbed A-potential outside the core. To first order, that turned out to be fairly simple: any changing B-flux inside the core material and thus inside the output (secondary) coils of the transformer section, produces not only B-field which is held and localized, but also the changes of this local "pinned" B-field further produces E-field oscillations which are not pinned in the core. Hence the electric field half of a normal transformer action could and did occur in the secondary coils, but the magnetic field half did not occur *in the coils themselves*. The MEG used and uses a nearly pure E-field interaction in the output coils of its transformer section secondary, where that net interacting E-field comes from a variety of E-field generating mechanisms.

We filed our first patent, and then filed a second patent application soon after. Presently we are preparing to file our third and fourth patent applications on additional phenomenology and mechanisms uncovered in our experiments. As we are writing this section, our first patent has issued {37}.

In the view of the present author, we have uncovered a remarkable new application of the Aharonov-Bohm effect and the geometric phase, one that is practical and eminently useful in novel new electrical power systems.

7.8 Additional MEG Functions

Figure 7-6 diagrammatically shows the core material inside the input coil for either open-loop operation using an external power supply or closed-loop (self-powering) operation using clamped and governed positive feedback. As can be seen, the B-field and B-field flux are confined to the core material (which is in the form of a closed transformer coil path, as shown diagrammatically in Figure 7-5). The external space surrounding **the** core material is filled with the uncurled A-potential, due to the Aharonov-Bohm effect being imposed by the core material. The two leads from the input coil are shown at the bottom of Figure 7-6.

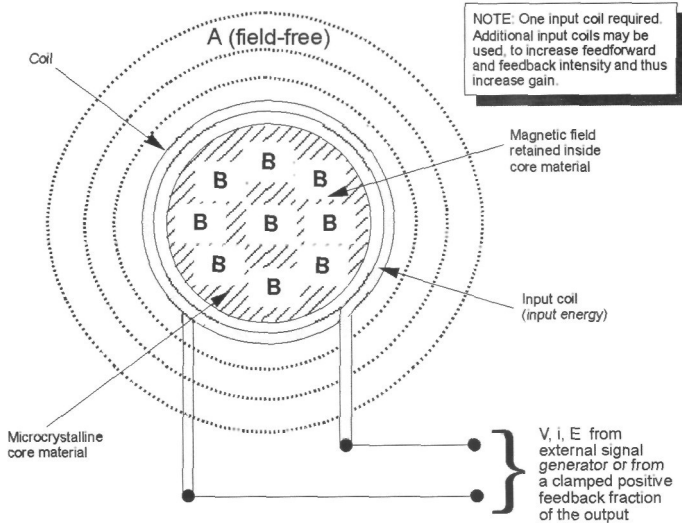


Figure 7-6 Input coil for open- or closed-loop operation.

We pulse the input coils with nearly rectangular pulses each having a sharp leading edge and a sharp trailing edge, so that the resulting rapid time-rates of change of the two edges create very large perturbations of the B-flux in the core and of the A-potential outside the core. The large E_2 -field resulting from the fast rate of change of the perturbed B-field in the core is not localized, but appears in space outside the core. In addition, an E_3 field created directly in the coil itself also appears in space outside the core. In addition, the sharply perturbed A-potential outside the core creates a third large E_1 -field in space outside the core. The net E_t -field in the surrounding outside space is the vector summation of the E-fields produced by these processes, or to first order (neglecting the further differentiations)

$$\mathbf{E}_t = \mathbf{E}_1 + \mathbf{E}_2 + \mathbf{E}_3 \quad [7-1]$$

We also may adjust the pulse width to generate a further Lenz law effect, increasing the three component fields E_1 , E_2 , and E_3 if desired. To do that, the pulse must be narrow enough to suddenly decay while each of the fields E_1 , E_2 , and E_3 is still rising and not yet reached maximum. As can be appreciated, considerable pulse shaping and timing can be adjusted for optimization of the output voltage, current, and power when interception and collection from E_t is accomplished in the secondary coils. In addition, it can be appreciated that slightly differing materials delay times do occur in the production of E_1 , E_2 , and E_3 . Hence there is appreciable

optimization that can be and is accomplished on a given MEG variant and build-up type.

More complex waveforms of various shapes can be used to further optimize the output. It is also possible to accomplish further optimization and control by adjusting the shapes and timing of the feedback signals in the case of the closed-looped MEG system. For the externally powered open-loop version, additional optimization and control can be achieved by adding additional simultaneous pulses fed into the input coils in various fashions.

In addition, the response of the output coils produces feedback into the core material, into external space, and into the input coils. These in fact provide three more E-field *return* or feedback inputs, so that the total feedback input is

$$\mathbf{E}_f = \mathbf{E}_4 + \mathbf{E}_5 + \mathbf{E}_6 \quad [7-2]$$

Without doing the more complex iterations for this feedback and feedforward set of loops, to first order the total input \mathbf{E}_I to the input coil may be considered to be

$$\mathbf{E}_I = \mathbf{E}_t + \mathbf{E}_f \quad [7-3]$$

Equations [7-1], [7-2], and [7-3] are for simple analogy only; in the real MEG, full nonlinear feedforward and feedback analysis techniques must be utilized because of the iterative operations, and much more sophisticated optimization techniques are appropriate. Also, chaotic oscillations can and do appear, and techniques for control of such oscillations are indicated, particularly along the lines indicated by Fradkov and Pogromsky {487} without use of probability etc. Quoting:

"1. There is ... great benefit of using the modern nonlinear and adaptive control theory. ...2. There is no need to distinguish periodic and chaotic behavior. Accurate control is possible without accurate prediction. ...3. There is no need to define chaos in order to control it. ...4. There is no need to use probability in order to control systems with seemingly random behavior. "

For any given MEG build-up design, one experiments with these optimization and control factors and mechanisms to provide the best performance, and to provide rock-steady performance.

Figure 7-7 shows the output coil for either open-loop operation from an external power supply or closed-loop (self-powering) operation using

clamped and governed positive feedback. Here the situation is partially reversed. There are three major inputs to the output coils, and these are (i) the external input from the total outside E-field, (ii) the internal input from the perturbation changes in the confined magnetic flux inside the core through the output coils, and (iii) the ensuing feedforward and feedback from all E-fields.

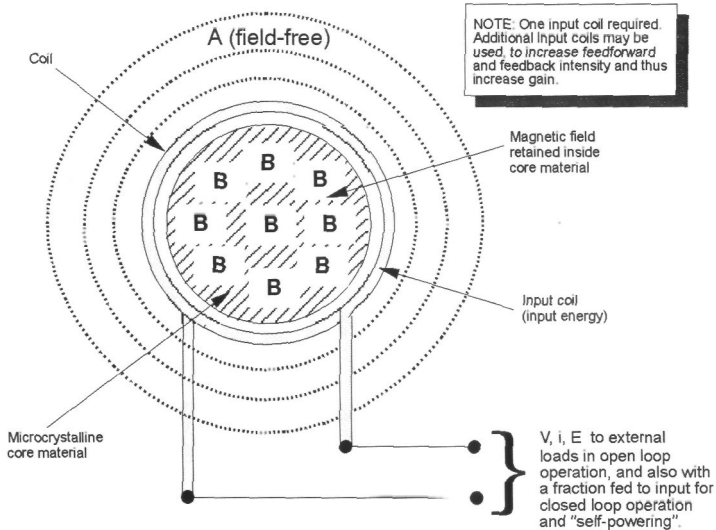


Figure 7-7 Output coil for open- or closed-loop operation.

Again, this is simply an easy way to visualize the situation to first order. In the real case, sophisticated feedforward and feedback analysis is required and utilized. Optimization usually consists of two steps: (1) the simpler, more direct optimization techniques such as adjusting pulse width, pulse rise time and decay time, actual pulse form, etc., and (2) the deeper and more complex optimization arrived at from detailed feedback and feedforward loop analysis as well as nonlinear oscillation and nonlinear control theory analysis.

In the actual optimization analysis, the feedback and feedforward loops are mathematically endless and thus should be optimized for quick decay and stability. On the other hand, the MEG also has the ability to self-oscillate over the entire unit, in which case the feedback and feedforward loops are optimized for stable self-oscillation of the entire unit. The self-oscillating

MEG is permitted since it is an open system far from equilibrium with its active environment.

So if desired, an entirely different kind of optimization can be utilized for self-sustained nonlinear oscillation and closed loop operation. Because of the gain achieved in the large E-fields produced by the perturbed uncurled A-potential in space surrounding the core, there is sufficient excess energy collection available in the output coils to use the available feedback and feedforward loops in the system itself to achieve system self-oscillation. The system can be operated as a self-oscillating open system freely receiving excess EM energy from its active environment — the local active vacuum, local curvatures of spacetime, and local freely furnished uncurled A-potential and resulting nearly free E-fields from the A-potential's perturbations). As we are writing this, our experiments are now in this direction, and we are preparing the material for filing a formal patent application on this additional process. The patents will be filed, of course, by the time this book is published.

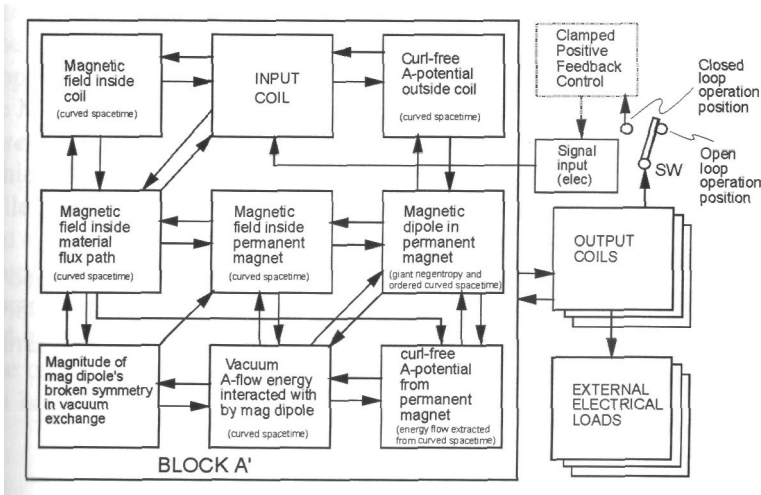


Figure 7-8 Energy gain process using feedforward and feedback subprocesses

A highly simplified block diagram of energy gain process using feedforward and feedback subprocesses is shown in Figure 7-8. As can be appreciated from this high order diagram, the actual feedforward and feedback loops are extremely complex, and a great deal of complex analysis is required for a self-oscillating, stable, controlled system. We also stress that control measures to insure and hold stable self-oscillation

must be included in the overall features implemented in this self-powered, self-oscillation variant of the MEG. Not only must we use chaotic oscillation techniques to achieve the self-oscillation, but also we must use advanced techniques for stable control of such nonlinear oscillations, as indicated by Fradkov and Pogromsky {487}.

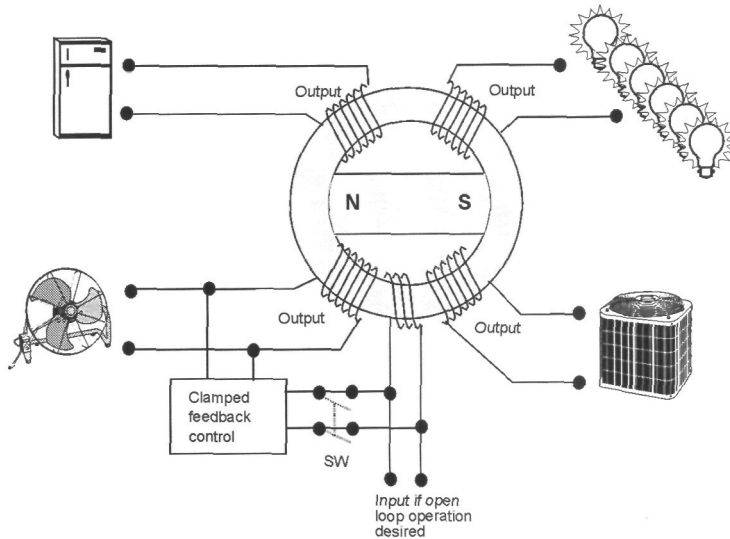


Figure 7-9 Typical MEG embodiment application on site.

In Figure 7-9, we show a typical diagrammatic embodiment envisioned for the MEG in a household, using a large MEG to later be developed. For interim installations, the single large MEG will be replaced with an array of MEGs together with a synchronizer, as shown in Figure 7-10.

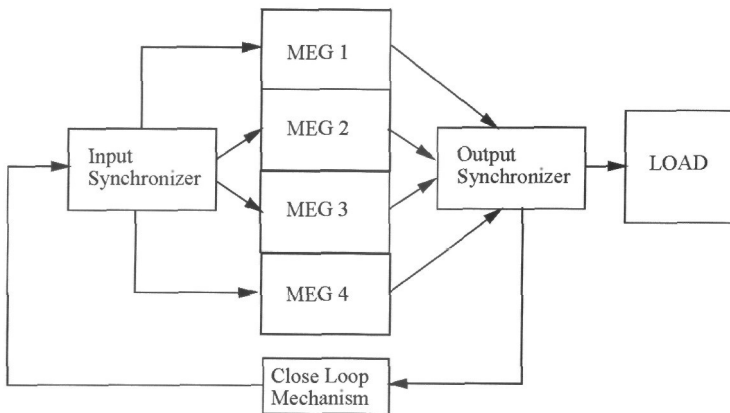


Figure 7-10 MEG self-powering array concept for increased powering applications.

Figure 7-11 shows a MEG unit where additional special collection antennas feeding separate circuits are employed in an "outrigger" fashion. One major advantage of this configuration is that the complexity of close-looping and its control are materially reduced, although the complexity of the MEG build-up and stabilization is increased. Another advantage is the *ease* with which close-looping for self-powering operation can be achieved, as shown in Figure 7-12. In this case, the external antennas are collected to independent output circuits (not shown) in the output section, and each of these independent outrigger outputs is a $COP < 1.0$ circuit if we count the perturbed A-potential energy input as an "operator's" input. Completely normal clamped positive feedback can be used with sensing and governing, to allow self-powering and self-adjusting to varying loads. The outrigger embodiment can be made to almost entirely avoid the Dirac sea hole current problem.

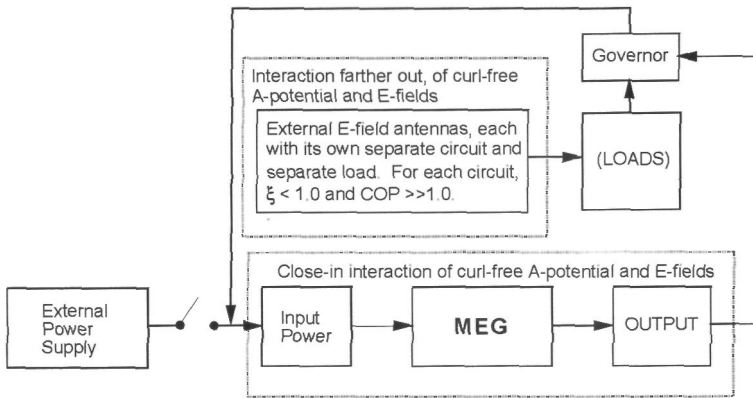


Figure 7-11 MEG unit with outrigger antennas for extra energy collection.

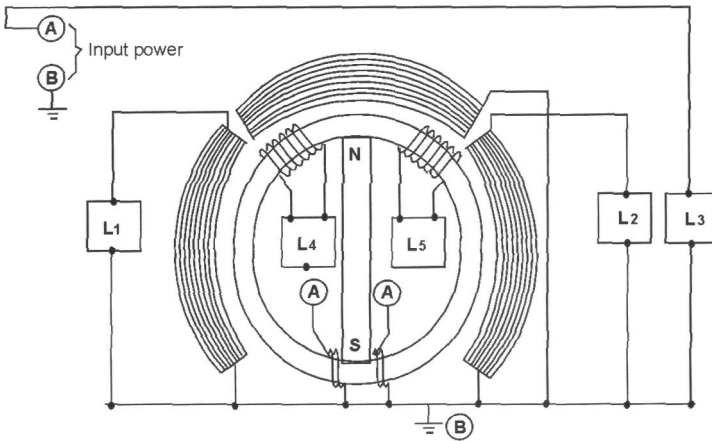


Figure 7-12 Use of outrigger antennas for damped positive feedback method of close-looping.

As can be seen, the MEG has many possible configurations and embodiments, each of which has special advantages and uses. One of the embodiments we discussed is the deliberate use of self-oscillation forced by the feedforward and feedback loops. That is a separate embodiment, and capable of a very high power per pound ratio, but it also requires more sophisticated sensing and control techniques.

7.9 In Conclusion

By the time this book is published, Magnetic Energy Ltd. is hopeful it will have achieved its major funding requirement, and be well along the way to completing the research for full production and marketing of MEG units on the world market. We have arrived at that part of development — the need for substantial funding (several tens of millions of dollars) — where every previous COP>1.0 EM power system has died. We intend to do everything within our power to see that we obtain the funding, finish the complex research task, and get the MEG onto the world market.

For additional information on the MEG and on its preliminary replication by Naudin, the reader is referred to other technical articles {488} and to Jean-Louis Naudin's website.²¹³ Actual measurements for one of Magnetic Energy Ltd.'s MEG test units is given in reference {488a}. The MEG patent {37} shows the variation of COP for a test MEG with various conditions. Curves for Naudin's measurement of the performance of his replicated MEG unit are given on his website.

The MEG project is a most interesting project, because of the involvement of so much advanced physics and several different physics areas, as well as the prerequisite for higher group symmetry electrodynamics. Once funded, we are confident we succeed in crashing through the barriers and getting working MEG power units — including self-powering MEG units — on the market. We also believe the MEG will represent a substantial contribution to alleviating the coming worldwide energy crisis. Hopefully it will materially hasten the growth and evolution of the present highly centralized — and terribly vulnerable — national energy infrastructure into a highly decentralized — and much less vulnerable — national energy infrastructure. We also believe it will provide a great contribution to helping alleviate global warming, reducing pollution of the biosphere, and reducing the production of hazardous wastes. If so, it will be a continuing

²¹³ Naudin's website MEG material and information is at <http://jnaudin.free.fr/html/meg.htm>. Particularly see his Mark III replication, shown powering a light on that webpage.

contribution, not only to humanity today, but also to generations yet unborn.

Chapter 8

Approach to Antigravity

[Large-scale antigravity exists] *"...baryonic, ordinary matter—the stuff of stars and of people—makes up just over 4% of the energy and matter in the universe. ...about 30% of the stuff in the universe is dark [unobserved] matter. The remaining two-thirds, theorists believe, is a mysterious 'dark energy' or 'quintessence'—a large-scale antigravity-like effect that is making the universe expand ever faster.... "* [Charles Seife] {489}.

[On the nature of the vacuum] *"...the (electromagnetic) vacuum is the ground state of the quantized electromagnetic field. ...The Dirac electron vacuum is that state with all negative energy electron states fully occupied."* [Aitchison] {490}

[On forces and how charge exists] *"Vacuum polarization, in general, alters the effective force law. Forces, in quantum field theory, are understood as being due to the exchange of virtual quanta ...In the case of QCD and QED, ... a crucial new feature is that the force-field quanta themselves carry the 'charge' of the force-field, i.e. it is as if the photon of electromagnetism carried electromagnetic charge."* [Aitchison] {491}

[Possible gravitational circuits] *"There is an implication ... that gravitational excursions might be controllable by gravitational 'circuits', analogous to electronic circuits, which could lead to a controllable form of negative gravity."* [Robert Neill Boyd] {492}.

[Gravitational circuits] *"The supersystem concept utilizes a unified fields approach so that specialized electrical circuits in COP» 1.0 condition generate strong Dirac sea hole currents of negative energy in the immediate local vacuum. Thus a strong negative energy field is formed surrounding the circuit and changing the curvature of local spacetime as an action by the source*

circuit. This produces a direct antigravity field around the circuit or physical system, acting upon the mass of the system. The net gravitational interaction by that circuit or physical system is therefore the summation of the local positive gravitational field and the new local negative gravitational field produced by that negative energy field." [T. E. Bearden, correspondence to a colleague, February 2002.]

[On the multiplicity of spacetime curvature components] *"The full mathematical expression for the curvature of four-dimensional space-time ... is given by something called the Riemann curvature tensor. This is a somewhat complicated object, needing twenty real numbers at each point in order to specify it. These twenty numbers are referred to as its components. The different components refer to the different curvatures in different directions in the space-time."* [Penrose] {493}.

[Physics studies and prepares imperfect models, not perfect truth] *"All we ever know is our models, but never the reality that may or may not exist behind the models and casts its shadow upon us who are embedded inside it. We imagine and intuit, then point the finger and wait to see which suspect for truth turns and runs. Our models may get closer and closer, but we will never reach direct perception of reality's thing-in-itself"* [Hawking] {494}.

8.1 Introduction

In this chapter, we first present a highly abbreviated background of the theory of gravitation, sufficient for our experimental orientation. Of special interest are unified field theories, which cover general relativity, electrodynamics, and quantum mechanics in one overall master theory. Even more of interest is an engineerable unified field theory, which is presently closest approached by the theory of Mendel Sachs {510}.

We then present a short overview of work that has been done in the fields of lifters and inertial propulsion, listing some of the inventions of interest, the approaches, results achieved, and our comments on each.

Finally, I present my own approach to antigravitation, and give some results of the Sweet device's antigravity test (the test was designed by the present author) that successfully reduced the weight of a device by 90%.

In our view, this experiment fully demonstrated the veracity of our theoretical approach.

8.2 Selected Theories of Gravitation

8.2.1 Newton's Theory and a Negative Mass Extension

The first mechanism for gravity of interest to our purposes was advanced by Newton in his work on mechanics {495}. Newton's law of gravitation may be stated as {496}:

"A particle of mass m_1 attracts a particle of mass m_2 a distance d away with a force $F = G \frac{m_1 m_2}{d^2}$ in the direction of the line joining the particles. "

Of course, it should have stated "in a time forward zone". The situation is precisely reversed in a time-reversal zone. It is also reversed for negative mass-energy.

In the Newtonian view, antigravity would mean repulsion of mass rather than attraction of mass. Given that negative mass is possible, then a negative mass would exhibit antigravity — i.e., it would be repelled by all other positive masses.²¹⁴ This can be seen in the quoted equation, by

²¹⁴The discussion of what attracts what and what repels what, in a mix of negative and positive masses and negative and positive energies, is still controversial in physics. Different theorists have taken differing positions, and there is no formal experiment that has decided between them. In our opinion, the successful antigravity test of the Sweet vacuum triode amplifier answered that question experimentally, although independent replication was not accomplished. The scientific discussions heavily involve discussions (and assumptions) of the nature of "gravitational" mass, inertial mass, and electrodynamic mass etc. Again, there is no decisive selection among several possibilities, and there is no clear and universally accepted definition of **any** of those three types of mass.

In addition, all the discussions have included a fundamental error: They **assume** a separate 3-force acting upon a separate 3-mass, which is unequivocally false. Another fundamental error is the assumption of an observed (effect) 3-positron interacting with normal matter rather than a non-observed (causal) 4-positron (negative energy 4-electron) in massfree spacetime. In effect, this applies the CPT (charge-parity-time) symmetry, and converts the direction of the 3-positron to the antidirection of the 4-positron while also changing the negative mass of the 4-positron to positive mass of the 3-positron. Further, in physics there is still no firm **definition** of either force or mass, but only circular definitions between the two. We are using the simple definition of mass as $F = d/dt (mv)$, where mass is a component of force F and hence there is no separate force F acting upon a separate mass m . We

interpret that equation as "the force F observed in a new observation is proportional to the time-rate of change of the ongoing 4-space interaction between the just-observed 3-mass m and the average interchange of time-energy and space-energy represented by v in the ongoing dynamics between spacetime and mass m . Whatever adjective is prefaced upon the F is also prefaced upon the m in the mv term.

We politely but firmly disagree with one prevailing notion that positive mass *attracts* both positive and negative mass, while negative mass *repels* both types. Further, we believe that the Sweet vacuum triode amplifier antigravity experiment falsified that notion. We hold to the dictum that $m = E/c^2$, where E is real spatial energy and may be positive or negative, c^2 is always positive, and therefore negative mass is highly compressed negative spatial energy while positive mass is highly compressed positive spatial energy. (Imaginary mass is a separate consideration.) We also prefer to reason in "single fundamental units" physics where the joule is the only fundamental unit. Gravity then becomes a function of the joule, whether electromagnetic, mechanical, or whatever. *We consider the energy in spacetime to be the source of the curvature of spacetime that is known as "gravitational field"*. If the joule is of positive energy, the accompanying gravity is positive. If the joule is of negative energy, the accompanying gravity is negative. And we consider gravity as the 4-space causal spacetime curvature. So for gravitational interaction theory, we insist on examining the interaction of the curvature of local spacetime with the mass-energy. Further, we postulate that the gravitational effect upon one mass from a second mass is an improperly posed concept. It actually is an effect of the local curvature of spacetime around the first mass, where that curvature of spacetime was induced by the second mass's energy. Further, we consider that positive energy fields surrounding a positive mass will curve spacetime in the "positive gravity" direction. The positive mass is attracted by all other positive masses. Negative energy fields surrounding that positive mass system curve spacetime in the "negative gravity" direction so that the positive mass of the system is at least partially repelled by all other positive masses in the universe.

We further prefer to think in terms of the *supersystem* and the unobserved causal 4-field, not the frozen iterative 3-field snapshots defined only after iterative observations. As we stated previously, the "observed" 3-positron is, in our view, a very different beast from the as-yet-unobserved 4-positron. The 3-positron is a frozen momentary "effect" entity with no dynamics at all and no continuous existence in time (and hence in spacetime) at all; instead, it continually *recurs* as the iterative effect of iterative observation by iterative application of the d/dt observation operator. The 4-positron is still a negative energy electron with negative charge, and still going in a non-reversed direction since broken parity has not been applied (because observation has not been applied), a causal entity with ongoing dynamics, continuously existing in spacetime, not just in 3-space. Until interacted and observed, it also has negative energy and negative mass-equivalency.

If one wishes to accurately deal with spacetime effects from the "positron," in our view one must deal with the 4-positron before observation, and hence with the supersystem. The 3-positron is not a *spacetime* entity, but only a frozen *3-spatial* snapshot. Scientists, including Dirac himself, were horrified at the negative mass implications of the negative energy states. Therefore, they moved the interpretation

simply replacing positive mass m_1 by negative mass $-m_1$. That two negative masses would attract can be seen by replacing positive mass m_1 by negative mass $(-m_1)$, and also replacing positive mass m_2 by negative mass $(-m_2)$.

Now consider mass m_1 to be the rest of the net positive mass in the universe, and mass m_2 to be the "effective" mass in a local supersystem consisting of the local physical system, its local active vacuum, and its local active curvatures of spacetime — in short, in a local supersystem consisting of the physical system and its local active environment, and the interchanges between them. Let $m_2 = m_p + m_n$, where m_p is the amount of local positive mass (or mass-equivalent) in the system and m_n is the amount of negative mass (or mass equivalent) in the system. This supersystem now simultaneously exhibits both positive gravity (attraction) to all net positive masses in the universe and negative gravity (repulsion) to them as well. The net gravitational response of the supersystem depends upon the fraction of the effective mass that is positive and the fraction that is negative — in short, upon the net vector sum of the two gravitational forces.

to the 3-positron, and thereby twisted the interpretation to substitute the effect for the cause. Hence circuit theory treats the *lattice hole* as a positron, yet that "hole" acts very differently from a true Dirac positron (a Dirac sea negative energy electron) in free space.

Consequently, matter-antimatter interactions and the interaction between positive energy and negative energy are quite different, or they can be if so manipulated prior to observation. In the matter-antimatter interaction, the initial curvature of spacetime formed by the union decays by radiation of EM positive energy and the "effect particles" disappear back into the uncurved vacuum from whence they came. In the positive energy and negative interaction, there is a change of the local curvature of spacetime without its decay and subsequent re-radiation of EM energy. Equal amounts of interacting positive and negative EM field energy thus are simply transduced into stress energy potential of the vacuum and consequent sustained change in the curvature of the local spacetime. Indeed, the radiation of pair annihilation energy is obtained only at the expense of negating (relaxing) the local polarization of the vacuum (and the two consequent curvatures of local spacetime) represented by the independent positron and electron. Indeed, normal pair annihilation is a sort of Lorentz symmetrical regauging of the locally asymmetrical vacuum.

The reader is certainly free to disagree with our conclusions; we are merely explaining them. Experiment will eventually sort out the truth or falsity of the approach. So far, based on the Sweet experiment designed by the present author, a highly successful experiment was consistent with this approach.

In a "mixed" mass system containing both positive and negative component masses, the fraction of the total mass that is positive and the fraction that is negative is thus significant. When the mixture's negative mass is less than its positive mass, the mixture would exhibit a "reduced" gravitational attraction to other masses of the universe. Then the ratio of negative mass to positive mass might be taken as the "gravitational shielding" coefficient (fraction).

When the amount of positive mass and the amount of negative mass were equal, the overall mass system would exhibit no net gravity or antigravity, and would "float" or "hover" in the Earth's gravitational field. It would be equally attracted and repelled by the Earth's positive mass (and by all other positive mass in the universe, hence could — at least under certain conditions — *appear inertia-free*.). When the amount of negative mass exceeds the amount of positive mass, the overall mass system would exhibit a net antigravity effect. It would be repelled more strongly by the Earth's positive mass, as well as more weakly by the distant positive masses of the universe, and hence would accelerate upwards and away from the Earth. Notice that the key to antigravity in the Newtonian approach is the availability of negative mass, but in the new sense in which we use it. Note also that we did not discuss the separate issue of imaginary mass.

If we translate that into modern terms, where we consider not the "mass" but the condensed energy comprising the mass, then m_p and m_n become positive mass-energy and negative mass-energy terms respectively. Given the ability to produce electromagnetically produce substantial negative field energy in the immediate vacuum environment of the system, where the source of the field is the physical system, then the creation of a direct antigravity component in the system's environment — the other two components of its supersystem — becomes not only possible but also feasible.

The key to antigravity becomes the *availability of negative field energy in the local space surrounding the physical object, with the physical object containing the source of that surrounding spatial negative energy field*. Voila! This impels us directly to electrodynamics and a modified Dirac sea {497, 498a, 498b), one with excess empty holes as source charges producing negative energy EM fields. We deliberately create these unique source charges by actions taken in a COP»1.0 system. This gives the key

to the approach to antigravity taken by the present author.²¹⁵ However, we use as negative energy not just the accounted *Poynting* energy flow component in space where the field is present, but also the unaccounted *Heaviside* energy flow component, which is much greater in magnitude (in a nominal case, nearly 10^{13} times greater). In this way, we dramatically increase the amount of antigravity effect that can be obtained by a given EM power dissipation in the physical electrodynamic system itself. *This antigravity effect of a Heaviside component of EM negative energy flow has not been accounted in previous analyses.*

8.2.2 Riemann Surfaces and Riemann Geometry

The next development of interest to us is the doctoral thesis of Riemann {499}, which founded the theory of Riemann surfaces. Three years later, **he** founded Riemann geometry in a famous lecture. Riemann was working on a unified explanation of gravity and electromagnetism when he died of tuberculosis a dozen years later. It was Riemann's multiply-connected topologies that eventually resulted in the view of electric charge producing lines of force trapped in the topology of space {500}. Had Riemann lived, we believe that engineerable unification of electrodynamics and gravity would have occurred early on. In that case, we might have already had practical antigravity vehicles and explored the solar system and beyond.

8.2.3 Heaviside's Excess Energy Circulation Flow and Gravity Theory

The next theory of gravity of interest to us is that of Oliver Heaviside. Heaviside noted that his extra EM energy flow term was a trapped EM energy circulation {501}. He realized that, if that trapped EM energy circulation were taken as gravitational in nature, his energy flow theory could be converted into a unified theory incorporating both electrodynamics and gravitation. After his death, his handwritten notes on **the** theory were found beneath the floorboards in the little garret apartment he had long occupied. No one knows what other papers he may have had; **the** place was ransacked and looted prior to the discovery of these remaining papers hidden beneath the floorboards — papers the looters had missed.

²¹⁵ We also point out that a Dirac sea with empty holes (excess negative energy states) exists in (or constitutes) a negatively curved spacetime *a priori*. So we get back to the other two components of our "supersystem", the active vacuum and its dynamics and the local curvature of spacetime and its dynamics.

Other scientists such as Laithwaite have felt that Heaviside's approach might still shake the foundations of physics itself. Quoting Laithwaite {502}:

"Heaviside had originally written the energyflow as $S = (ExH) + G$, where G is a circuital flux. Poynting had only written $S = (ExH)$. Taking p to be the density of matter and e the intensity of a gravitational force, Heaviside found that the circuital flux G can be expressed as $pu - ce$, where u represents the velocity of p and c is a constant."

8.2.4 Mach's Principle

After Heaviside, the next item of interest to us is Mach's principle {503}, which essentially states {504}:

"The properties of space have no independent existence but depend on the mass content and distribution within it. Thus, acceleration dealt with in Newtonian mechanics can only have meaning if it is an acceleration with respect to the stars or with respect to something equally well-defined."

Mach's principle does not adequately deal with spacetime, and certainly does not even acknowledge or encompass how energy exists in 3-space at each point dipole, as an entering flow from the time domain into the negative (charge x time). It does not include transduction by the negative charge into 3-space energy, passage of the 3-energy to the associated positive charge, transduction back into time energy by the positive charge, and re-emission of the transduced time-energy back into the time domain, by the positive charge. In short, Mach's principle will never get one a practical antigravity system, regardless of how one applies the principle.

8.2.5 Einstein's General Relativity

Next comes Einstein's epochal general relativity theory of gravitation {505}. In that theory, Mach's principle is interpreted as pointed out by Misner, Thorne and Wheeler {506} in the following quote:

"...Einstein's theory (1) identifies gravitation as the mechanism by which matter there influences inertia here; [and] (2) says that this coupling takes place on a spacelike hypersurface..."

The great contribution of Einstein's general relativity was to remove the notion of the "field occupying space", where field and space are separate things. Quoting {507}:

"If we imagine the gravitational field, i.e., the functions g_{ik} to be removed, there does not remain a space of the type (I) [Minkowski Space], but absolutely nothing, and also no 'topological space'. For the functions g_{ik} describe not only the field, but at the same time also the topological and metrical structural properties of the manifold. ... There is no such thing as an empty space, i.e., a space without field. Space-time does not claim existence on its own, but only as a structural quality of the field. "

In passing, we note that in the conventional sense we can and do have many fields "in the same space", which is merely the statement that a net field has internal structure, and so does a net spacetime. Extending that notion, we can conclude that spacetime is in fact naught but a set of fields, both static and dynamic. The total energy density of all those fields at any point in space constitutes *a potential* with that energy density at that point, and with that internal field dynamics and structure. So because of its incredible field energy density, space is also *identically* a giant potential with internal structure and dynamics. With that observation, we rather casually join the seething vacuum of particle physics, the spacetime of general relativity, and the fields of electromagnetics as *different aspects of the same thing*. We point out that our concept of the supersystem therefore only identifies the three separate things into which this "one-thing" has been arbitrarily divided in much of physics.

Although he tried more than once, Einstein himself failed to achieve a successful unified theory of gravitation and electrodynamics. One thing he added in his earlier theory was a cosmological constant, which he felt was necessary to explain a stable closed universe. He later regretted that assumption, but today with the discovery of the acceleration of the expanding universe, which can only be caused by antigravity, his cosmological constant has assumed a new and vital role in the search for the source of this observed antigravity effect in the cosmos.

8.2.6 Kaluza-Klein 5-Dimensional Unified Theory

Using five dimensions, a unified theory of general relativity and electrodynamics was advanced by Kaluza {508} as extended by Klein {509}. This is a notable extension of Einstein's theory, and a very substantial literature exists in the Kaluza-Klein area.

8.2.7 The Sachs Unified Field Extension of Einstein's Theory

Another notable extension of Einstein's theory, which does include electrodynamics and the results of quantum mechanics as well, is the theory by Sachs {510}. Starting with Einstein's general relativity view and the group symmetry of its underlying mathematics, Sachs extended Einstein's theory into a fundamental theory of matter in all domains. Einstein's group formalism and the spinor-quaternion calculus in a curved spacetime provide the genesis of matter fields. The theory encompasses globally covariant field equations for inertial features of matter including its force manifestations. Unification is provided by the generalized spinor formalism. Quoting a popularized summation {511}:

"Novelfeatures ofgeneral relativity are shown to emerge, in elementaryparticle physics as well as astrophysics. Especially noteworthy ...is afactorization ofEinstein's field equations to a quaternionfieldformalism which, by way ofa single covariant field, includes both gravitation andelectromagnetism coupled to matter field equations — whose linear (low energy) limit recovers quantum mechanics. The ...original approach alsoprovides derivations, not previously available, of several observed properties ofinertial mass and gravitationalforce. "

For a more technical description of how the unification of electrodynamics with general relativity is derived, we quote directly from Sachs {512}:

"It was demonstrated earlier that thefactorization of Einstein's second-rank, symmetric tensor field equations, by removing the space and time-reflection elementsfrom the underlying covariance group, yields a 16-component quaternion metrical field equation. The 16 equations were then re-expressed in a second-rank tensorform, breaking up into $10 \oplus 6$ equations. The 10 equations are in one-to-one correspondence with Einstein's symmetric tensor equationsfor gravitation; they are even under reflections. The remaining 6 equations are in antisymmetric tensor form; they are odd under reflections. Taking the covariant divergence ofthe latter equations then puts them into one-to-one correspondence with the structure ofMaxwell's equationsfor electromagnetism. What was shown earlier was that thefour ofMaxwell's equations with sources followed. What is shown in this paper is that the other four of Maxwell's equations that are source-free also

follow, thus indicating the absence of magnetic monopoles from this theory, as in the usual Maxwell formalism. This shows that the factorization of Einstein's field equations to the quaternion form fully unifies the gravitational and electromagnetic manifestations of interacting charged matter."

To freely download several of Professor Sachs's important technical papers, one is referred to his website at <http://www.compukol.com/mendel/articles/articles.html>.

The $O(3)$ electrodynamics of Evans and Vigier has been shown to be a special subset of Sachs's electrodynamics {513a}. Hence $O(3)$ can be used to engineer much of the Sachs unified field theory phenomenology, including — in our view — both gravity and antigravity. The first theoretical indication of this has been published by the AIAS (Alpha Foundation's Institute for Advanced Study) {513b}. Shortly we discuss our own views on how to directly perform engineering of antigravity.

A great many excellent publications on general relativity and the background of scientific knowledge in gravity exist; e.g., the text by Wheeler *et al.* {514} is particularly good. Einstein himself wrote a book on his special and general theory for the nonspecialist {515}. A collection of English translations of some of the original papers on relativity is provided in a book by Einstein, Lorentz, Minkowski, and Weyl {516}. Many other gravitational theories or changes to major theories have also been proposed by other scientists, but are not discussed here. For our purposes, an abbreviated discussion will suffice to understand a fundamental approach to feasible antigravity.

Since we are interested in actual working systems, a short review of some of the efforts in asymmetric lifting and propulsion experiments is useful.

8.3 Selected Antigravity and Inertial Propulsion Research Efforts

We give only a small sampling of the many efforts performed or ongoing in this area over the last few decades, and some still ongoing today.

8.3.1 T. Townsend Brown

Our first example is the work of T. Townsend Brown. Brown was working on a "gravitor" before he finished high school, and continued work in electrogravitation throughout his life. Space is a dielectric, and Brown reasoned that the displacement current in a capacitor dielectric could

influence the space dielectric itself.²¹⁶ Hence he built, tested, and patented several variations of lifting devices based on this concept {517a-517e}. Essentially, he found that certain high capacitance dielectrics could be subjected to high voltage (50 to 300 kilovolts), and would exhibit thrust in the direction from the negative to the positive pole.

Here we point out our contention that all EM energy in space comes from the time domain via the negative charge, and re-enters the time domain via the positive charge. This is consistent with Brown's finding. Although he demonstrated many such lifting and thrusting devices, Brown was never able to obtain sufficient financial and scientific backing to bring a practical embodiment of his inventions into practice. His work, however, has been replicated by multiple experimenters, including NASA researchers (see below) and several researchers contributing results to Jean-Louis Naudin's website <http://jnaudin.free.fr/html/lifters.htm>.

8.3.2 Jonathan W. Campbell

Recently a U.S. patent {518} on a thrusting capacitor, by Campbell, has been issued and assigned to the U.S. Government (NASA), and made available for commercial licensing. The patent write-up states that thrust from capacitors is well known, but has been too small to be practical. The patent purports to remedy that impracticality. A version of the NASA device has been replicated by the Naudin researchers also. So an adaptation of Brown's work has been patented by the U.S. government with intentions of licensing. This would appear to validate much of Brown's approach and efforts.

8.3.3 The Dean Drive

Our second example is the inertial drive patented by Dean {519a-519e}. Unfortunately, the effects of the Dean drive later appeared to be a problem in accurate measurement. Nonetheless, work still continues along the direction shown by Dean. One may argue that mechanical materials also contain charges and have a certain kind of capacitance. Hence, mechanical motion of the parts of the machine does move these charges and dielectrics, opening a possibility of interacting with the dielectric of space. For example, Sweet's VTA involved a sustained self-oscillation between the local vacuum and the barium nuclei in his barium ferrite magnets.

²¹⁶ We have not yet explored the gravitational effects — if any — of our concept of the triode capacitor, discussed in paragraph 6.3.7 and diagrammed in Figure 6-17. We will examine it as soon as we have the proper equipment.

Dean's approach still has merit, even if a particular embodiment gave a negative result when very accurate measurement was performed. It is particularly of interest that mechanical force is essentially derived from electromagnetic forces (and fields) at basis. These base EM fields involve (and identically are) curvatures of spacetime, and hence the motions of the inertial drive mechanical apparatuses do involve at least some curvatures of spacetime and dynamic changes to them.

Our comment is that, when the additional but neglected Heaviside nondiverged energy flow component is accounted, these field interactions internal to matter can produce many orders of magnitude greater curvature of spacetime than is accounted by the diverted Poynting energy flow component only.

The "inertial antigravity" approach may be visualized as the use of excess gravitational thrust in a specific direction. If that direction is against the local pull of gravity, and is more powerful, then "lift against the gravitational pull" is obtained. Rigorously, this is not true antigravity but manipulated excess positive gravity.

In our approach to antigravity, one way to approach the problem is to have the mechanical apparatus also the source of an intense *negative energy EM field*, producing an intense flux of Dirac sea holes into and in the local surrounding spacetime. The excess charge removed from the Dirac holes can in fact be used in the electrical powering of the physical system, as was demonstrated in the Sweet VTA antigravity test. Then movements of the mechanical parts could involve movement of strong negative energy fields, hence strong curves of local spacetime that are local *strong negative gravityfields*. Or, better yet, movement of the charges themselves will also produce field-induced movement of the Dirac sea hole negative energy. This appears to be a practical method to manipulate the metric itself, along the lines proposed by Puthoff *et al.*²¹⁷

8.3.4 Henry Wallace

Other work has been by Henry Wallace, an engineer working for General Electric in the 1970s. His work dealt with the interactions of relatively moving masses of various kinds, and it is described in his patents {520a, 520b}. The discussion under the Dean drive probably applies to Wallace's work as well.

²¹⁷ H. E. Puthoff, S. R. Little, and M. Ibison, "Engineering the Zero-Point Field and Polarizable Vacuum for Interstellar Flight," *J. British Interplanetary Soc.*, Vol. 55, 2002, p. 137-144.

8.3.5 J. F. Woodward

Next is the work of J. F. Woodward, resulting in one or more patents {521} and multiple articles in the legitimate physics literature {522a-522k}. Woodward uses an adapted theory based on Mach's principle and on the thesis that the mass of a capacitor can be made to vary from its normal mass by rapidly charging and discharging it — say, at a frequency of 20 kHz. This predicted effect is testable, although some sophistication in the testing is required.

Woodward's publications show the results of actual experiments, measuring a very small change in the mass, and are worthy of much further investigation. Here we note that the actual mechanism generating the inertia of an object is still an open issue, with several different contending theories.²¹⁸ Whether the gravitational mass and the inertial mass are identical or not, also remains an issue. If the exact local mechanism generating the inertia of a mass could be decisively found, then direct methods of changing the inertial mass and the gravitational mass might be a real possibility, and research to try to find such methods would be strongly indicated.

Our further comment is that the mechanism that generates mass itself has never been specified in formal physics,²¹⁹ particularly when one views an observable (such as mass) as continually recurring in 3-space rather than continuously existing in 3-space, due to the d/dt operator imposed on spacetime by the observation process. Before the reader assumes that mass is well understood, a reading of Jammer's scholarly work {523} is highly recommended.

From our viewpoint we stress that observed mass cannot continuously exist, but must be an effect and the instantaneous frozen output of the d/dt observation process invoked on an ongoing 4-space process. Hence, from this view there is indeed a "process" that (continually) creates mass — it is at least the emission of EM angular momentum (a photon) from the *masstime* entity. Similarly, there is a "process" that continually destroys or converts any mass — it is the absorption of a photon and conversion of the

²¹⁸ E.g., (a) A. Rueda and B. Haisch, "Inertia as reaction of the vacuum to accelerated motion," *Phys. Lett. A*, Vol. 240, 1998, p. 115-126; (b) B. Haisch, A. Rueda and Y. Dobyns, "Inertial Mass and the Quantum Vacuum Fields," *Ann. Phys.*, Vol. 10, 2001, p. 393-414.

²¹⁹ The present author made an early **and** crude attempt at doing it in his "Quiton-Perceptron Physics." 1973, NTIS Report AD-763-210.

mass m into masstime $(m + dm)dt$. Mass "flows through time" via this time charging and discharging, in the form $m \Rightarrow mt \Rightarrow m \Rightarrow mt \Rightarrow m...$ etc.

Again we stress that masstime mt is not mass m , but is as different from it as impulse Ft is from force F . We crudely proposed such an initial mass-generating mechanism in 1973 {524a}, with additional information published in 1998 {525a}, which may have bearing on the mechanism involved in Woodward's experiments.

8.3.6 E. R. Laithwaite

Eric Laithwaite was for some years a professor with the Imperial College in London. He was one of the pioneers of the linear electric motor and of portions of the magnetic levitation (MagLev) train concept. An illustrious career headed for greater things (perhaps knighthood, Fellow of the Royal Society, etc.) was abruptly derailed in 1973 after he lectured to the prestigious Royal Institution by invitation and demonstrated that a heavy gyroscope, difficult to lift with one hand while not turning, could be lifted easily with that same hand, once turning at speed. Laithwaite's suggestion that Newton's laws of motion might be in difficulty proved much too controversial. The Royal Institution (apparently for the first time in its 200 year history) did not publish proceedings of that invited discourse.²²⁰

One of the remarkable things Laithwaite achieved was a form of "indefinite motion" device that he demonstrated circa 1970 {526}. The Centennial Centre of Science & Technology in Ontario was looking for working models to decorate the entrance hall. Laithwaite showed that if a linear-motor primary was rolled into a cylinder, so that it became simply the stator of a conventional induction motor,²²¹ a steel washer (about 3 cm. in diameter) could be made to roll continuously in a vertical plane around the inside of the stator. A combination of centrifugal force and magnetic

²²⁰ With some humor we point out how shocking is our proposal that such a thing as "continuous" propagation of an object or energy through 3-space does not exist. Instead, small differential "pieces" of it continually "recur" at successive positions, much like the projection of the frames of a motion picture frame, where continual observation is the "projection process". Nonetheless, in our proposed solution to the source charge problem, either that is true or every charge in the universe is a perpetual motion machine, freely creating energy out of nothing. In our view, that is the impact of the long-neglected source charge problem in quantal and classical electrodynamics. It has produced the wrong and naive notion of what "propagation through space" actually entails.

²²¹ Something similar to diagrammatic Figure 6-26 in Chapter 6.

attraction kept the washer in contact with the stator at all times. At the same time, a pivoted copper cylinder could be held in the center of the stator and would be seen to rotate on its own axis in the opposite direction.²²² Laithwaite completed and delivered a working model to the Centennial Center of Science & Technology. The reader should note the similarity of Laithwaite's proven experimental device to the magnetic Wankel engine.

In addition to his attention to Heaviside's unpublished draft notes and manuscript on a combined theory of electromagnetics and gravity (previously discussed above) {502}, Laithwaite spent the latter years of his life working on sophisticated gyroscopic systems {527a-527h}. Ultimately he felt he had successfully produced a mass transfer effect {528} and the basis for a propulsion system. He and William Dawson applied for a patent in 1993, which was granted in 1995 {529}, with a U.S. patent granted in 1999 {530}. Regretfully, Professor Laithwaite died in 1997.

8.3.7 Floyd Sweet's Vacuum Triode Amplifier (VTA)

See again Chapter 6 and Figures 6-5 through 6-14 on the work of Floyd Sweet, previously discussed in paragraph 6.3.2. My concept of antigravitation used in the experiment is shown in Figure 6-15. By now, the sharp-eyed reader will recognize that my method actually constitutes a conceptual extension and definitization of the Dirac electron theory, reinterpreted to recover negative mass, negative energy, negative energy fields, and negative energy potentials. The defining feature is the deliberate use of a COP»1.0 main power system (perhaps constituting the power system of a flight vehicle) as a source of locally strong negative energy EM fields generated by the concentrated Dirac sea holes (causal 4-positrons being negative energy 4-electrons prior to observation) locally produced in the power system. We collaborated with Sweet on the vacuum triode amplifier for more than a decade, and in fact suggested the name of the device.

The antigravity approach designed by the present author was based on realizing that negative energy sources (e.g., 4-positrons as negative mass 4-electrons prior to their reaction and observation) produce *negative*

²²² We have had the distinct notion that the fundamental *contrarotating* mechanism found by Laithwaite is probably an analogous mechanism — or very similar — to the mechanism utilized by Bauman in his Swiss converter (Methernitha device). As pointed out, it also has remarkable similarities to the magnetic Wankel engine, except that the magnetic Wankel does not utilize two contrarotations.

energy EM fields. The field can reach out over all space, so a negative EM energy field represents a reversed curvature of a large volume of spacetime. Hence it represents a considerable antigravity field — particularly when one considers the unaccounted huge Heaviside component of the negative energy field and charge interaction. Since the field strength falls off as the inverse square of the distance from its source, the strong antigravity effects of negative energy EM fields are much stronger locally than at a distance. This is particularly true when the conventionally ignored Heaviside nondiverged EM energy flow accompanying the accounted diverged Poynting energy flow of every field-charge reaction is accounted. This usually ignored factor dramatically increases the antigravity intensity produced by the local negative EM energy field by many orders of magnitude, often by nearly 10^{13} .

My antigravity concept (then and now) is shown in Figure 6-15 of Chapter 6. At the time, the only available device I knew of that produced a substantial percentage of output negative EM energy was Sweet's vacuum triode amplifier. So I persuaded Sweet to fabricate a new output section (an output load similar to Figure 6.8 but containing ten sockets for ten 100 watt lamps). Thus the output of the unit — which adjusted automatically to the available load — could be increased in 100-watt increments by merely screwing in the lamps one at a time and making laboratory readings after each new 100-watt load increase was added. This was done and the concept was successfully tested by Sweet {531}, who was making the measurements in California and reading them off over the phone to me (I was in Huntsville, Alabama). The experiment worked beautifully.

The setup and progress of the experiment were intended to materially increase the strength of the *negative energy* EM field and Dirac sea hole flux already produced to a lesser extent by the Sweet vacuum triode amplifier (VTA) in its normal operation. Thus the hypothesized negative energy antigravity field, produced weakly by the negative energy from the device in its ordinary power output range of 500 watts, was to be substantially increased at 1,000 watts. The response to the net gravitational field surrounding the object would thus be the resultant of two factors: (i) the normal response of the device's positive mass to the positive gravitational field of the Earth etc., and (ii) the additional response of the device's positive mass to the local antigravitational field produced around it. The measurable result was expected to be a decrease in the measured weight of the object on the laboratory bench.

As discussed, this stratagem succeeded dramatically. The weight of the vacuum triode amplifier was decreased, smoothly and controllably, by

90% on the laboratory bench (see again Figure 6-9).²²³ The results were later published in a joint paper {531} prepared by the present author. I placed Sweet's name first on the paper because he was the inventor of the VTA, which demonstrated the effect once properly modified as I requested. Note that the extra antigravitational field effect on an object is indeed a local effect, which the experiment also showed. This effect was obtained at a $COP > 1,500,000$ (actually, at nearly a $COP = 3,000,000$) and at ELF frequency.

The ELF frequency is important. As we explained previously, the highest energy photons of all are the lowest frequency photons, when the highly compressed time-energy component of the photon is accounted as well as the decompressed spatial energy component. Hence, for very appreciable local curvature of spacetime to produce considerable antigravity, the antigravity source must produce negative energy fields consisting of negative energy photons at low frequencies (such as 60 Hz). Else, the curvature of spacetime is so small that little effect will evidence. My best "back of the envelope" estimate of the efficiency of the antigravity process in the VTA was 10%.

8.3.8 Ning Li and (separately) E. Podkletnov

Very interesting work was performed by Ning Li {532a-532d}, a scientist originally with the University of Alabama in Huntsville (UAH), who returned to China for a while but is now back in Huntsville. Quoting David Brown from the UAH website from 1997:

"In 1989, Dr. Ning Li of UAH predicted that if a time varying magnetic field were applied to a superconductor, charged and deformed lattice ions within the conductor could absorb enormous amounts of energy via the

²²³ Many times I have been asked how such small output power increase (from 500 to 1,000 watts) could possibly achieve such dramatic antigravity results. The answer - due to the neglected Heaviside nondiverged energy flow component — lies in multiplying the power output by the "Heaviside energy amplification factor k " where k may be as large as 10^{13} . A 500-watt accounted increase, multiplied by 10^{13} , is actually an incredible increase in the total EM negative energy field density being created in the local vacuum. In short, a very little "accounted" power increase of the $COP \gg 1.0$ VTA output is actually a very vast negative power output increase when the long neglected k -factor is accounted. It is just this missing k -factor and the failure to account for the negative energy KM fields generated in $COP \gg 1.0$ discharges in violent astronomical phenomena that seem to be responsible for generating the excess antigravity that is accelerating the expansion of the universe.

magnetic moment effect. This acquired energy would cause the lattice ions to spin rapidly about their equilibrium positions and create a miniscule gravitational field. Dr. Li's calculations showed that if these charged, rotating, lattice ions were aligned with each other by a strong magnetic field, the resulting change in local gravity would be measurable. "

"Podkletnov and Nieminen (1992) {533} made the accidental discovery that a single-phase, dense, bulk, high T_c , superconducting, ceramic disk spinning at 5,000 rpm can produce a 2 percent reduction in the weight of non-conducting, non-magnetic objects placed over the spinning disk. UAH and MSFC [Marshall Space Flight Center, apart of NASA] [cooperated] on a joint research project to independently confirm the results of the Podkletnov experiment and to validate Dr. Li's theory of gravity modification via superconductor. On March 26th, 1997, as a part of this project, the joint UAH-MSFC research team produced the largest high temperature superconducting disk ever manufactured in the USA. This disk measures 12 inches in diameter and is 0.5 inches thick "

We now explain the experiments, from our point of view of the mechanism for antigravity. We remark that, at least in theory, the charges in such a rotating superconducting disk have an inward "discharge" acceleration force that is a function of the distance of the charge from the rotation axis center. Hence, in the rotating frame, some of these charges are very strongly "accelerating" toward the center, as are their spins whose magnetic vector is orthogonal to the E-field vector. A flow of EM energy exists perpendicular to the rotating flat disk and is accelerating at right angles to the disk surface. This is analogous to a *discharge* (sudden acceleration) phenomenon, and it will also produce accelerating negative energy Dirac sea 4-holes in the vacuum component of the supersystem of the spinning disk. So from the spinning disk there is a sort of "wide beam" of Dirac sea 4-hole current in the vacuum, radiating at right angles to the disk surface, with heavier concentrations toward the outside of the disk. The result is that objects in the Earth's gravitational field, and also placed in the path of this negative energy Dirac sea 4-hole current, is acted upon by two superposed curvatures of local spacetime: (1) the positive curvature due to the Earth's gravitational field, and (2) the negative curvature due to

the negative energy field's curving local spacetime. The total net gravitational effect will be due to the algebraic sum of the superposed two spacetime curvatures — the normal positive curvature from the Earth's gravitational field and the second a negative curvature created by the Dirac sea hole current's negative energy fields (Heaviside energy flow component considered). The expectation is therefore a *reduction* in the weight of the object, as is shown in the experiments.

The UAH-MSFC group was unable to confirm Podkletnov's findings.²²⁴ Ning Li and the NASA group later split amicably. Ning Li continued her theoretical work, eventually ceased publishing papers for a period to protect the techniques and experimental results achieved in her work, and focused upon potential applications. She apparently returned to China for some time, but is now back in Huntsville, Alabama and still experimenting. We suspect there may also be a Chinese research effort into antigravity, using the approach taken by Ning Li. Perhaps information from that program will be released in the future.

But what of the work of Podkletnov since his original experiments? NASA continued to try to replicate his disk and his work, with Podkletnov acting as a consultant. Presently, NASA has paid an independent research firm to replicate the disk to full specifications, which has just been accomplished as this is written. At this writing, the experimental results of this new attempt are not yet available as the work is still in progress. It should be available by the time this book is published.

Meanwhile, a relatively new paper by Podkletnov and Modanese has been published on the Los Alamos National Laboratory website.²²⁵ This method uses high amperage sharp pulse discharges from a superconducting ceramic electrode, to produce an anomalous radiation in a focused beam. Significantly, the beam does not noticeably attenuate through different materials. The beam exerts a short repulsive force on small movable objects on the propagation axis, with the force proportional to the mass of the objects.

²²⁴ E. Podkletnov and R. Nieminen, "A possibility of gravitational force shielding by bulk $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ superconductor," *Physica C*, Vol. 203, 1992, p. 441-444.

²²⁵ Evgeny Podkletnov and Giovanni Modanese, "Impulse Gravity Generator Based on Charged $\text{YBa}_2\text{Cu}_1\text{O}_{7-y}$ Superconductor with Composite Crystal Structure," carried on website <http://xxx.lanl.gov/abs/physics/0108005>.

We interpret the results as completely consistent with our own proposed excess gravity and antigravity mechanism. We know that such sharp discharges produce significant Dirac sea 4-hole currents in the local vacuum component of the supersystem. Such currents in a beam interact very little with intervening materials, and the major spacetime curvature effects are concentrated upon the propagation axis. On that axis, force effects can be expected upon small independent objects, due to the *additional* negative curvature added to the local spacetime in their supersystem. The impulse produced on the object should indeed be proportional to the mass of the object and independent of its composition, since it is a gravitational force effect induced by local curved spacetime. The force should be repulsive in the beam, since that is the direction of the antigravity force that will be induced in objects in the axis of the beam, by the beam of negative energy Dirac 4-holes. A positive gravity force would mean attraction between the object in the propagation path and the source of the beam. A negative gravity force would therefore mean repulsion.

So Podkletnov and other scientists are still working on a successful effect. It will be interesting to see what results are reported in the future, and whether they will deviate from their present attempt to explain the effect by a combined quantum gravity and anomalous vacuum fluctuations approach.

8.3.9 NASA's Breakthrough Propulsion Physics (BPP) Project

NASA's Breakthrough Propulsion Physics Project was established in 1996. It seeks a breakthrough in space transportation involving "(i) propulsion that requires no propellant mass, (ii) propulsion that attains the maximum transit speeds physically possible, and (iii) breakthrough methods of energy production to power such devices." Investigations involve coupling of gravity and electromagnetism, the quantum vacuum, hyperfast travel, and superluminal quantum effects. The project is managed by the Glenn Research Center, sponsored by the Advanced Space Transportation Program, with overall management by NASA Marshall Space Flight Center, Huntsville, Alabama.

NASA continues its investigations and experiments in methods to change **the** force of gravitational attraction. The scientist in charge of the project is David Noever of the Marshall Space Flight Center. The work is still considered a work in progress, with the need for both experimental investigation and meticulous design of experiments, instrumentation, and measurement techniques.

The overall NASA program also spreads to other supporting laboratories and projects. For example, at the Jet Propulsion Laboratory (JPL) Kulikov {534} has measured the difference between inertial and gravitational mass of a boson in a heat bath. At least one invention seems to have resulted or to be in progress, assigned to JPL.

As mentioned, the U.S. Patent by Campbell {518} on a capacitor device producing a net thrust force (a more modern version of T. Townsend Brown's work) has been issued and assigned to NASA.

8.3.10 Scientific Conferences

There are regular conferences (several per year) being held in the U.S. and elsewhere, dealing with antigravity and electrogravitic propulsion. We give a little-noticed but pertinent example: In a nice presentation in 2001, LaPointe {535} proposed a new method for producing anti-matter. Currently antimatter production is accomplished in very large accelerators, and is therefore quite expensive. For increased experiments, a cheaper and much smaller (and much more available) process is highly desirable.

In the Klein paradox, which involves very large potential drop across a very short distance — less than the Compton wavelength of the antimatter particle — matter and anti-matter pairs are produced. LaPointe hypothesized that it may be possible to use the Casimir effect to push one side of the step into the negative energy range. He is at least *thinking toward* negative EM energy sources that produce negative EM fields and negative gravity in the surrounding space, without explicitly enunciating it in that fashion.

We already briefly discussed our own approach to antigravity, which is a much simpler and cheaper anti-particle producing mechanism, as demonstrated by the Sweet device. In short, overunity EM systems with $COP \gg 1.0$ do produce free flows of causal (before observed) 4-positrons (still in negative energy 4-electron state prior to interaction) in local spacetime immediately surrounding the system. Consequently, LaPointe's efforts are in what we believe to be the correct direction, but he is still using a very difficult mechanism to engender the antimatter production. Also, the positrons or other antimatter sources of the negative energy fields must remain in the causal (unobserved and non-interacted) 4-state, in order to produce negative energy EM fields and potentials and antigravity.

8.3.11 James Corum *et al.*: Rectified Slepian AC Force Resonator

Another example is some promising work by Corum *et al.* {536}. We quote from the abstract and summary of his paper:

"Corum presented an experimental paper on the use of the Heaviside force in conjunction with a Slepian antenna as a form of space drive using nothing more than the classical Maxwell stress tensor. Slepian proposed the same thing in 1949, but came to the conclusion that it would not be useful, since the time average of the resultant AC force would be zero. Corum's contribution has thus far been two-fold: (1) In conjunction with Dr. Alan Barnes of WVU he has experimentally shown that the AC version of the Slepian Resonating Antenna does produce a force, and has measured it to within 3.6%, and (2) has designed a way for Hartley's variable capacitor rectification to be used with the Slepian resonator such that the rectification results in a DC force component. The first experiment has already been achieved, the second experiment is the logical next step. If successful, the result would be quite revolutionary: a true space drive."

Our comment is that this unilateral thrust force work is important. In our view, the Heaviside energy flow component does not appear in Slepian's vector $\mathbf{j}\phi$, which contains only the diverged EM energy flow surrounding a circuit or component, but it is present immediately outside the circuit where the Slepian vector exists. Hence there is an enormous, extra energy flow closely associated with every EM circuit, that is unaccounted since Lorentz's closed surface integration of the energy flow vector discarded it quite arbitrarily.

We already know from the Bohren experiment (and thousands of others similar to it) previously cited that resonant charges do collect excess EM energy from a given EM energy flow input, compared to the collection from that flow by the same charges in nonresonant state. In using the Slepian resonator and then rectifying its output, it would appear that both the diverged (Poynting) energy flow component and the Heaviside nondiverged energy flow component are first resonated and then rectified. In addition, excess energy is collected — much more than is in the normal "static charge" formula assumptions for Poynting energy flow and in assuming only a "single pass, single interception and collection" of the energy.

An important factor then is obvious: Once the energy flow is surrounding the circuit, there exists a certain local curvature of the immediate external spacetime. The rectification represents not only a change in the Slepian

vector current in the circuit, but also a change in this local ST curvature interaction upon the circuit matter and charges. In short, it should produce a DC component in the direct excess interaction of the rectified local curvature of spacetime. This should produce *excess direct propulsive force*, just as Corum theorizes and the experiments support to date.

Further, the oscillation of the large, *unaccounted* Heaviside nondiverged energy flow component involves the oscillation of a "dark energy" component that may be orders of magnitude greater than the *accounted* Poynting component's magnitude. By involving this huge energy flow component in oscillation and synchronized to the resonant Slepian circuit, Corum has unwittingly involved the supersystem as a COP»1.0 EM "energy converter" system. Hence, there is appreciable Dirac hole current (in causal 4-form) in the local vacuum, not reacted with the materials in the system and therefore not converted to material lattice holes attached to positive mass. The time rate of changes of the negative energy fields and potentials are thus significant for antigravity effects, in the approach taken by the present author. In short, we believe Corum *et al.* are in fact producing significant evidence for a workable approach to unilateral thrust force.

This work by Corum *et al.* thus is highly promising, is solidly based experimentally, and certainly bears watching closely. We would strongly suggest that Corum *et al.* analyze their proposed mechanisms and results obtained in terms of supersystem analysis rather than system analysis, using higher group symmetry electrodynamics, and recover and include the long-neglected Heaviside energy flow component.

8.3.12 Gravitec, Inc. and H. Serrano

A patent {537} was issued to H. Serrano on Oct. 5, 2000 and assigned to Gravitec, Inc. whose principal investigator and corporate officer is Tim Ventura. Based on this invention, Gravitec, Inc. has developed and demonstrated a rotary device that develops unilateral thrust. Purdue University began a small but steady effort to test the unit, first in the atmosphere and later under high vacuum conditions. The first tests have been successful, and a paper {538} from the Purdue study shows it is not the ion wind effect, which is orders of magnitude too small to account for the demonstrated thrust. Further, Jean-Louis Naudin has replicated and tested the Serrano thruster, and it works beautifully {539}. Ventura also hopes to develop a toy kit, with safe power supply, which would allow persons to perform their own successful lifter experiments and perhaps rotary experiments at nominal cost.

8.3.13 Transdimensional Technologies, Inc.

There is also ongoing important propulsion work at Transdimensional Technologies, Inc. of Huntsville, Alabama {540}. Founded in 2000 by its chief scientist, Jeffrey Cameron, the company has developed several novel propulsion and lifting mechanisms. Independent tests of some of these systems have been accomplished by Jean-Louis Naudin, and the results can be seen on his website (previously cited).

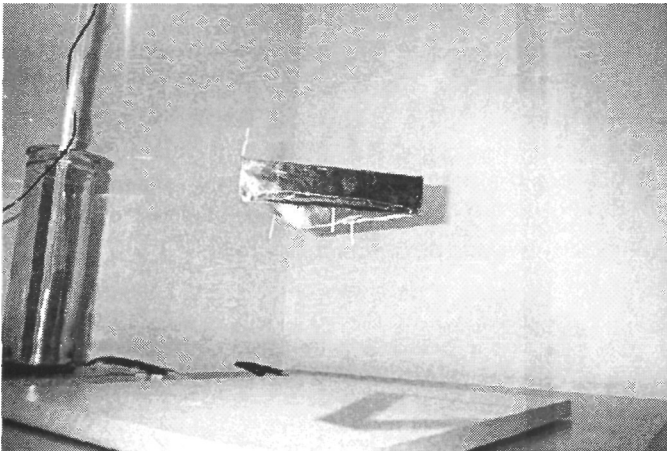


Figure 8-1 Naudin's replica of the Transdimensional Technologies lifter.

As we go to press, Transdimensional's most recent propulsion effect is called Power3 (power "cubed"). It uses an asymmetric capacitor to

produce the thrust in space, and the principle has been successfully tested in a vacuum. A larger, triangular lifter made mostly of pipe was demonstrated in vacuo to NASA officials in Huntsville, Alabama. Cameron has patents pending on magnetocaloric hybrid rocket engines and asymmetric gravitational waves {541}. A replica of the Transdimensional lifter successfully tested by Naudin is shown in Figure 8-1, by courtesy of Jean-Louis Naudin. Naudin's replica of the Transdimensional Technologies rotational device is shown in Figure 8-2.

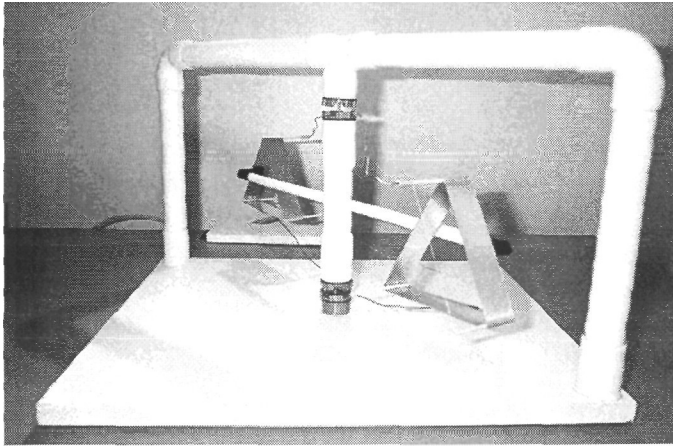


Figure 8-2 Naudin's replica of the Transdimensional Technologies rotational device.

We understand that new Transdimensional Technologies systems, now in patent process and still closely held, represent dramatic advances in the state of the art. The corporation foresees eventual commercial licensing of some of its developments, and the development of practical lift vehicles and space propulsion systems within 3 to 5 years.²²⁶

²²⁶ Ken Moore and I personally visited Transdimensional Technologies here in Huntsville, and we found a very straightforward, enthusiastic, and hard-working group. We were treated with great courtesy, so much so that Jeff Cameron graciously cut short his vacation day and came in to show us the lab equipment and give a demonstration. We very much appreciate the work that Transdimensional Technologies is doing, and we certainly wish this fine group outstanding success in their efforts. We also are very appreciative for their courtesy and consideration in showing us the demonstrations and for their cogent discussions with us, which were most helpful.

8.3.14 American Antigravity (Tim Ventura's Company)

Tim Ventura is a very energetic lifter and antigravity researcher, who has done work independently and for others such as Transdimensional Technologies. The results of his many experiments and replications, tests, photos, etc. are on his website at <http://www.americanantigravity.com>. He also has several videos showing his testing, as well as detailed instructions for a researcher to build his own demonstration unit and verify the tests. Tim kindly furnished some needed information in this area, and put me in touch with other researchers and websites, which I appreciate.

8.3.15 Jean-Louis Naudin

Jean-Louis Naudin is a tireless researcher in the fields of $COP > 1.0$ systems and processes, and in the field of lifters, inertial thrusters, and possible antigravity systems. His website is a cornucopia of information, patent references, inventions, processes, and replications or replication attempts by Jean-Louis and others who regularly work on such things and communicate with him. The website is <http://jnaudin.free.fr/>. From there, one may click on the various parts of the site and on the links to other sites to gain a wealth of information on these subjects.

His lifter work, including successful replications and instructions on how to build lifters, can be accessed from <http://jnaudin.free.fr/html/lifters.htm>, and will keep the interested researcher busy for many productive hours. We especially commend Jean-Louis for his extraordinarily important efforts and for making all this work available to researchers worldwide. Once on the site, one is free to choose from a very wide variety of projects, subjects, etc. The information value of this site is very, very high. We consider Naudin's site to be the single best information site on the web for $COP > 1.0$ system information and for the new space propulsion methodology and effort. Necessary links to other related sites of interest are also provided.

Good hunting!

8.3.16 Other Research Work and Inventions

While we have given a sort of quick overview of work done in this field, there have been many other patents filed by numerous inventors and additional work done by them. This is a dynamic field and it is moving; the biggest problem is that it is still sorely hampered by highly limited funding and an attitude by much of the scientific community that "if it has not been invented here, it doesn't exist".

In the table in Figure 8-3 below, we list some of the pertinent patent numbers for reference, with the emphasis on U.S. Patents. The Naudin website previously referenced has a great deal of information on these thrusters and lifters, including instructions for building and testing several of the simpler proof-of-principle versions. There are links to other sites with even more information. Naudin also includes the results of his successful replication and testing of a variety of these devices and inventions, as well as the successful replication by other experimenters. Naudin also gives construction instructions and information on some of these, so that independent researchers can build test units and test them if desired.

For those researchers interested in pursuing this area further, we would heartily recommend a determined search on the Internet, using Google (www.google.com) as their search engine. A good place to start is Jean-Louis Naudin's web site, and then run the cross-links. The combination will turn up quite an amount of specific material, from which the individual researcher can choose which approach and experimental method he wishes to pursue.

Figure 8-3.

Selected Inertial Propulsion System Patents

T. Townsend Brown, "A Method of and an Apparatus or Machine for producing Force or Motion, British Patent 300,311, Nov. 15, 1928.

Norman L. Dean, "System for Converting Rotary Motion into Unidirectional Motion," USP #2,886,976, May 19, 1959.

T. Townsend Brown, "Electrokinetic Apparatus," USP #2,949,550, Aug. 16, 1960.

T. Townsend Brown, "Electrokinetic Transducer," USP #3,018,394, Jan. 23, 1962.

T. Townsend Brown, "Electrokinetic Generator," USP #3,022,430, Feb. 20, 1962.

T. Townsend Brown, "Electrokinetic Apparatus," USP #3,187,206, Jun. 1, 1965.

Henry Wallace, "Method and Apparatus for Generating a Secondary Gravitational Force Field," USP #3,626,605, Dec. 14, 1971.

Henry Wallace, "Method and Apparatus for Generating a Dynamic Force," USP #3,626,606, Dec. 14, 1971.

Fernand Estrade, "Device for Transforming Kinetic Energy," USP #3,807,244, Apr. 30, 1974.

Leo J. Novak, "Centrifugal Mechanical Device," USP #3,810,394, May 14, 1974.

Everett H. Benson, "Inertia Engine," USP #3,863,510, Feb. 4, 1975.

Oscar Mast, "Propulsion System," USP #3,889,543, Jun. 17, 1975.

Arthur N. Lehberger, "Centrifugal Propulsion Drive and Steering Mechanism," USP #3,897,692, Aug. 5, 1975.

Howard A. Gaberson, "Vibratory Locomotion Means," USP #3,916,704, Nov. 4, 1975.

Calvin I. Cuff, "Device for Converting Rotary Motion Into a Unidirectional Linear Motion," USP #3,968,700, Jul. 13, 1976.

Nicholas Joseph Schnur, "Method and Apparatus for Propelling an Object by an Unbalanced Centrifugal Force with Continuous Motion," USP #3,979,961, Sep. 14, 1976.

Calvin I. Cuff, "Device for Converting Rotary Motion Into a Unidirectional Linear Motion," USP #3,998,107, Dec. 21, 1976.

George Knap, "Orbital Propulsion Apparatus," USP #4,087,064, May 2, 1978.

Calvin I. Cuff, "Device for Converting Rotary Motion into Unidirectional Motion," USP #4,095,460, Jun. 20, 1978.

Robert L. Cook, "Device for Conversion of Centrifugal Force to Linear Force and Motion," USP #4,238,968, Dec. 16, 1980.

Ladislav G. Srogi, "Mechanical Propulsion System," USP #4,242,918, Jan. 6, 1981.

Harry S. Melnick, "Unidirectional Force Generator," USP #4,261,212, Apr. 14, 1981.

Frederick L. Dehen, "Apparatus for Converting Rotary Motion to a Rectilinear Force," USP #4,347,752, Sep. 7, 1982.

Harry S. Melnick, "Mechanical Power Transmitting System," USP #4,398,431, Aug. 16, 1983.

Peter Kleber, "Apparatus for Acceleration-Free Mounting of a Body in a Spacecraft," USP #4,408,740, Oct. 11, 1983.

Fred de Weaver, III, "Propulsion System," USP #4,409,856, Oct. 18, 1983.

Ronald K. Linde, "Centrifugal Reaction Chamber," USP #4,450,141, May 22, 1984.

Fred de Weaver, III, "Propulsion System," USP #4,479,396, Oct. 30, 1984.

Joseph Colla, "Mechanical Propulsion System," USP #4,577,520, Mar. 25, 1986.

Elmer M. Dobos, "Propulsion Apparatus," USP #4,579,011, Apr. 1, 1986.

Brandson R. Thomson, "Apparatus for Developing a Propulsion Force," USP #4,631,971, Dec. 30, 1986.

James E. Cox, "Dipolar Force Field Propulsion System," USP #4,663,932, May 12, 1987.

Alvin C. Peppiatt and Alfred J. Peppiatt, "Impulse Drive," USP #4,674,583, Jun. 23, 1987.

Henry North, "Apparatus for Producing a Force," USP #4,712,439, Dec. 15, 1987.

Harry S. Melnick, "Continuous Force and Impact Generator," USP #4,726,241, Feb. 23, 1988.

Oscar F. A. Peterson, "Apparatus for Producing a Directional Unit Force," USP #4,744,259, May 17, 1988.

James D. Mundo, "Universal Propulsion Powerplant and Impulse Drive Unit for Self-Propelled Vehicles," USP #4,770,063, Sep. 13, 1988.

Lancelot I. Kethley, "Gyroscopic Propulsion Device," USP #4,784,006, Nov. 15, 1988.

Charles Fulop, "Flywheel," USP #4,788,882, Dec. 6, 1988.

Charles E. Rogers and Fred Van Arsdell, "System for Propulsion and Positioning of a Transitory Object," USP #4,801,111, Jan. 31, 1989.

Paul J. Montalbano, "Conversion of Rotational Output to Linear Force," USP #4,856,358, Aug. 15, 1989.

George J. Zachystal, "Device for Obtaining a Directional Centrifugal Force," USP #4,884,465, Dec. 5, 1989.

James E. Cox, "Dipole Accelerating Means and Method," USP #4,891,600, Jan. 2, 1990.

Hector Serrano, "Propulsion Device and Method Employing Electric Fields for Producing Thrust," WO 00/58623, Oct. 5, 2000.

Brian C. Motts, "Airship," USP #4,967,983, Nov. 6, 1990.

Lyle M. Mason, "Centripedal Device for Concentrating Centrifugal Force," USP #4,991,453, Feb. 12, 1991.

Alexander D. Kidd, "Gyroscopic Apparatus," USP #5,024,112, Jun. 18, 1991.

Paul J. Montalbano, "Conversion of Rotational Output to Linear Force — a Transmission," USP #4,042,313, Aug. 27, 1991.

Andrew T. Rodgers, "Controllable Gyroscopic Propulsion Apparatus," USP #5,054,331, Oct. 8, 1991.

Mortimer S. Delroy, "Gyrostat Propulsion System," USP #5,090,260, Feb. 25, 1992.

Kemal Butka, "Propulsion System," USP #5,111,087, May 5, 1992.

Rex L. Schlicher, Steven M. Rinaldi, David J. Hall, Peter M. Ranon, and Charles E. Davis, "Nonlinear Electromagnetic Propulsion System and Method," USP #5,142,861, Sep. 1, 1992.

Thomas L. Navarro and James D. Isaacson, "Apparatus with Rotatably-Driven Asymmetrically-Accelerated Eccentric Mass for Generating Translational Force," USP #5,150,626, Sep. 29, 1992.

Theodore R. Bristow, Jr., "Method and Apparatus for Converting Rotary Motion to Lineal Motion," USP #5,156,058, Oct. 20, 1992.

John C. McMahon, "Energy Transfer Device," USP #5,167,163, Dec. 1, 1992.

James W. Black, "Non-Linear Propulsion and Energy Conversion System," USP #5,182,958, Feb. 2, 1993.

James R. Taylor, "Electromagnetic Energy Propulsion System," USP #5,197,279, Mar. 30, 1993.

Michael J. Sohnly, "Magnetohydrodynamic Propulsion System," USP #5,211,006, May 18, 1993.

Ross C. Wood, "Stabilization System for a Freely Rotatable Platform," USP #5,256,942, Oct. 26, 1993.

James F. Woodward, "Method for Transiently Altering the Mass of Objects to Facilitate Their Transport or Change Their Stationary Apparent Weights," USP #5,280,864, Jan. 25, 1994.

Robert C. Willis, "Spaceship Propulsion by Momentum Transfer," USP #5,305,974, Apr. 26, 1994.

Harold L. Hull and Donald E. Joslin, "Reusable Mass Propulsion System," USP #5,313,851, May 24, 1994.

Kemal Butka, "Propulsion System," USP #5,334,060, Aug. 2, 1994.

James Harvey, "Impulse Converter," USP #5,335,561, Aug. 9, 1994.

Maurice Mitchell, "Net Kinetic Energy Differential Guidance and Propulsion System for Satellites and Space Vehicles," USP #5,377,936, Jan. 3, 1995.

Howard M. Woltering, "Rotating Eccentric Weights Vibrator System," USP #5,388,469, Feb. 14, 1995.

Richard O. Marsh, Jr., "Centrifugal Force Drive Machine," USP #5,388,470, Feb. 14, 1995.

Kemal Butka, "Propulsion System," USP #5,410,198, Apr. 25, 1995.

Thomas L. Navarro, "System for Generating Controllable Reference Environment and Steerable Translational Force

from Interaction Therewith," USP #5,473,957, Dec. 12, 1995.

Richard L. Lieurance, "Centrifugal Inertia Drive," USP #5,488,877, Feb. 6, 1996.

John C. Claxton, "Centripetally Impelled Vehicle," USP #5,557,988, Sep. 24, 1996.

Ezra Shimshi, "Apparatus for Energy Transformation and Conservation," USP #5,673,872, Oct. 7, 1997.

Richard E. Foster, Sr., "Inertial Propulsion Plus/Device and Engine," USP #5,685,196, Nov. 11, 1997.

James D. Booden, "Electromagnetically Actuated Thrust Generator," USP #5,782,134, Jul. 21, 1998.

George J. Howard, "Propulsion System," USP #5,791,188, Aug. 11, 1998.

Timothy J. Stoppelcamp, "Boot Strap Propulsion System," USP #5,831,354, Nov. 3, 1998.

Eric Laithwaite and William Dawson, "Propulsion System," USP #5,860,317, Jan. 19, 1999.

Jonathan W. Campbell, "Apparatus and Method for Generating Thrust Using a Two Dimensional, Asymmetrical Capacitor Module," U. S. Patent # 6,317,310 B1, Nov. 13, 2001. Assigned to U.S. Government.

8.3.17 Mechanism for the Antigravity Accelerating the Universe's Expansion

Finally, in addition to sorely needed better means of space propulsion, one of the real incentives for antigravity research is provided by the search for a source of the now-established mysterious antigravity that is accelerating the expansion of the universe. Elsewhere in this book we have advanced our own proposal for the mechanism generating that *antigravity* effect in the cosmos.

Simply put, a very violent astronomical process may be considered a giant and very violent discharge phenomena, since it first involves a giant excitation followed by a giant release (discharge) of that excitation. All such phenomena involve strong broken symmetry during the discharge itself, with the concomitant strong available of causal 4-sources of negative energy and negative energy fields. These processes — in their causal unobserved state - do produce locally strong negative energy EM

fields from the source causal 4-positrons (Dirac sea holes prior to observation as positive mass 3-space positrons having positive energy and reverse-oriented). When the unaccounted and very large Heaviside nondiverged EM energy flow component accompanying every field and particle interaction is accounted, the causal negative "mass-energy" states produce strong antigravity fields, particularly considering the *lower frequencies* of many of the phenomena.

With the long-neglected Heaviside nondiverged energy component considered and not just the accounted Poynting diverged component, the total amount of negative EM field energy available in these violent process is dramatic. Accordingly, just as was the Sweet VTA in its increased power and its ELF pulsations, these giant astronomical sources are also giant negative "mass-energy" sources and strong antigravity sources as well. In short, such astronomical sources produce strong antigravity components repelling each other across the universe. Hence the observed acceleration of the expanding universe; the violent astronomical phenomena are continually "pulsing" the universe with antigravity and hence continually accelerating its expansion velocity.

In 2000, we also published a proposed mechanism for the source of the excess *positive* gravity holding the arms of the spiral galaxies intact {542}.

8.4 The Author's Engineering Approach to Local Antigravity

See again our discussion under Newton, subparagraph 8.2.1 above, and our discussion of a negative field energy extension to it. For a major laboratory, we believe that antigravity is straightforward,²²⁷ if one first produces a COP»1.0 situation in a higher group symmetry electrodynamics process. This provides a very strong "displacement current" of causal 4-positrons (before parity inversion, time-reversal, etc.) as true negative energy "particles" or "states" or "Dirac holes" in the surrounding 4-vacuum. The actual "negative mass-energy field" is very large, due to the unaccounted Heaviside nondiverged negative energy component. Consequently, a substantial antigravity field is established.

²²⁷ However, this is based on the assumption that the lab team first gives up some erroneous but widely held misconceptions, and really does a little "thinking outside the box" as they are prone to suggest.

8.4.1 Sweet Antigravity Test.

See again our discussion in paragraph 8.3.7. A practical realization of antigravity was clearly shown by the Sweet antigravity test designed by the present author. See previous discussion under paragraphs 6.3.2 in Chapter 6, and see again Figures 6-5 through 6-15.

In Chapter 6, the Sweet vacuum triode amplifier device shown in Figure 6-8 had a very large COP = 1,500,000 at 500 watts output with a 33 microamp, 10 volt operator's input. It had an even greater COP when pushed to 1,000 watts output because of only a slightly greater input.

The Sweet VTA used an induced powerful self-oscillation between the local vacuum and the barium nuclei in the barium ferrite magnets. This resulted in what is called a "kinetic" magnet (and one magnetized through its flat face). In a kinetic magnet, its nuclear magnetic field (in this case, in the barium nucleus) is self-oscillating (waving) in an angle about its local direction, as shown in Figure 6-6 in Chapter 6.

The conditioning was performed with the barium ferrite magnet itself in forced resonance at its resonant condition (some 11 to 12 Hz, in the case of Sweet's magnets). Then the 60 Hz signal was impressed orthogonally to the primary direction of the resonant magnet. After conditioning each of the two magnets, they were placed together on a separation box, carefully keeping the corresponding ends together similar to their original orientation during activation, but in attracting mode (through their face) across the separator. The assembly itself was then further conditioned, again orthogonally to the coupled oscillating fields. This "synchronized" the two magnetic self-oscillations and phase-locked them together in a common self-oscillation with the local vacuum.

Similar treatment of the vacuum as a semiconductor, together with self-oscillation between vacuum and nuclei, has been advanced independently by Prange and Strance {543}, who showed that the vacuum may be regarded as a semiconductor. In particular, they showed that the vacuum in the region close to the nucleus of a superheavy element is analogous to the inversion layer in a field effect transistor. It is similarly analogous for the barium atom, though Prange and Strance do not discuss that element. They introduced the concept of the inverted vacuum. Just as a semiconductor may be manipulated by subjecting it to external fields, doping etc., it appears that so can be the vacuum — along the lines shown by Prange and Strance and along the lines demonstrated by Sweet's conditioning of his kinetic magnets.

8.4.2 Bearden's Proposed Antigravity Mechanism

Any EM process that produces a $COP \gg 1.0$ condition, such as can be done in intensely abrupt ionic discharges and other processes, will also produce intense causal (4-space) Dirac sea holes in the immediate surrounding vacuum. This is the negative energy mechanism, conceived by the author in the 1970s and finalized in the 1980s, for producing a negative energy causal (unobserved) EM field²²⁸ in the immediate space surrounding a system. The overunity system must be the "source" of that negative energy EM field. So the negative energy EM field in surrounding local space is "attached" to the mass and energy dynamics of the "unit's supersystem" as being its "source or generatrix". Its attachment to the system mass produces the antigravitational force upon that mass.

Negative energy state charges (Dirac holes) are also *source charges*. Prior to observation converting them (as observed) to 3-space positive mass-energy positrons with positive energy and going the opposite direction, they must be accepted as negative energy source 4-electrons "pouring out negative energy" in all directions in 3-space, continuously, via the giant negentropy process for source charges. Since they pour out "negative" energy, we may consider that negative energy field action at any point in 3-space to be a continuous absorption of positive energy from 3-space and a return of that extracted energy to the time domain as increased time — in short, time dilation.

Either way one considers it, the 4-space Dirac holes do produce negative energy EM fields, potentials, and spacetime curvatures and these must be accounted during their existence *prior to observation and interaction*. Further, their accompanying giant Heaviside negative energy flow component must also be accounted. In other words, do not reverse the spatial direction and thus the location and direction of these fields, do not turn them into positive energy fields by such reversal of direction, do not turn the negative mass into positive mass, and do not reverse the sign of

²²⁸ We strongly stress that the continuous, dynamic, ongoing causal 4-field before it interacts with charge and is observed, is a totally different entity from the iteratively and continually observed frozen "effect" 3-field in matter after the 4-field has interacted with charged matter to produce an observation or "event". The great barrier to using electromagnetic fields in practical antigravity application has been due to the substituting, in electrodynamics, of the iterative "effect" 3-field of the observed positron for the continuous "causal" 4-field of the unobserved negative energy 4-electron (the Dirac sea hole). The "effect" 3-field is simply the iterative, continual energy gradient of the diverted EM field energy flow around the assumed intercepting unit charged particle.

the source charge (the Dirac sea hole). All that happens after interaction of the Dirac sea holes with matter, forming the usual lattice holes or *observed* 3-positrons.

Therein lies the magic secret of antigravity. Instead of thinking of the *fields* interacting on the craft or system that is producing them,²²⁹ think of these negative energy fields interacting upon the *local spacetime surrounding the craft or system, and curving that spacetime negatively.* Then think of this negative curvature of spacetime interacting back upon the craft or system in general relativity fashion. *That* is what will and does produce practical antigravity upon the interacted craft or system, once the Heaviside energy flow component is accounted! But to understand its magnitude and the practicality, one must also account for the long neglected Heaviside nondiverged component.

The mechanism is also consistent with general relativity and Wheeler's succinct statement that mass acts on spacetime to curve it, and curved spacetime acts back on that mass to move it or produce a translation force upon it. We are simply applying that fact of general relativity to produce a local antigravity effect of a locally curved spacetime upon the source system (in this case, the power system itself, which is the source of the negative field energy in the vacuum.

The entire notion of "curvature in spacetime" — and indeed of spacetime itself— is a notion applying *before observation and interaction to produce the observed effect* — i.e., prior to the d/dt operation occurring upon an ongoing 4-space process to produce a momentary frozen 3-space snapshot (an observed effect). Think carefully. Wheeler's rule does not mean that 3-space acts back on the mass (actually on the masstime), but that 4-space (spacetime) acts back on it. Spacetime does not exist in the observed object after the application of observation's d/dt operation has occurred and until a new causal interaction begins. The d/dt operation strips away the time,

²²⁹The ongoing interaction of the vacuum/spacetime with the source of the unobserved 4-fields is their cause, and the observed 3-fields are the effect. The effect *a priori* does not interact upon the cause! So thinking that "one should make a 3-field in a craft or system that will interact with it and produce antigravity force upon it" is a non sequitur. Instead, one more correctly thinks that "one should make a 4-field *from* a craft or system which will interact with the local spacetime to curve it negatively. Then that negative curvature of spacetime is itself a negative energy 4-field that will interact back upon the observed craft or observed 3-system to produce observed antigravity force upon it.

and hence most of the energy (i.e., all the time-energy) of the spacetime that is to do the interacting.

As source charges, the Dirac sea holes — before observation and in their vacuum state condition — produce a locally curved *spacetime* around the source unit. That induced (*negative energy x time*) curvature interacts back upon the physical system that is the source of the field producing the negative spacetime curvature. It specifically acts upon the mass of the 4-system when it exists as (*mass x time*) *form*. That interaction produces *antigravity* force and momentum upon the system, rather than *positive gravity* force and momentum²³⁰. Adding negative EM field energy (in the causal, unobserved state) is precisely the same as adding extra negative masstime, i.e., extra $(-m)t$, since the 4-field is being used in unobserved state.

Using the principle of superposition of fields²³¹, the external observer sees the "weight" of the unit (the force developed on it by the *net* gravitational field — see again our discussion of the Newtonian approach under paragraph 8.2.1 above) — as being reduced. The intensity of the *negative energy x time* (*negative angular momentum or negative action*) EM field (including with the Heaviside component accounted) produced by the unit determines the intensity of the antigravity produced, and hence determines the fraction of the unit's weight²³² that is observed to be "lost". See again Figures 6-14 and 6-15 in Chapter 6.

²³⁰ Note that, if the Dirac hole interacts with the mass lattice of the system, it converts to a "hole" that is attached to the positive mass of an ion. Hence the "observed" positron is said to have "positive mass", which is a non sequitur for the state in which the "positron" exists prior to observation or interaction. The lattice hole 3-positron and the true spatiotemporal "4-positron as still a negative energy 4-electron" are two very different entities, and their fields and concomitant field effects are very different.

²³¹ Note that identification of spacetime and field in general relativity extends the notion of superposition of multiple fields to the notion of superposition of multiple curvatures of spacetime. Thus, it is the *net* superposed curvature of spacetime that interacts back upon the physical mass system, to produce gravity (either positive or negative, depending on the sign of the net curvature).

²³² We remind the reader that the "weight" of an object on Earth is a measure of the force developed on the object by the (Earth's) gravitational field. "Loss of weight" is simply "reduction of that net force" due to the combination of the Earth's positive (attractive) gravitational field and the Dirac hole curvature of the object's local spacetime producing a negative (repulsion) gravitational field.

At sufficient intensity of this local negative energy 4-field in spacetime with the unit as its source, the back interaction upon the unit will balance the action of the earth's gravitational field. At that point, the unit will hover and "float" against the force of terrestrial gravity.²³³ By further increasing the intensity of the negative energy EM field, the unit will accelerate upward, now being repelled by the local earth more than it is attracted by it. By "angling" the negative energy EM field direction — or by producing a second such negative energy EM field from the source unit as an "angled add on" superposed on the first one — one also provides unilateral propulsion in a given direction.

As can be seen, all the requirements for a practical antigravity vehicle and negative energy propulsion system are met. The only real problem in this approach is the requirement to first attain a $COP \gg 1.0$ EM power system at ELF frequencies.²³⁴ There is, however, an additional problem of correcting one's thinking to be along the lines indicated.

Antigravity becomes straightforward if one first does overunity discharges or steady output in a system with $COP \gg 1.0$ and understands the difference between the observed "effect" 3-field and the unobserved "causal" 4-field. Sweet's VTA unit had a beginning $COP = 1,500,000$ at 500 watts output. The unit was pushed to nearly double its COP, by connecting additional load so that the output was now 1,000 watts. The additional input draw was minimal.

Designing the experiment with that in mind, I convinced Sweet to build a new output load unit, and to perform the experiment. In advance, I roughly predicted levitation of the 6-pound device at about 1500 watts output power, by some back-of-the-envelope estimates assuming a 10% efficient

²³³ Sweet later did push the VTA to hovering and upward acceleration, with the unit on a tether. After he was shot at by a distant sniper, thereafter he was very fearful **and** refused to show many experiments, including the antigravity experiment and particularly its extension to the hover point and upwards acceleration extension. In my opinion he had good reason for his paranoia and his fear for his life.

²³⁴ The reason for ELF frequencies is simple: for the most powerful curvatures of spacetime, one wishes to use EM fields whose photons have the greatest *total* energy (including time-energy). That of course is the lower frequency photons, not the higher frequency photons. So ELF is the way to go, not gamma rays etc.

process. The projected curve (again see Figure 6-14 in Chapter 6) shows that levitation would have occurred at about 1250 watts or so.²³⁵

Here is why we advocate a Dirac sea hole's negative energy field as a practical antigravity inducing mechanism.²³⁶ At $COP \gg 1.0$, there is a very appreciable vacuum energy density difference between the operator's energy input and the energy output of the system, *particularly when the Heaviside nondiverged energyflow component is taken into account as well as the Poynting energyflow component*.²³⁷ There is a production of negative EM mass-energy \times time (causal Dirac sea holes) in the immediately surrounding vacuum. That represents the production of a causal, unobserved antigravitational field (curvature of spacetime) with the system-associated anticharge as its source.

Meanwhile, the Earth's causal, unobserved gravitational field is still normal and unchanged. Now the two causal fields superpose, and interact with the system mass. As seen by the external observer, the net effect is a reduction in the weight of the object — the effect of the interaction of the system mass with the two superposed causal gravitational fields simultaneously.

Reasoning that increasing the COP of the Sweet unit should increase the ratio of output negative energy to output positive energy even further, 1

²³⁵ I strongly warned Floyd not to exceed a 1 KW load, no matter what. In the resulting local curved spacetime surrounding the barium nuclei in the magnets, it appears that magnetic monopoles are deposited or appear. Since these barium ferrite magnets were made by pressed powder metallurgy, they had little tensile or torsion strength, and under sufficient stress they would explode violently like a fragmentation hand grenade. In his little lab (a converted bedroom), Floyd had no explosive facility. He did explode several magnets, but while cautiously remaining some personal distance from the unit as its output was increased. We warn the reader that experimentation with such procedures is at his own risk, and all proper laboratory safety precautions must be utilized.

²³⁶ A provisional patent application has now been filed on the process in 2002.

²³⁷ In a nominal circuit, the unaccounted Heaviside energy flow may be up to 10^{13} times as great as the Poynting energy flow component. This is a completely unaccounted, vast EM energy flow accompanying every field and particle interaction. Hence one can understand why such an energy density for a macroscopic system with $COP \gg 1.0$, is sufficient to achieve on a macroscopic scale what LaPointe is attempting on a microscopic scale. The total macroscopic scale energy density is so great that the required LaPointe microscopic energy density {535} is present or approached.

calculated that doubling the output of the device would result in a sufficiently intense negative mass-energy field in the immediate space around the unit, to approach or reach levitation of the unit. However, as the increasing curvature of spacetime would further increase the deposition of magnetic monopoles in the magnets,²³⁸ at some point the magnets would simply explode like hand grenades if the unit were pushed too far. With no explosive control facilities available, it appeared that doubling the output was the maximum that could safely be done under the circumstances. My own estimate showed that 1500 watts output would be required for levitation, but one dared not go beyond 1000 watts or one would risk a fragmentation explosion and injury or death.

I convinced Sweet to build a 1,000-watt output load box, which simply contained ten sockets for ten 100-watt light bulbs. This was a modification to the 500-watt VTA unit shown in Figure 6-8 in Chapter 6. By successively installing the bulbs one by one, the load could be adjusted in 100-watt increments up to 1 kilowatt.

The foregoing is the reasoning behind how I designed the experiment, and the purpose was to show very substantial and smooth weight loss of the VTA unit itself. The experiment was performed in that 100-watt incremental manner, with highly successful results as shown in Figure 6-14 in Chapter 6.

With each 100-watt increase in power output past 500 watts, the fraction of negative energy produced was greater. Hence the unobserved 4-positron fields (Dirac sea hole negative energy fields) were stronger, because there were more unobserved 4-positrons. This meant that the local negative mass-energy curvature of spacetime was increased also.

In turn, this negative curvature of spacetime interacted back upon the mass of the VTA to add negative mass equivalent, or more simply, antigravity force. The observed weight of the unit was the sum of the normal gravitational weight (due to earth's gravity curvature of the local spacetime), and the abnormal antigravity weight (negative weight) due to the antigravity curvature of the local spacetime superposed. So as the fraction of negative curvature of spacetime increased, the net weight of the VTA was observed to decrease.

²³⁸ Contrary to popular opinion, one does meet with effective magnetic monopoles in a magnetic field — including in the magnetic field of a permanent magnet — in a strongly curved local spacetime. The stronger the field, the greater the magnitude of the effective monopole charge.

As stated, Sweet was performing the experiment on the bench in California, and reading the instrumental results over the phone (I was in Huntsville, Alabama) where I recorded them. The spectacular results are shown in Figure 6-14 in Chapter 6.

The high COP (corresponds to gain) of energy density present in the Sweet VTA system's output section — with a greater percentage of it being negative energy — versus input energy one inputs to the input section, is what is important. In short, increasing the load effectively increased the gain, which further increased the ratio of the negative mass-energy to the positive mass-energy. This in turn steadily decreased the observed weight of the object.

Anything outside the system mass of that very high COP system will "see" the weight of the system mass as having decreased. Weight is just so much mass making so strong a *net* G field (spacetime curvature) in the surrounding spacetime. Reduce the *net* G-field that the system mass is normally making (by having it *simultaneously* make the additional antigravity field which then vectorially adds to the mass's normal G-field), and the external observer, external scales, etc. will see the object as having very much reduced its weight.

Positive spatial EM energy density of a system makes positive gravity (as seen by the external observer in the lab frame) because of the way it curves the immediately surrounding spacetime and the way that curved spacetime interacts back on the system's mass-energy. Negative spatial EM energy density makes negative gravity because it curves the immediate spacetime the opposite way. A system under those "high negative energy field" conditions will produce a great deal of antigravity, because the immediate spacetime surrounding is dramatically curved by the negative energy. That was my concept when designing the experiment, and it worked beautifully. So that is how the Sweet device reduced its weight on the bench by 90%, for a 1 kilowatt total output and minuscule input power {544}.

If one were dealing with the source in a flying vehicle system, there is another effect due to momentum. Note that force F is defined as $F \equiv \partial p / \partial t = +\partial / \partial t (mv)$. That is in a positive energy density local spacetime. When an extra negative energy density is added to the local spacetime, then there are two forces, a new one being $F \equiv -\partial / \partial t (mv)$ and the normal one being $F \equiv +\partial / \partial t (mv)$. These forces are created by any change in momentum in space containing an extra increment of negative EM field energy.

If the two forces balance, then there is essentially no net centrifugal force produced on the object (or any occupants in it) in a turn. In theory, maneuvers that are far more powerful can be made, without undue G-stress to any occupants inside. This of course remains to be tested in future work and experiments, and so must be taken as a strong hypothesis at present. It could be tested, given availability of the proper COP»1.0 energy system or process on board a test vehicle. Laithwaite's demonstration of the dramatic reduction in force necessary to lift a rotating gyroscope compared to lifting the same heavy gyroscope when not rotating, may have been a partial test of this "inertial resistance decrease" effect.

The Sweet device was the only available COP»1.0 device which could have been used for the experiment. That is why I designed the experiment and convinced Sweet to perform it. Had it not worked, much of what I had worked out for more than a decade would have been falsified — which of course is one of the purposes of experiment: to validate or falsify a thesis. In this case, I breathed a great sigh of relief because — in my view — the spectacular results completely validated my approach to antigravity, and also much of my approach to COP>1.0 systems.

Sweet was never in a position to be able to go with this to the scientific community. The VTA was completely fouled legally, by various entangling agreements Sweet had made with different backers, without ever changing or resolving any previous agreement. Also, he realized that his life really was in danger should he try to take the system openly to the scientific community. Consequently, he never tried and in fact adamantly turned all further work away from the antigravity effects.

Aging and rather defenseless, Sweet also began playing all sorts of games to prevent having to have the project validated independently, even for its COP>1.0 capability. He was mortally fearful of being killed if he had it resoundingly validated. He was motivated by the necessity to survive and not be killed, and he firmly believed that any such attempt for full scientific validation and open publicity would absolutely guarantee his quick death. His fears appear to have been well founded.

His most carefully guarded secret was his activation process for the barium ferrite magnets, which he guarded with his life. He also began telling different persons all sorts of different stories and "mechanisms" for the activation, which were clever ruses and disinformation designed to throw them off the true trail and prevent his activation secret from being uncovered. I made a personal videotape of the activation process, or what

he released of it, before he began such disinformation. So we do know much of the activation process, though not all of it.

Eventually, with changes in backers yet once again, Sweet died and never revealed the full secret of strong self-oscillation activation in permanent magnets to anyone. I knew and know part of it, even most of it, but still not all of it. What I understand about it has been briefly included in this book. From there, the interested researcher must find his own way.

The VTA was real, my gravitational mechanism is real, and — in my opinion — validated. However, it has not been *independently* validated in formal order, which is the proper scientific requirement. I did try very hard to convince Sweet that we should take this to the leaders of the scientific community and have it independently verified (e.g., by UCLA), but he would not hear of it after the assassination attempt. By that time, he was so afraid from the constant threats and constant stalkers that he had totally decided against any such releases. He also would not permit it to be taken to a major scientific conference and demonstrated, even though several scientists and engineers knowledgeable and experienced in measurement engineering did measure and certify the device's operation. But they were never allowed to see it in the antigravity mode. He would not discuss it with them, and he would not allow it.

Sadly, with the death of Sweet there passed away the VTA and its major secrets. I regard the VTA as one of the great scientific accomplishments of all time, and I regard Sweet as one of the most capable lab experimenters I ever met and one of the greatest inventors I ever met. The loss of the VTA and the absence of its full, independent scientific testing and validation were in my opinion two of the greatest losses to science of all time.

8.4.3 Discussion

Particle physicists speak of antimass and antigravitational field, but do not speak of anti-electromagnetic field and do not like negative mass. Antimass is actually "anti-mass-energy". When did one hear any scientist speak of a *negative energy* electromagnetic field or *negative energy* force field (except possibly as a hypothetical "tractor beam")? Or a *negative energy* electrical or magnetic potential? Yet the EM fields from an accumulation of Dirac sea holes (causal state) as a source charge are precisely negative energy EM fields. The EM potentials from an accumulation of Dirac sea holes are precisely negative energy potentials. Further, these fields and potentials produce opposite curvatures of spacetime as compared to positive energy causal EM fields and potentials from conventional source positrons and electrons.

Conventionally, scientists speak and think of *the positive energy* electromagnetic field. In our view, they do not apply the implications of the negative energy state part of the Dirac 1930 electron theory {545}, because of a built-in horror of negative mass (and antigravity!). Recall again our discussion of Laithwaite; a promising career was cut down in mid stride because he "mentioned the unmentionable": antigravity and possible failure of Newton's laws (they *do* fail in a curved spacetime!). His exhibiting to the Royal Society a very heavy gyroscope, very difficult to lift when placid, but easy to lift with one arm when spinning, was the final straw. The British scientific community simply cut him down and ostracized him from the rewards and positions he would otherwise have been given.

To conceal the relationship of the negative energy fields, hide negative mass, and pretend it does not exist, much scientific effort is exerted to consider the positive energy, positive mass positron *only after it has been observed*. So scientists can assign this "observed" 3-positron a positive mass and positive energy but with spatial direction reversal. That immediately moves to an *effect* field and an *effect* positron, not a causal field or a causal Dirac sea hole. It effectively eliminates the antigravity field of the negative mass of the unobserved negative energy Dirac electron, which is produced by the *causal* (unobserved) Dirac sea hole's electromagnetic field, not the *effect* (observed) positron field which then is "seen" to have positive mass but with field direction reversed.²³⁹

The positron is quite a different beast before it is observed, just as is a mass (and just as is any other observable, and just as is a field). For one thing, the positron before observation and the positron after observation have different dimensionalities; the unobserved causal entity is 4-spatial and continuous,²⁴⁰ while the observed effect entity is continually and

²³⁹ Note also that the causal field, being unobserved, is a 4-field, while the observed (effect) field is a 3-field. By reversing the parity, one has made the antigravity field **into** a gravity field, by substituting the effect for the cause and erroneously using the old non sequitur of a separate 3-force acting upon a separate 3-mass. Also, when one reverses its spatial direction, one converts a *positive* gravity field into an *antigravity* field.

²⁴⁰ Along with Bohm, we point out that — strictly speaking — in 4-space one does not have "things", but only "processes". To speak of a "4-space field" is to redefine the field as an ongoing process, rather than as an observed frozen 3-snapshot or "3-thing". The solution to the long-vexing duality problem is there, but we leave its solution to the reader. It is necessary to extend Aristotelian logic itself if one is to resolve the duality problem.

iteratively 3-spatial. Mass before it is observed exists as *masstime*, not mass.

Simply consider the delayed choice two-slit experiment and Wheeler's famous comment that no phenomenon is a phenomenon until it is an observed phenomenon. Once the observation occurs, one can even change the "if it had been observed but was not" previous past. One gets the magic from the delayed choice two slit experiment without the observation, and then by making the observation such that the "magic" is not revoked *after the fact*. The whole experiment proves that, if one insists on applying the observation, one kills the magic, even if one thinks the magic has already occurred and must have already occurred, but it has not been *observed* to have occurred.

Causal 4-spatial "things" are not things at all, but are ongoing processes and their cessations have not "occurred" to yet produce a "thing"! The *observed* event is 3-spatial and has occurred. It is something in the past, not the present. That is different from something ongoing (happening or unhappening)²⁴¹ in 4-space, before having been observed and therefore a frozen snapshot taken in 3-space. As is well known in quantum mechanics, observation is a physical interaction and it indelibly changes and stops the "ongoing 4-process", converting it to a momentarily frozen "3-thing" as an effect of the observation process at that particular instant. So any "thing" is continual and iterative, *not continuous*, in its travel through time, and in its "observed existence in 3-space".

Because of such, physicists also have difficulty realizing that mass — being an observable — does not and cannot exist continuously in time. It cannot even *continuously exist*! No observable can. *Masstime* exists in time, but mass does not, as we previously discussed. Observation is a *dldt* operator imposed upon an ongoing 4-space process, destroying the time

²⁴¹ When a frozen instant 3-space snapshot (observable) interacts with a second causal process to generate another frozen snapshot (observable), the first observation "unhappens" because it is thereby moved into the "past", disappearing from 3-space forever. With every change of an observable (with every observation), even if the new effect appears identical to the previous one, it is still a *new* observable (a new effect) where a former effect "seems" to have recurred (been created, happened). Even if it is spatially the same as the previous observation output, it is at a different point in time and hence is the result of the *d/dt* observation operator being iteratively applied. The serial outputs — even of what we loosely call an "entity existing in time with no 3-space change" — are *successive and different* serial outputs from a serial time-differentiating process.

portion and producing an instantaneous, frozen snapshot at that instant. It's just d/dt (LLLT) \Rightarrow LLL. That is why all observation is 3-spatial, as is well known in physics. We long ago pointed out how the common photon interaction — the total photon interactions (both virtual and observable) with a mass — is what drives the mass through time, so to speak {15}. But it does it iteratively, frozen snap after frozen snap —just like progressively showing the frames of a movie film.

What really has to be changed is the old notion by Heaviside and Poynting that 3-energy propagates continuously through 3-space.²⁴² No observable can propagate continuously in 3-space, but only in 4-space and then only during its nonobservable state! So a "mass propagating through time" (i.e., just sitting still and "existing", so to speak) is doing so in an iterative fashion by recurring iteratively in observation output at the same spatial position. The mass turns to masstime, then to mass, then to masstime, etc. Or $m_1 \Rightarrow m_1t \Rightarrow m_2 \Rightarrow m_2t \Rightarrow m_3...$ etc. In short, *observation continually recurs at an enormous rate, so an observable (effect or output of that observation process) continually recurs at an enormous rate, destroying the previous observation as the next one occurs.*

Because of the history of thinking in 3-space terms rather than 4-space terms, one of the ubiquitous errors widespread in physics is the substitution of the effect (the frozen output of the observation process) for the cause (that 4-space initiator process which continuously exists prior to observation, hence unobserved). So causes (4-space initiators which are unobservable a priori) interact with a previous "frozen 3-space snapshot" or observable, to produce a change (either a temporal change or spatial change or both) in or to or of that observable (that 3-snapshot) to a new observable (3-snapshot). If the object is seen to iteratively change in time but not position or form, it is said to "exist" or "persist" at rest continuously in time. It doesn't. It *continually recurs*²⁴³ in that form, but does not *continuously exist* in that form!

²⁴² And also the hoary old mistaken notion that the "same observable thing" can continuously exist in time or persist.

²⁴³ More rigorously, the continual recurrence is at the quantum level. So a larger mass or other observable actually is a great horde of very small "continual recurrences" of tiny incremental pieces of itself. At any time interval of observation via observable photons, a vast number of nonobservable (virtual) "continual recurrences" occur in the "observed object". In short, the "observed object" is the **end** summation and result of a vast number of infinitesimal changes. Hence the entry of statistics and the uncertainty principle. Each one of the infinitesimal

The antigravity mechanism has been implicitly present in the Dirac theory of the electron since his 1930 paper {497}, where he brought forth the Dirac sea and the anti-electron, if the *causal* Dirac sea negative energy states are applied to general relativity before they interact with charge and are "observed". General relativity deals with spacetime and spacetime curvature. Therefore, it is concerned with causal 4-fields, 4-potentials, and 4-waves in 4-space prior to observation.

As we stated previously, there is really no such thing as a "3-space EM wave", e.g., as rather strongly pointed out by Romer {546}.

One can produce and have an EM field of *negative* EM energy in spacetime, coming from the 4-positron charges of the anti-charged mass of a system, as well as one can produce and have an EM field of *positive* EM energy in space, coming from the charged mass of a system. But negative energy EM fields have been swept away from our minds by interpreting the negative energy 4-electron as the 3-positron, after the negative energy 4-electron has interacted with charged matter (been observed as the *effect*), rather than how it exists in spacetime prior to observation (as the *cause*).

So physicists reverse the direction and the charge, and make the mass positive, which is how the Dirac sea hole is "seen" *after observation*. That makes it a material lattice hole and a special kind of positive ion. Before observation, it is not seen at all, but it exists as negative action (energy x time) and therefore in "negative masstime" state form. Before it has been observed, it's still there in spacetime, as a curvature of spacetime. It's just a *negative energy state curvature* in the vacuum/spacetime.

Make lots of these negative mass-energy state Dirac holes from a source system, such as one producing a very powerful negative energy EM field, and voila! That's it. The system is producing — and surrounding itself by — its own negative energy EM field (negative curvature of 4-space), which is also its own local antigravity field. That antigravity field superposes with the prior local curvature of spacetime, altering it. The *net* curvature of local spacetime is itself a field which interacts back upon the mass system to produce "net gravity" whose sign may be positive or negative, depending on the sign of the net spacetime curvature. If the two back-acting curvatures of spacetime are opposite and equal, that represents the source object existing in a zero gravitational field, and thus "hovering" in the Earth's gravitational field, for example.

changes may be modeled causally, but since there is no individual information available on each one of them, they can only be calculated statistically.

The use of negative energy EM fields and Dirac sea holes to alter the curvature of the local spacetime in a negative direction provides the present author's engineering approach to practical antigravity. Note that our approach gathers in the gist of both of the major two approaches to antigravity: (1) the shielding theory as typified by Modanese {547}, and (2) the opposing force theory as typified by Ling Ni and Torr {548}. The opposing force, considered as a field that is identically a curvature of spacetime, is also a "gravity shielding" force via superposition of fields. We state unequivocally that a theoretical model of the new approach can be constructed from Sachs's theory {510}, and implemented in the $O(3)$ electrodynamics of Evans and Vigier {549}. Further, it is a directly engineerable theory, without the necessity for superconductivity, spinning wheels, etc. as demonstrated by the highly successful Sweet experiment previously discussed.

We quote Evans {550}, on the appearance of the $B(3)$ field in general relativity, to indicate the nature of such a future theoretical model:

"I have chosen a metric that gives circular polarization (as observed), but in the framework of general relativity using the irreps of the Einstein group according to the Sachs theory. This is a closed field theory which is analytical, using a Lie group, the Einstein group. As such there are no particles, only spacetime curvature, so everything in physics reduces to spacetime curvature, i. e. to a metric vector and its components. This is then incorporated in the Sachs theory to produce a metric four-vector which is a generally covariant component of a quaternion-valued metric with sixteen components, the most general form of the metric allowed by general relativity and topology. The Einstein-Sachs equations for electromagnetism are six metrical equations in six unknowns, the components of an antisymmetric field tensor of electromagnetism. By choosing a metric that corresponds to circular polarization, $B^{(3)}$ appears automatically.

This method gives the $B^{(3)}$ field from Einstein's theory of general relativity applied to electromagnetism by a consideration of the irreps of the Einstein group. It follows that whenever the conjugate product $-gA^{(1)} \times A^{(2)}$ is observed, the $B^{(3)}$ field must also be observed, otherwise general relativity fails. Examples of

the $B^{(3)}$ field at work are the inverse Faraday effect and RFR [Radiatively induced fermion resonance]. "

Evans and the AIAS have already taken the first theoretical steps showing that antigravity does indeed arise from Sachs's theory {551a-551c}.

We are convinced that practical antigravity only occurs at extremely low frequency (ELF) for reasons²⁴⁴ explained previously. Certainly that seems to be true for our approach to it. The highest "total energy" photon is the low frequency photon with low spatial energy and a larger time increment. The larger time component has the same energy density as mass. So one multiplies the time component increase (in seconds) by roughly 9×10^{16} to get the increase in spatial energy equivalency. Halve the frequency of a photon, and one increases its *total energy* by 4.5×10^{16} {552}.

High energy physicists have not realized that the time component of the photon has enormously more energy than the spatial component, and that low frequency photons contain enormously more trapped energy than do high frequency photons. So they largely ignore the time-energy component, focus on the spatial energy component, and erroneously consider *high energy* physics as *high frequency* photon physics. Instead, present high frequency photon physics is only a high *spatial* energy physics, not a high *total* energy physics at all. Today's high energy physics is really still a very low total energy physics, compared to what can be done with the time-energy component of the photon rather than its spatial-energy component. By transducing and using the highly compressed time-energy, experiments can be done on the lab bench with fairly simple and cheap equipment, that actually utilize *higher total energy nuclear reactions* (though at low spatial energy) than are presently obtained in the largest accelerators.

That is also why there is presently no understanding in the conventional community of the "low spatial energy transmutations" of cold fusion, where the experiments unwittingly use the high time-energy component. The scientific community has not even recognized the time-energy aspects,

²⁴⁴ Dramatic increase in the magnitude of the time-component, hence an enormous increase in the time-energy component with only a small decrease in the spatial energy component total energy of the photon. The *total energy* thus dramatically increases, when the spatial energy equivalent of the time-energy is considered. The present conservation of energy law in physics is inadequate because it does not account time energy at all; thus completely discards the most fundamental EM energy mechanism of all: the giant negentropy of source charges and source dipoles.

and has not recognized that time-energy physics is an ultrahigh total energy physics, where the present "high energy physics" is tame by comparison.

The previously unknown time-energy induced transmutation interactions are the precursors to, and the opening salvo of, a new *ultrahigh total energy physics* struggling to be born in spite of the adamant opposition of the conventional scientific community. Allowing for the time-energy component, for the mechanism generating the flow of time, and for formation and decay of time-reversal zones, we previously wrote the exact new nuclear reactions for the production of the excess deuterium, tritium, and alpha particles {553} in numerous cold fusion experiments. We also explained the highly anomalous nuclear instrument effects — due to (i) time-charging, (ii) the slow decay of time-charge with radiation of Whittaker longitudinal waves, each accompanied by its phase conjugate twin time-polarized wave, and (iii) the previous time-charge history of the instrument. These puzzling anomalies have been observed at U.S. Navy research facilities at China Lake now for some years in rigorous electrolyte experiments {198}. We summarize that work in Chapter 10 of this book.

With a little effort and development, practical antigravity appears to be straightforward for any good modern laboratory. But the lab physicists should first (i) rethink the entire subject, from its very fundamentals, to include considering the positron before observation and not after observation, (ii) remove the Lorentz symmetrical regauging from electrodynamics and recover the presently missing $COP > 1.0$ and $COP \gg 1.0$ Maxwellian systems again, and (iii) rapidly develop $COP \gg 1.0$ systems and processes to use in antigravity experiments and development. At least in this approach, the $COP \gg 1.0$ EM systems — once developed — are an immediate gateway to practical antigravity devices, unilateral thrust propulsion systems, and antigravity vehicles. And of course they are the immediate gateway to practical transport vehicle power systems, fuel-free, clean, and self-powering.

Hopefully, such a scientific reassessment will be performed, and it may provide the gateway for practical transportation and travel to the ends of **the** solar system and beyond, to be achieved in the first two decades of this century.

8.5 In Conclusion

We have briefly reviewed the presently developing field of inertial space propulsion and antigravity, and presented our own approach to practical

antigravity as well as an informal experiment that strongly supported that approach. We have strongly stressed that the causal field from the system as its source constitutes a curvature of the local spacetime superposed upon the pre-existing local spacetime curvature. Instead of thinking of that causal field from the source system as acting back upon the source system, we have stressed thinking of that *net superposed curvature of local spacetime* acting back upon the source system and producing a net gravitational force upon it. That net gravitational force may be either positive or negative, or zero, depending upon the sign of the net curvature of spacetime that is interacting back upon the system.

We presented and explained the results of the Sweet VTA antigravity experiment as probable verification of our approach to antigravity. Nonetheless, we also emphasized that the formal independent replication required by the scientific method has not been accomplished, and it remains to be accomplished before the approach is to be considered as scientifically validated.

We believe that this approach to antigravity can be modeled and engineered by use of the Evans-Vigier $O(3)$ electrodynamics as a subset of the Sachs electrodynamics that is a part of the Sachs unified field theory.

If so, then tentatively we have laid out the basis for eventual practical antigravity systems and a practical antigravity technology. We fervently hope that this approach will in fact lead to practical technology and working transportation means during the next decade.

Finally, we hope that these notes and concepts will stimulate many sharp young graduate students and post-doctoral scientists to examine, model, correct, and greatly enlarge the ideas and principles advanced. If so, then the purpose of this chapter will have been realized.

Chapter 9

The Supersystem and Remarks on Gravity, Antigravity, and Testing

"What might appear to be empty space is, therefore, a seething ferment of virtual particles. A vacuum is not inert and featureless, but alive with throbbing energy and vitality. A 'real' particle such as an electron must always be viewed against this background of frenetic activity. When an electron moves through space, it is actually swimming in a sea of ghost particles of all varieties - virtual leptons, quarks, and messengers, entangled in a complex melee. The presence of the electron will distort this irreducible vacuum activity, and the distortion in turn reacts back on the electron. Even at rest, an electron is not at rest: it is being continually assaulted by all manner of other particles from the vacuum." [Paul Davies] {554}.

"Space acts on matter, telling it how to move.. In turn, matter reacts back on space, telling it how to curve." [Wheeler's principle] {555}.

"...the Aharonov-Bohm effect is a local gauge transformation of the true vacuum... [which] produces a vector potential from the true vacuum. [This gauge transformation] produces topological charge..., the electromagnetic field, which carries energy, and the vacuum charge current density first proposed by Lehnert... and developed by Lehnert and Roy... ". [M. W. Evans and S. Jeffers] {556}.

"The energy density (E_d) in curved spacetime is given in the Sachs theory by the quaternion-valued expression

$$En_d = A_m j_m^* \quad [1]$$

where A_μ is the quaternion-valued vector potential and j_m^* is the quaternion-valued

4-current as given by Sachs ...Equation [1] is an elegant and deeply meaningful expression of the fact that electromagnetic energy density is available from curved spacetime under all conditions; the distinction between field and matter is lost, and the concepts of "point charge" and "point mass" are not present in the theory, as these two concepts represent infinities of the closed-field theory developed by Sachs from the irreducible representations of the Einstein group. The accuracy of expression [1] has been tested to the precision of the Lamb shifts in the hydrogen atom without using renormalization of infinities. The Lamb shifts can therefore be viewed as the results of electromagnetic energy from curved spacetime." [Myron W. Evans] {557}.

"Old habits of thought die hard, and it is not always easy to remember that a particle with negative mass if pushed to the right will move to the left; or that in a given reference frame a particle with imaginary mass can have infinite speed, in which case its energy is zero." "... extremely powerful energy sources may occur if particles of negative mass really exist in nature." [Banesh Hoffman] {558}.

"The observed (3-spatial) positron is a quite different entity from the unobserved (4-spatial) Dirac hole. Its direction has been reversed, and its mass and energy have also been reversed. Before the 4-spatial hole in the vacuum has interacted and been observed, it has negative energy and therefore negative mass equivalency, as well as negative charge. As a source charge, it also is the source of negative energy fields and negative energy potentials — all in the

nonobservable 4-state. " [T. E. Bearden, private communication to a correspondent, 2001].

"The...visible structure of orthogonal' 1-networks possessing coupled open-paths and closed-paths represents only an introductory step in the development of a correct topological theory for conventional electric networks...An electric network is like an iceberg...Its visible portion is only a small fraction of the submerged invisible structure." [Gabriel Kron, who developed special tensor methods and diakoptics to deal with the large number of visible and invisible multidimensional p-networks surrounding the branches of every electric circuit.] {559}.

"...symmetry implies conservation. Since our entire edifice of interactions is built on symmetry assumptions, there should be as a result a large number of conservation laws. The only trouble is that almost all of these conservation laws have been violated experimentally. "... "...this difficulty could be resolved by introducing a new element, the vacuum. Instead of saying that the symmetry of all matter is being violated, we suggest that all conservation laws must take both matter and vacuum into account. If we include matter together with vacuum, then an overall symmetry could be restored" [T. D. Lee] {560}.

"One perhaps oversimplified way to deal more conventionally with the new unified field approach to electrodynamic systems is to utilize the notion of the 'supersystem', comprised of three components: (1) the ordinary EM system and its dynamics—conventionally assuming flat spacetime and inert vacuum, (2) the local nonlinear vacuum and its dynamic interactions with the system and with spacetime, and (3) the local curvatures of spacetime and their dynamic interactions with the system and with the local

active vacuum. In the rich feedforward and feedback interactions that result, there emerges a dramatic new physics, new electrodynamics, and new chemistry including a new biochemistry. This is in fact a much simplified conceptual approach (good to 'first order', so to speak) to the multinetwork and multipath work of Gabriel Kron. It also allows the retention of symmetry, considered so necessary to particle physicists. "
 [T. E. Bearden, private communication to a correspondent, 2001].

9.1 The Supersystem and Its Considerations

In classical electrodynamics, the Maxwell-Heaviside-Lorentz equations implicitly assume a local flat spacetime and no net action by the vacuum {561}. Both these implied assumptions are false. All real EM systems involve interactions with both curvatures of spacetime and the active vacuum. Yet to try to include both additional interactions requires a unified field theory approach, such as that of Sachs {562}. Unfortunately, any unified field theory is replete with quite difficult mathematics, little of which can be illustrated pictorially or simply.

What is required — at least for most electrical engineers and applied electrical scientists — is a conceptual way of visually thinking about the EM system in a way that is consistent with unified field theory to something like first order, but which can also be conceptualized easily.

9.1.1 The Supersystem Concept

Accordingly, we introduce a new and very simple way of thinking of electrical circuits in terms of a unified field theory. We utilize the notion of the supersystem, consisting of three components: (1) the EM system and its dynamics, considered in conventional fashion (as if the local vacuum were inactive and the local spacetime were flat but perturbed), (2) the local interactive vacuum and its dynamics, and (3) the local curvatures of spacetime and their dynamics. All three components of the supersystem interact. This produces both feedback and feedforward functioning; e.g., energetic changes in the system produce corresponding changes in spacetime curvatures. In turn, the alterations in spacetime curvature produce nonlinear changes in the active vacuum, which in turn acts back upon the system. So every action in a system produces a corresponding set

of feedforward and feedback reactions from and with its complex environment, and vice versa.²⁴⁵

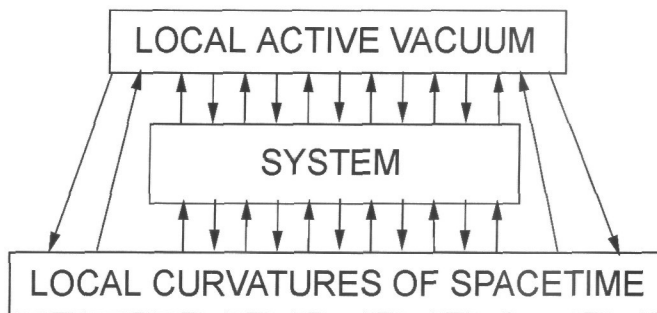


Figure 9-1 The Supersystem concept (block diagram).

Figure 9-1 shows a diagrammatic illustration of the supersystem concept. Figure 9-2 illustrates the effect of the classical EM assumptions of a flat spacetime and a locally inert vacuum. As can be seen, the classical assumptions *arbitrarily discard the* interaction effects upon and in the system due to the active vacuum dynamics and due to the local spacetime curvatures and their dynamics.²⁴⁶

As stated, all three components of the supersystem interact with each other. This is a dramatic change to classical U(1) electrodynamics. Hence the total interactions — with the system — of both the active vacuum and the locally curved spacetime, and their interactions with each other, are more general than either classical EM, general relativity, or the quantum mechanical vacuum of particle physics prescribes individually.

²⁴⁵ We hypothesize that the feedback contains the mechanism generating Newton's third law as a restoration of symmetry, but leave that to the master theorists to explore and decide.

²⁴⁶ As one example, the nondiverged Heaviside component of energy flow — previously discussed in earlier chapters — is part of the supersystem activity. This **flow** alters both the local active vacuum and the local spacetime curvature associated with an electrical power system and its connected external circuits. Since the resulting local "environmental" changes in the supersystem are extensive, then one can conceive ways in which these changes can be interacted with additional intercepting/receiving systems to produce extra "EM energy from the vacuum".

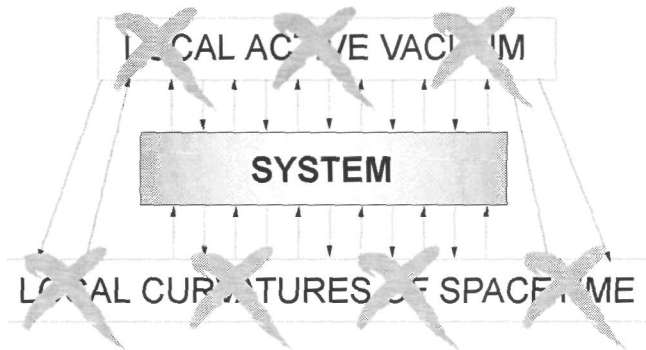


Figure 9-2 Classical EM destroys two-thirds of the supersystem.

Immediately it can be seen that the concept of energy from the vacuum is a "supersystem active and not negligible" concept involving a unified field theory approach *a priori*. It can also be seen that a "system" in equilibrium must be in equilibrium with its active environmental exchange — its exchange with the active local vacuum and the active local curvatures of spacetime. Since energy "exchange" with the system means both incoming and outgoing exchange, it follows that the equilibrium system has equal incoming and outgoing energy exchange. It follows that the symmetrically regauged system has equal incoming and outgoing energy, and so the symmetrically regauged system must be in additional stress from two net equal and opposite direct interaction forces, one general relativistic and the other from the active vacuum. Further, this "equal and opposite" equilibrium stress state must be accompanied by equal and opposite interaction effects between the two environmental media of the system.^{247,248}

²⁴⁷ We point out but do not pursue the fact that this is a very important new concept associated with *coherently* changing the symmetrical regauging, which allows a new physics, a new electrodynamics, and a new chemistry including biochemistry. For one thing, it permits such things as a self-maintained excitation state that simultaneously continuously discharges its excitation energy. This is simply a redefinition and more general broadening of the "source charge" concept. From the normal system view (assuming away the vacuum and curved spacetime interactions), an "impossible" system state can nonetheless be possible and stabilized, by changing the *intensity* of the Lorentz regauging condition. As an example, new molecules or ions can be made and stabilized in an excited state, that otherwise would be so unstable that the excitation would decay in a nanosecond with the state disappearing also. We believe this alone will lead to a great new biochemistry and medical

9.1.2 Time and Space Effects and Positive and Negative Energy

From curved spacetime considerations, we must include the effects on the system, and on the vacuum, of dynamics in the *time* domain as well as in the *spatial* domain. Indeed, in Sachs's theory space and time do not separately exist, but only spacetime. We consider time as highly compressed EM energy — as heretofore pointed out, where time is spatial EM energy compressed by the factor c^2 and having energy density similar to mass. We must include not only EM *energyflow* along the time-domain (fourth Minkowski axis *ict*), but also EM *force, potential, energy oscillations*, etc. in the time domain itself. We shall have to deal with time-force, time-energy, time-potential, time-energy current, longitudinal EM waves in the time domain (time-polarized EM waves), etc. {563}. The complexity of the full supersystem analysis is thus easily seen and appreciated. In most cases, a higher group symmetry model for a particular situation will prove intractable for closed solutions, and numerical methods must be used.

Further, when curved spacetime interacts with the active vacuum, we shall also have to consider *negative energy* currents in the nonlinear vacuum itself, as well as in the time-domain. We may also speak of the *negative energy density* in the vacuum as a special kind of negative energy *potential* in the vacuum that is created by a negative energy potential in the time domain. We may speak of a gradient in this vacuum negative energy potential as a negative energy force or "force in the negative energy domain". Applied to the time domain, these concepts constitute a causality condition placed on the Dirac sea, in the same vein as more technical causality considerations given by Finster {564}.

9.2 Differences between Effects in COP»1.0 and COP<1.0 EM Systems

In this chapter, we utilize the Dirac hole in a different manner from the received interpretation. The received interpretation assumes an electron hole in the vacuum, with the hole filled with a negative energy electron

therapeutic science; one company is already working in this area, with positive results.

²⁴⁸ We leave to the advanced theorists the connection between this "stable equilibrium state under a change in symmetrically regauged stress", occurring as a *net-force-free* intensity change in the conventional Lorentz symmetrical regauging of the Maxwell-Heaviside equations.

having negative mass, negative energy, and negative charge. In that interpretation, when the electron is lifted out of the hole, the hole is said to be a *positive energy* electron with positive mass and positive charge, (i.e., when interacted and observed). In short, with reaction one has a complete transformation of negative energy into positive energy, negative mass into positive mass, etc. In our view, this totally destroys the notion of "how the hole exists in the vacuum prior to its interaction and observation". That kind of positron only occurs after a physical interaction and observation has occurred — in short, *the positron exists only after an interaction with the Dirac hole has been made, to change the very nature of the negative energy hole*. The positron is the 3-effect of an invoked extra 4-interaction, and is not at all the "negative energy electron" or hole as it actually exists prior to being interacted and transformed. The positron is a different beast from the beast we wish to harness and use. The conventional interpretation leaves the question of the unobserved and unreacted "hole" left behind by an electron lifted out of the hole, before another interaction is performed on the hole to change it. So it is an incomplete accounting (as all observations are).

In our interpretation, the Dirac "hole" in the vacuum is itself the true negative energy electron before its interaction and observation. It is the "causal" 4-space negative energy electron, while the received interpretation is only for the "observed" or "effect" positron. In our view, the received interpretation thus leaves out a goodly part (and the most interesting part) of the Dirac sea hole. When the negative energy hole is filled, we consider the *electron* in the hole to be a normal, positive energy, positive mass electron. Hence the summation of the energy of the filled hole is zero, as is its summation mass and its summation charge. This accords with the properties of the "normal" vacuum, said to contain a sea of such "filled Dirac holes".

Our purpose is to use *emptied* Dirac sea holes before their interaction or observation, and thus to use them as *causal 4-electrons having negative mass and negative energy, but where each of those quantities is multiplied by time*. So the hole has negative mass time and negative action. Unless otherwise stated, that is our interpretation of a Dirac sea hole, and that will be how we use it. This way we avoid having to replace a true negative energy, negative mass, positive charge causal (unobserved) 4-electron by a positive energy, positive mass, positive charge observed (effect) 3-electron. We do not just artificially "dispose of" the question of the "nature of the hole that is left behind" when the positron is observed. We

consider the (hole \times time) as the fundamental negative energy 4-electron. We will sometimes refer to that as the "4-positron".

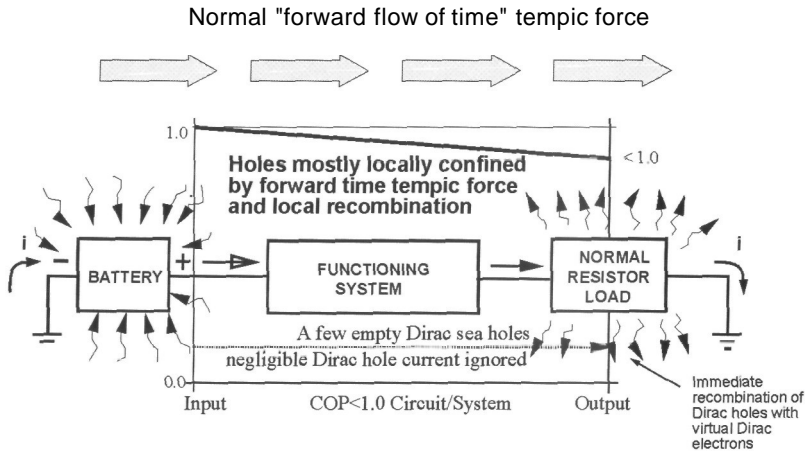


Figure 9-3 Time potential gradient across a COP < 1.0 EM system.

See Figure 9-3. In a COP < 1.0 EM system, the tempic potential gradient (tempic force) is oriented from input to output and on out beyond the system. A very slight Dirac hole current moves outward from the output, but is immediately "eaten" by the virtual electron flux fluctuations of the vacuum in the space immediately adjacent to the output. There is a slight Dirac hole current also exiting the system in its losses, but again these are immediately "eaten" by the virtual electron flux fluctuations of the vacuum in the immediately surrounding space.

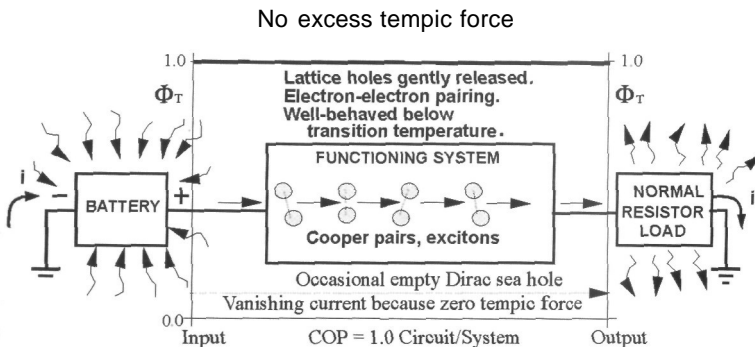


Figure 9-4 Time potential gradient across a COP = 1.0 EM system.

See Figure 9.4. In a superconductive system or section, $COP = 1.0$ and on the average there is no net tempic gradient of the time potential across the system, hence no time-force across it in either direction. Accordingly, one sees ready Cooper pairing of charges and formation of excitons. We shall not concern ourselves further with the superconductive EM system; such a system has not yet produced $COP > 1.0$.

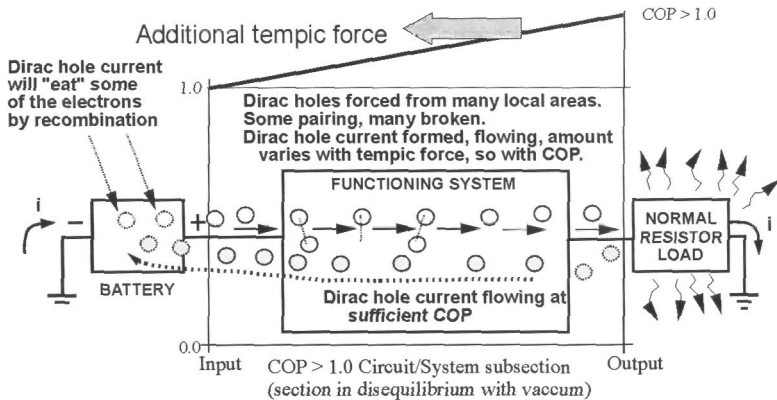


Figure 9.5 Time potential gradient across a $COP \gg 1.0$ EM system.

See Figure 9.5. In a $COP > 1.0$ EM system, there is a net tempic force across the system from the output section to the input section. However, unless the $COP \gg 1.0$, the hole current in the local vacuum is mostly used up in interacting with the system material and converting to lattice holes (lattice positrons). Hence at "nominal" or moderate $COP > 1.0$, except in fast pulsed discharges one *usually* has little to worry about, concerning Dirac sea holes in the vacuum, since those readily convert to lattice holes as already accounted. One effect of concern is that, if the semiconductors in the system are exposed to sufficient extra lattice holes or interacting 4-holes, their donor-acceptor arrangement is disrupted, spoiling the action of the semiconductors and perhaps destroying them.

When $COP \gg 1.0$ (and even for some $COP > 1.0$ systems), then there results a substantial Dirac sea hole current in the local vacuum occupied by the system, flowing through the supersystem from the output section back to the input section. This is an additional hole current component from the

Dirac hole current component converted into lattice hole current.²⁴⁹ This unconverted Dirac sea vacuum hole current runs through the system from the output section back to the input section of the system and beyond. If not "filled" there in the input section by the incoming input electrons from the external power supply, the 4-hole current can and will pass on back into the feed line and to the distant external power supply, *eating electrons and electron current all along the way*. Usually semiconductors in the path of a substantial 4-hole current will either malfunction or be quickly destroyed.

In the input section and on back into the external power source, the effect of the unrestrained Dirac sea hole current's reaction is to interact and convert into lattice holes all along the route, which lattice holes then "eat" incoming electrons from the distant power source. Thus, the external power source "sees" the hole current as a dynamic additional load in the system's input section itself (and in the external conductors leading to it) *that also must be powered with additional positive energy electron current*.

²⁴⁹ Here we wish to recognize the perceptivity of Peter Lindemann, who recognized the importance of "cold electricity" in COP>1.0 systems without going deeply into the more technical aspects of negative EM energy. As an example, we cite his book, *The Free Energy Secrets of Cold Electricity*, available from Clear Tech, Inc., Box 37 Metaline Falls, WA 99153, U.S.A. Particularly note his efforts to explain the Gray overunity device via the negative energy that can be associated with very strong discharges. Gray referred to this appearance of an associated negative energy component associated with the normally positive EM energy as "splitting the positive pole" (a "pole", after all, involves a stress potential). The Gray engine drawing is shown in Figure 5-14, his conversion tube is shown in Figure 5-15, and his circuit for the conversion tube is shown in Figure 5-16. As Lindemann explains, Gray also apparently succeeded in converting the negative energy into positive energy in his conversion element switching tube. Bedini's successful replication of the tube along with pertinent lab notes are shown in Figures 5-17, 5-18, 5-19, 5-20, and 5-21 by permission. Since Bedini is one of only two or three persons truly experienced in converting negative energy into positive energy, his successful replication is significant and decisive. Gray's process thus transformed negative energy into positive energy, allowing positive energy COP>1.0 self-powering systems. Bedini and the present author have filed a joint patent application filed on the process explained in this Chapter. We recognize Ed Gray as being a real pioneer in the area of COP>1.0 electrical power systems and in energy conversion. His pertinent patents are E. V. Gray, "Pulsed Cap. Electrical Discharge Engine," U.S. Patent #3,890,548, 1976; "Efficient Power Supply Suitable for Inductive Loads," U.S. Patent #4,595,975, **June 17, 1986**.

Aside from destruction of semiconductors etc.,²⁵⁰ the overall effect is to increase the draw of power and current from the external source, so that the $COP \gg 1.0$ power system is thereby converted back to a $COP < 1.0$ system!

The increased power draw due to the Dirac hole current can be remarkable. For an external battery power supply, if the hole current is sufficient to pass on into the battery itself, the battery may *charge* with negative energy while also powering the circuit! A remarkable phenomenon then takes place. A battery having been appreciably charged with negative energy may appear to be discharged (and so it is, with respect to positive EM energy). Yet, it may also continue to power a circuit. Sometimes it will, sometimes it won't, depending on the circuit. However, on connecting a normal positive energy battery charger to recharge it, the battery *precharged* significantly with negative energy will "eat" positive energy for an extended period, filling its localized Dirac Sea holes in its negative charge all the while, with the external voltage of the battery not changing at all. When all the negative energy holes are filled in the internal vacuum environment of the battery, and the negative energy charge is thus removed, suddenly the battery will start recharging with the input positive energy in a normal manner.

The batteries in Watson's generator (again see Figure 5-12) exhibited that phenomenon. Sometimes in recharging one of his batteries that had been extensively used, the battery would "eat" positive energy from the charger for a week or more before finally filling up its negative energy charge and then recharging normally from that point on.

The Dirac 4-hole current is nature's decay mechanism for the $COP \gg 1.0$ system, sharply bringing it back to $COP < 1.0$. Any successful $COP \gg 1.0$ EM system must contain a mechanism for defeating (or transducing and

²⁵⁰ As an example, novel effects may also happen in resistors, capacitors, and coils, and the effects depend on both the materials and construction of these components. A resistor can act as a true negative resistor and cool rather than heat, a capacitor can have its current lagging its voltage, and a coil can have its current leading its voltage. Mixtures of all three of these effects can happen in each of the three components, since each usually has some aspects of resistance, capacitance, and inductance. The emfs and back emfs in the circuit can also be altered and disrupted in a manner varying with the individual circuit and the individual operating conditions. Nonlinear oscillations and discharges of negative energy are particularly difficult to foresee and understand. Effects in dielectrics may vary widely, as can effects in conductors because of their internal impurities, etc.

using) this Dirac sea vacuum 4-hole current into its input section and beyond. We shall cover that subject shortly. The 4-hole current decay mechanism can *sometimes* become significant for semiconductors in the lattice 3-hole stage at $\text{COP} = 5$ or more, though the exact figure varies as the type and size of system and the semiconductor type. At $\text{COP} > 10$ or so, some systems will frequently begin to ravage themselves back into equilibrium with the vacuum, and destroy their overunity performance, unless the 4-hole current phenomenon is dealt with.

Let us recap. We have assumed — to first order — a sweeping generalization that $\text{COP} < 1.0$ systems exhibit an overall average spacetime curvature across the system (from input section to output section and load) such that excess positive energy electrons exist in the Dirac sea, without any appreciable accompanying excess Dirac sea holes interacting in the circuitry itself.²⁵¹ The slight excess of Dirac sea holes that are generated is "swept" forward out of the output section, and "eaten by the vacuum interaction" (particularly by the vacuum fluctuations) immediately upon exit from the output section. In that case, we do not have to concern ourselves particularly with Dirac Sea 4-holes and Dirac sea 4-hole currents, or at least they are usually negligible in most cases.²⁵²

For $\text{COP} \gg 1.0$ systems, however, the overall average spacetime curvature across the system — from output section and load to input section — is such that Dirac sea 4-holes and their currents do independently continue to exist and independently flow in the local vacuum occupied by the physical system. Specifically, we shall have to consider the *tempic* effects upon such holes and hole currents, which are oriented from the output section back through the system to the input section.²⁵³ In the $\text{COP} \gg 1.0$, the

²⁵¹ In short, the requisite number of Dirac holes have interacted with and do interact with the lattices, converting into the normal "lattice hole" type of positron connected with positive mass, positive energy, but slowly migrating around the circuit in the opposite direction from the electrons. Here the true Dirac hole current exists only in short "hops" from atom to atom as the lattice holes are steadily filled by the "hopping" electrons.

²⁵² As stated, a kind of "hole" phenomena still exists in the circuit, but now as lattice holes and currents. Since these are attached to ions each having a mass much greater than that of an electron, the lattice hole currents may usually be neglected except in semiconductors, where they are taken into account in the very design of the semiconductor component itself.

²⁵³ When we state a concept such as "negative mass" or "negative energy", we have conceptualized it *as if observed*. Hence, unwittingly we have made it an instantaneous, but iterated, concept. Rigorously, no such thing as mass or energy

effect of the increased tempic force is to sweep a Dirac sea 4-hole current back through the system from output to input, and even on out into the conductors from the external power supply, and on further out into the external power supply itself. The 4-hole current continues its "reverse feedback into the powering end of things" until quenched by filling it with incoming electrons. This conversion of 4-hole current to filled Dirac sea 4-holes by induction of lattice holes also squelches the concomitant negative EM energy fields, potentials, and waves associated with Dirac 4-holes as sources.²⁵⁴ The reason is that a filled Dirac hole is a dual system of two opposite charges, hence produces counteracting positive and negative energy fields.

The "4-hole-eating and filling process" is therefore the exact decay mechanism that squelches the natural electrogravitation associated with Maxwellian circuits which use Dirac 4-holes and 4-hole currents, negative energy fields, negative energy potentials, etc. When the circuit converts its free Dirac 4-holes into lattice holes, all electrogravity capability is lost, insofar as practicality is concerned.

For electrical power system purposes, the external environment of the $COP \gg 1.0$ system furnishes an extra "electrical load" demand upon the external power supply, so that the extended system consisting of the (external power supply + power system) decays back into overall $COP < 1.0$ condition and operation. For this reason, any appreciable involvement of Dirac 4-hole currents in a $COP > 1.0$ EM power system must be *transduced* into positive energy electron currents, which requires just a special form of regauging. One need not confine regauging and gauge freedom to positive energy potentials and positive energy fields alone.

From the vacuum consideration and particularly from Dirac's theory of the electron, in $COP > 1.0$ EM systems and circuits we shall consider that the Dirac sea 4-holes involve negative energy states (negative mass), and that positive energy states involve positive mass. In our approach, we shall consider a negative energy state (Dirac 4-hole) in the vacuum as having

independently exists except at one instant in time. Instead, mass exists in a continual iteration of $m \rightarrow mt \rightarrow m \rightarrow mt \dots$ and energy exists in a continual iteration of $E \rightarrow Et \rightarrow E \rightarrow Et \dots$ and so on. So during the masstime or energy-time (action) state, time and either mass or energy are intimately interactive. See our previous discussion in this book of the mechanism for the flow of a mass through time.

²⁵⁴ Obviously that kills the antigravity aspects, because it kills the negative energy fields that would give negative curvature of local spacetime.

negative mass, which means that antigravity can be involved as well.²⁵⁵ In this treatise, we consider only electron states, thus only negative energy and positive energy electron states.

9.3 Primarily Concerned With Dirac Sea Holes and Not Lattice Holes

We also stress the dramatic difference between a Dirac sea "electron 4-hole" in the vacuum (prior to observation) as compared to a lattice 3-hole in a semiconductor or other material component (after interaction and therefore after observation). In the case of a lattice 3-hole, usually the "positron" (hole) is attached to an ion, whose mass (i) is very much greater than the mass of an electron, and (ii) is also positive. In other words, a lattice hole is just a part of an ordinary positive ion. So the theory of "lattice holes" and "lattice positrons" does not primarily apply to the situation we are discussing. On the other hands, semiconductors exposed to any significant currents of pure Dirac sea 4-holes in the vacuum usually react and are nearly instantly destroyed because of the immediate disruption of their donor-acceptor arrangement and functioning. Interaction (filling the incoming Dirac 4-holes with contributed electrons) causes sudden mass disarrangements in their atoms and nuclei and lattice

²⁵⁵ We assume that the important thing about mass is its localized energy. Hence we associate positive mass with positive localized energy (with respect to the ambient energy density of the massless vacuum) and we associate negative mass with negative localized energy (with respect to the ambient energy density of the massless vacuum). In this view, the empty Dirac sea hole has both negative energy and negative mass. Note that this differs from the conventional assumption, which unwittingly addresses the positron as having been observed, producing a directional reversal. The rigorous test of our thesis is that concentrations of Dirac sea holes *must* generate antigravity *potential*, while currents of Dirac sea holes must generate antigravity *force*. The conventional view, assigning positive mass to the positron after observation, would produce gravity, not antigravity, but the force would be reversed by the reversed parity after observation. We argue that antigravity has been hidden and lost by its parity reversal in the assuming positive mass for the positron *as if that were the mass of the positron before it is observed*. In an overunity system with powerful steady-state Dirac 4-hole currents, the 4-hole currents can be differentiated by the cooling (negentropy) effect of the COP \gg 1.0 system—when shorted to produce a "current surge" — rather than heating (entropy) effect. The magnitude of the hole current (which determines the average presence of the hole density) can be differentiated by a measurable weight loss in the COP \gg 1.0 system. The successful antigravity production of the Sweet COP \gg 1.0 device — discussed later in this chapter — experimentally verified these hypotheses.

bonds. Thus, in the presence of Dirac sea 4-holes and 4-hole currents, usually any interacting solid-state electronics of the circuit or system will be dramatically affected. For switching in the presence of holes and hole currents, in most cases one may have to turn away from semiconductors and utilize mechanical or electro-mechanical switching, although this requirement varies with the type of semiconductor, the COP, the system geometrical layout, and the subsystem operations and layouts. Sometimes semiconductors may still be used if they are "brutes", with current handling capabilities well beyond what is "normally expected" in that circuit.

9.4 Peculiarities of Spacetime Curvature and Dirac Hole Interactions

When considering the interaction between *curved* spacetime and the Dirac vacuum, immediately we violate the premise that all electron states in the Dirac Sea are always filled (which condition we surmise — along with Dirac — only exists on the average in a flat spacetime region). In a curved spacetime, we can have sustained excess 4-holes in the vacuum, or we can have holes that accept an electron falling into them *without emitting radiation*. The radiation-free "pair annihilation" reaction is possible when the spacetime simultaneously changes its curvature appropriately and thereby "absorbs" and holds the excess EM energy that would otherwise be emitted if the spacetime remained flat or decayed back to the flat state.²⁵⁶ So long as that "energy-storing ST curvature" remains, there is no photon energy emission. If the "energy storing ST curvature set" has a net curvature instead of being flat, and then decays to a flat spacetime, then the previously retained energy is emitted as photon energy.

In that case the reaction provides the conventional emitted pair annihilation energy. In *that* case, the emitted energy may also transform into emitted particles in reactions well known in particle physics.

²⁵⁶ Eerily, this interaction represents a situation where opposite reaction forces (the vacuum upon spacetime, and spacetime upon the vacuum) can create a special kind of stress in the system and changes in that stress. This leads to a peculiar kind of stress waves (scalar waves — longitudinal EM waves, so to speak) that are not covered in circuit theory anywhere. A symptom is that these stress waves react with components, amplifiers, preamps, etc. to create electrostatic waves. The effect of these waves is seen as the "crawling" of electrostatics all over and in the electrical equipment that is in one's laboratory. The effect can readily damage oscilloscopes, etc.

The normal emission of photons by pair annihilation need not occur, if the excess decay energy is absorbed *and held* by the local spacetime changing and holding its energy density and therefore (i) changing its curvature and (ii) stabilizing in that new excited state instead of decaying back to a flat spacetime.²⁵⁷ Under such "non-emitting" pair recombination, a Dirac Sea 4- hole may simply "eat" a free 4-electron, and instead of emitting radiation the process simply affects the curvature of spacetime (and the state of the local Dirac sea) and changes it accordingly. A new "equilibrium state" is therefore reached in the supersystem between the opposite forces of the vacuum acting on spacetime and spacetime acting on the vacuum.²⁵⁸ In other words, we consider change in the curvature of spacetime to exhibit EM energy *source* (emission) or *sink* (absorption) capability, with respect to the nominal ambient flat spacetime and with respect to conventional EM interactions.²⁵⁹

Or simply put, the energy emitted by the combination of positive and negative energy in the vacuum may be "locally radiated", "locally absorbed", or "locally transferred" to the other local component of the supersystem: the local curvature of spacetime. *It is all spacetime curvature dynamics.* By definition, a flat local spacetime consists of a vacuum with all its Dirac sea holes filled. Therefore, if "filling a 4-hole" results merely

²⁵⁷ Our view is that in normal pair annihilation this curving of spacetime to absorb the emission energy occurs first, and then the new ST curvature decays by what is called "emission of photon energy". We regard the photon as a specialized ST curvature traveling at light speed. So what is emitted as a photon is in fact the formation of a locally structured spacetime curvature (an "engine") traveling at light speed. It is a propagating spacetime curvature "engine" or "set of engines". In the process we are describing, the emission of the photon is the decay of the locally formed ST curvature set. If that set does not decay, the locally formed ST curvature set remains and no photon is emitted.

²⁵⁸ This new kind of equilibrium is extraordinarily important, particularly in chemistry, where it will allow the "locking" of impossible combinations of particles into strangely stable "impossible molecules" with ongoing "impossible chemical reactions". The further discussion of the startling new chemistry that emerges is well beyond the scope of this paper, but such chemical states are included in nonequilibrium thermodynamics as *stationary states* — e.g., see Kondepudi and Prigogine, *Modern Thermodynamics*, Wiley, 1998, Chapter 17. At least one company has already succeeded in initiating this startling new kind of chemistry, with several patents granted and several more in process. Similar new "impossible stabilized excited states" and "impossible nuclear reactions" also occur in nuclear physics.

²⁵⁹ The classical EM assumption of the flat local spacetime is in fact an assumption that the decay of the intermediate "ST curvature absorber/sink" occurs instantly.

in relaxation of a set of local ST curvatures back to a flat spacetime, no EM radiation need be emitted, contrary to the usual pair annihilation phenomenon where additional energy (curvature of spacetime) is involved.

Similarly, in a ST curvature, there can conceivably be electrons without "holes". If the curvature is negative, there *will* be unfilled Dirac sea holes present. Of course this is just a normal positive energy 4-electron, where the flat spacetime assumption in classical electrodynamics is in error. Instead, the local spacetime is positively curved, producing positive gravity. Whenever the energy density of spacetime-vacuum interaction changes from the "ambient vacuum and flat spacetime" condition, either positively or negatively, that constitutes an appropriate curvature of spacetime as well as a change in the vacuum dynamics. Therefore, in classical electrodynamics the assumption of a normal electron (or any other charge or mass) existing in an uncurved spacetime and an unaltered vacuum is a non sequitur. The local spacetime has in fact "curved" to an extent of holding the energy of one electron mass.²⁶⁰ Further, the Dirac Sea has also changed to contain one unfilled and unobserved Dirac 4-hole.

With these things in mind, let us now introduce a conceptual model for dealing with these novel 4-hole phenomena that are experienced in COP>1.0 systems — and that have been the bane of many a would-be energy researcher attempting to develop a system extracting its EM energy from the vacuum and using it to also power the system itself.

9.5 Charging and Discharging a Capacitor

In electronic circuits, we usually think of charging a capacitor with electrons, and then discharging the capacitor to emit electrons again. However, we can charge the same capacitor with Dirac sea holes, or with a combination of Dirac sea holes and electrons. Then we can switch the capacitor adroitly and force it to give us back electrons. This "regauging" effect can thus be used to transduce negative energy current into positive energy current. So let us examine the charging and discharging process more closely. This is part of the Bedini process for handling the 4-hole

²⁶⁰ Mostly physicists think only of the *spatial* energy change. However, the time domain of spacetime also acts as a sink or source. Essentially one kilogram of mass only has the energy of 1 second of time. Hence the minuscule *mass* of the electron results in such a minuscule "sink" in the time domain that it has been inadvertently ignored. However, during that fraction of time where the electron exists as "mass time" and "charge time", it has considerable time energy, and *that* curvature of local spacetime cannot be neglected with respect to supersystem interactions.

current problem in overunity EM systems, to allow close-looping a system into self-powering operation.

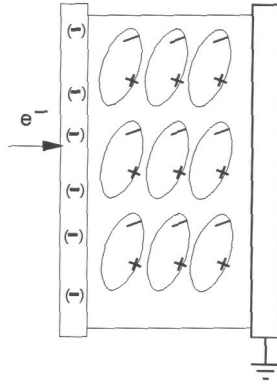


Figure 9-6 Normal strain in a dielectric capacitor that charges with electron current

Figure 9-6 shows the normal strain induced in a capacitor containing a dielectric between its plates. We charge the left plate with electrons, which repel the negative ends of the molecules in the dielectric, straining them to the right.

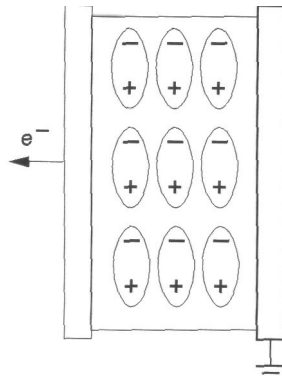


Figure 9-7 Strain relief in a charged dielectric capacitor that discharges.

Figure 9-7 shows the relief of this dielectric strain, by allowing the piled electrons on the left plate to be pushed back into the circuit from the left plate. Note that the electrons emitted in the relaxation of the dielectric strain pass back into the circuit from the same plate that was charged. This is a special kind of "reflection" symmetry. For a perfect capacitor, the total

Vq joules stored in the charged capacitor and drawn from the circuit, is returned to the circuit.

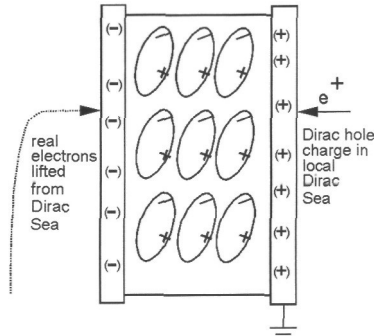


Figure 9-8 Strain in a dielectric capacitor supersystem that charges by Dirac hole current and lifted Dirac electrons

Figure 9-8 shows a remarkable thing when we charge the capacitor with Dirac sea holes. Suppose we charge the rightmost plate of the same capacitor used before, while the leftmost plate is temporarily disconnected from the circuit (or connected to another capacitor). Now Dirac Sea holes pile up in the local vacuum connected with the right plate. Whether or not they interact with the right plate, these positively charged holes attract the negative ends of the dielectric molecules, again straining the top of the dielectric molecules to the right. The strain of the dielectric is a force interacting upon the local vacuum, and it lifts real electrons from the Dirac Sea (or pulls them from the circuit or other attached capacitor) and onto the leftmost capacitor plate. The charged capacitor *in its supersystem* thus has additional functions that occur. The total Vq joules stored in the charged capacitor, were this time drawn (converted) from the applied Dirac hole current and the resulting interaction upon the vacuum, to lift real electrons onto the leftmost plate.²⁶¹

²⁶¹ The reader should recall that a force is something automatically produced by nature to restore symmetry to a broken symmetry condition. A "4-hole negative energy force in the Dirac Sea" produced on one plate of the capacitor will evoke a "positive energy force outside the Dirac Sea" on the other plate as an attempt to restore symmetry. To produce this "positive energy force", positive energy electrons are lifted from the local Dirac Sea of that plate.

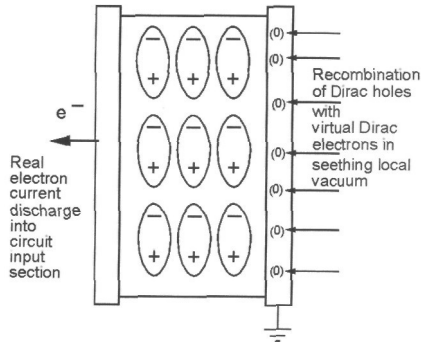


Figure 9-9 Strain relief in a dielectric supersystem that discharges after charging by Dirac hole current and lifted Dirac electrons.

Figure 9-9 shows the strain relief of the charged capacitor in Figure 9-8. First the charged capacitor is re-connected to the circuit or element to which one desires to provide with electron current. The strained dielectric relaxes, and electrons in the leftmost plate are returned to the circuit. The Dirac holes in the rightmost plate discharge back into the local vacuum (a supersystem interaction) and are "eaten" immediately by the readjustment of local curved spacetime.²⁶²

The result is that the Dirac sea 4-hole current arriving in the input section has been intercepted by a waiting capacitor, and has been effectively transposed into normal electron current that is furnished back to the input section from the capacitor. This additional electron current helps power the circuit and reduces the power drawn from the external power source. The 4-hole current feeding this capacitor, together with transduction of the 4-hole current into electron current, effectively comprises a true negative resistance process. In other words, energy in unusable (in this case, detrimental) form is received, transformed into energy in usable (beneficial) form, and that usable energy is discharged back into the circuit input to assist in powering the system.

Transducing negative energy into positive energy — and vice versa — in the system does not violate the conservation of energy law in the

²⁶² From experiments, it seems that Dirac holes forming at the "output" section of a **COP<1.0** device or system are almost instantly filled with electrons in the violent fluctuations of the zero-point energy. When forming at the "input" section of a **COP>1.0** device, this is not the case, and usually the holes can only be filled by incoming electrons in the power input, unless special provisions are taken to convert the arriving hole current (in the input section) into electron current.

supersystem, when most generally stated. With such regauging (which involves supersystem reactions), it is the *absolute value* of the energy that is conserved in the system, not its algebraic sign. Regauging (by gauge freedom) is after all an effect or condition locally imposed, but with appropriate energy exchange with the rest of the external universe via spacetime curvature dynamics exchange and vacuum dynamics exchange. The algebraic sign *is* conserved in the universal supersystem by the additional compensating reactions occurring in the other two components of the universe's supersystem.

The reader should strongly realize that energy is only required to be conserved in the universe's supersystem, not the system component alone. Again, this is an open system far from equilibrium with its active environment. In that case, energy is conserved in the ensemble of system and environment, but not necessarily in the system itself. This is no stranger than a common windmill or waterwheel.

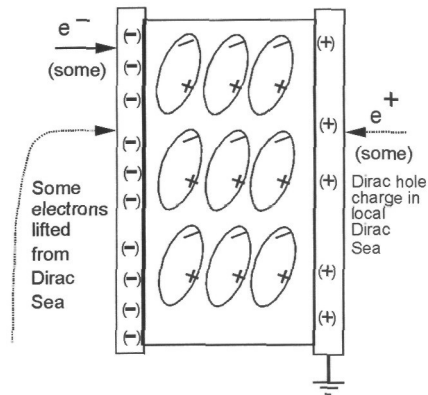


Figure 9-10 Strain in dielectric in a capacitor supersystem that charges with a mix of electron current, Dirac hole current, and lifted Dirac electrons.

Figure 9- 10 shows a "mix-charging" variant of the 4-hole current charging of a capacitor, in which some real electrons are fed from the circuit to the left plate. Also, the Dirac sea hole current arriving in the input section is intercepted to charge the right plate, and some electrons are also freely lifted from the local Dirac Sea onto the left plate. Figure 9-11 shows the discharge of this type of charging of the capacitor, and the relief of the strain in the dielectric.

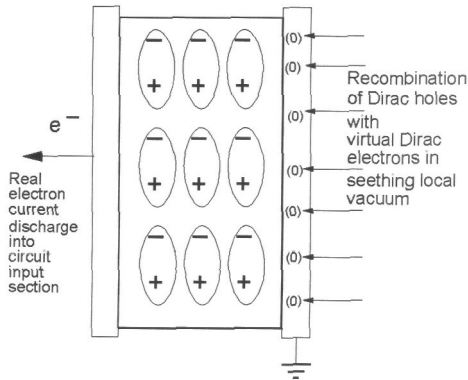


Figure 9-11 Strain relief in a dielectric that discharges after charging of capacitor supersystem with mix of electron current, Dirac hole current, and lifted Dirac electrons.

In Figure 9-11, for example, we accent that the holes on the right plate are maintained only so long as there is a net strain on the dielectric and a net force across the capacitor. When the capacitor is discharged, the holes are discharged into the local vacuum in such a way that they now instantly recombine with virtual Dirac electrons in the vacuum fluctuations.

There are other ways and "tricks" of transducing the Dirac sea hole 4-current into electron current, but these methods are still proprietary to Bedini and will not be included in this presentation. We accent that all such "tricks" are actually methods of re-engineering the other two components of the supersystem — the active local vacuum and the local curvature of spacetime. This is using and applying what we have referred to as "engines".

9.6 The Open-Loop COP>1.0 EM Power System

Figure 9-12 shows the use of the transduced Dirac hole current as real input energy to "catch and lock" a COP>1.0 system in its overunity condition and stabilize its operating point for stable self-powering of the system and its load. The COP>1.0 operation reverses the normal tempic potential across the system, so that Dirac hole 4-current arrives in the input section, preparing to "decay" the system back to COP<1.0 condition.

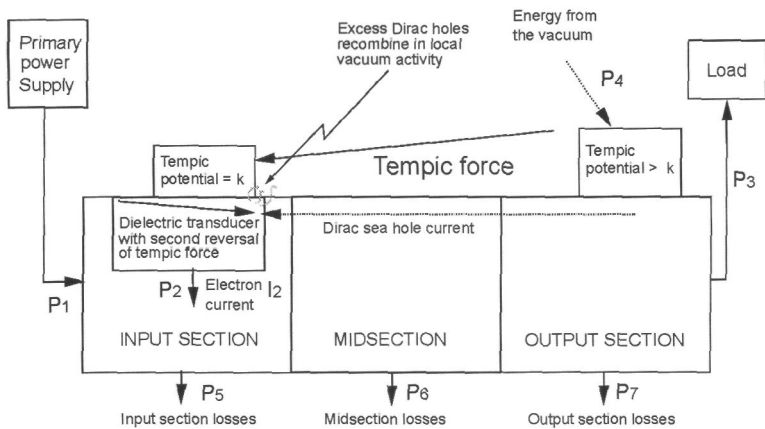


Figure 9-12 Open-loop use of transduced Dirac hole current energy as real input energy to reduce power input required from the primary power supply.

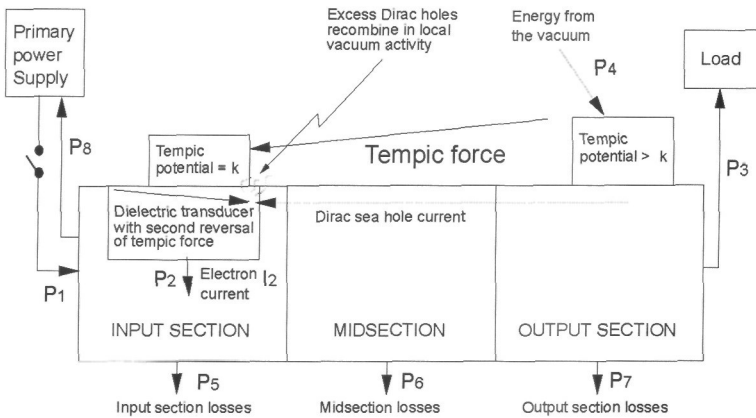
However, the arriving hole current is intercepted by an adroitly switched dielectric transducer, which again reverses the tempic force. As explained above, the capacitor is charged with 4-hole currents (or a mix) and then discharges electron currents into the system — in this case, into the input section itself— by adroitly engineering the local vacuum state and the local curvature of spacetime.

The input section does not care where it receives its electron current from; it merely needs sufficient for its powering needs. Hence, the input section happily accepts this transduced electron current to partially power the system. This in turn reduces the "system load" that the external primary power supply "sees". The primary power supply thus reduces the current and power that it is furnishing to the system. In short, now the external power supply sees the combination of the normal system load and a "negative resistor (negative load)" represented by the transduced current and power. Its required input power is reduced accordingly.

9.6.1 Close-looped System: A True Negative Resistor

Figure 9-13 shows the use of the same process given in subparagraph 9.6 above and in Figure 9-12, except that now there is additional 4-hole current received and available, for transduction into normal electron current into the input section of the system. Sensors and governing are added to this operational mode, so that the system may *adjust and regulate its self-furnished electron current* to meet the total needs of its losses and

its load. The system thus adapts the transduction of Dirac sea hole current: to fit its needs and is capable of regulated self-powering operation.



Note: Power outputs P3 and P8, and current I2 have sensors reporting to the Governor in the output section. The governor adjusts the potential energy in the output section to maintain steady output or adjustment of output to demand.

Figure 9-13 Close-looping the COP>1,0 system with transduced hole current.

The system is first started in open-loop mode. The governor then gradually increases the transduction of 4-hole current into electron current, and the supply of that transduced electron current to its own input. This steadily reduces the "current draw" from the external primary power supply. When the "external current draw" reduces to zero (the Kron condition), the system "locks" into that position, with automatic governing to adjust the transduced electron current as the loads and losses vary. At that point, the external power supply is disconnected automatically.

This "locked and governed" system is now a *self-powered system*, freely taking its energy from the active vacuum and local curvatures of spacetime, to power both itself and its load. So far as we are aware, this is the first time that the technical means of locking and stabilizing COP>1.0 operation in an EM system in an open loop and closed-loop operation has been given.

If sufficient Dirac sea 4-hole current is available and transduced, excess electron current can be available at the system input section, even when the system is fully self-powering. In this case, the additional current can be fed back to the power line, so that the self-powering system not only powers its own load but also helps power the power network. Or additional load can be added and powered.

We point out that Gabriel Kron apparently had a solution to these problems in the late 1930s, and that solution has been suppressed to the present day. We give the following quotations to show Kron's knowledge of these things.

Quoting Lynn and Russell {565}:

"Kron has never published details of his method of making the polyhedron self-organizing, although his published results show that in this state it has some remarkable properties, associated with harmonic integrals on multiply connected spaces."

In reference to Lynn and Russell's remarks, we point out that the Dirac sea 4-hole current from the output to the input is a special case of Kron's more general discovery of the multiply-connected open path existing through space between any two points in a circuit that are at differing potentials.

Quoting Kron {566}:

"...the missing concept of 'open-paths' (the dual of 'closed-paths') was discovered, in which currents could be made to flow in branches that lie between any set of two nodes. (Previously—following Maxwell - engineers tied all of their open-paths to a single datum-point, the 'ground'). That discovery of open-paths established a second rectangular transformation matrix... which created 'lamellar' currents... " "A network with the simultaneous presence of both closed and open paths was the answer to the author's years-long search."

Again quoting Kron {567}:

"Although negative resistances are available for use with a network analyzer, in practice it is more convenient to use a second type of circuit, in which the positive and negative resistances are replaced by inductors and capacitors and the dc currents and voltages are replaced by ac currents and voltages of fixed frequency. The use of the second type of interpretation is equivalent to multiplying the wave equation by $i = \sqrt{-1}$."

The reader should particularly note that in the first part of the sentence Kron stated unequivocally that negative resistances were available for **use** on the network analyzer, a large analogue simulation used by the Navy **and**

administered at Stanford University with the contractor being General Electric. The censors missed that one.

Again quoting Kron {568}:

"When only positive and negative real numbers exist, it is customary to replace a positive resistance by an inductance and a negative resistance by a capacitor (since none or only a few negative resistances exist on practical network analyzers).

We believe the censor caught this one, and forced Kron to add the words, "none or". Kron had at least three negative resistors, and possibly more.

Again quoting Kron {569}:

"Now a value E of the negative resistances, at which the generator current becomes zero, represents a state at which the circuit is self-supporting and has a continuous existence of its own without the presence of the generator, as the negative resistances just supply the energy consumed by the positive resistances. ... When the generator current is positive the circuit draws energy from the source, and when the current is negative the circuit pumps back energy into the source. At zero generator current the circuit neither gives nor takes energy, and theoretically the generator may be removed. "

Here we believe the censor forced Kron to add the word "theoretically". In this quotation Kron reveals that he was well aware of the process for close-looping a system — starting it in open-loop mode and bringing the negative resistor currents up to match the system needs and reduce the generator current to zero, then disconnect the generator. He also was quite aware that excess transduced energy from the negative resistor could be available at the input, in which case energy could be furnished back to the power network while the system powered itself and its load simultaneously.

We also point out that Dirac's definitive electron theory — covering the Dirac Sea and Dirac sea holes — was published in 1930, the year the present author was born. In the late '30s and in the 40's Kron certainly was well aware of that work. In addition, Kron applied full general relativity to electrical circuits and machines, and he was far ahead of his time. His work is also still far ahead of the present time, at least in the open

scientific community. He also was aware of developments in particle physics, and so he did have the gist of the supersystem concept in his mind {570}, however he may have thought of it. His concept of the "open path" effectively includes the effects upon the system from the other two components of the supersystem, so it appears that Kron's "system plus its open path" roughly corresponds to our concept of the "supersystem."

Further, Kron was a mentor to Floyd Sweet, who also worked at General Electric but in a different project. Sweet often spoke glowingly of Gabriel Kron.²⁶³ Sweet almost certainly knew the secret of Kron's negative resistor. It is the present author's opinion that Sweet's vacuum triode amplifier was derived from Kron's negative resistance unit. With both deceased, we will never know for certain.

9.6.2 Suppression of COP>1.0 Systems Should be Investigated

During our decades of research, we ran across several cases where U.S. scientists actually produced working COP>1.0 systems.²⁶⁴ None of these overunity systems was ever allowed to go forward with independent development. This is an area that cries out for a full and vigorous Congressional investigation, and appropriate legal action should be taken by the U.S. government against the suppressing parties, whomever they might be {571}. Simply put, the U.S. government, the U.S. taxpayer, and the scientific community have been ripped off and deluded in the field of electrical energy for more than half a century. That continues to the present, as witness the disappearance of the Watson generator (accompanied by Watson and family breaking off all contact with their close colleagues) and the suppression of the Kawai device and process. The latter suppression was accomplished in 1996 in the personal presence of the present author and the members of the Board of Directors of our company, CTEC, Inc. An accidental overunity frequency converter was even initially placed in the original Minuteman missile, but was altered back to COP<1.0 operation when the electronics past the converter kept failing because of overload power furnished by the converter.

²⁶³ The present author worked with Sweet off and on for a decade or more, and designed the antigravity experiment that Sweet performed.

²⁶⁴ These incidents were previously exposed in a draft book, *Matters Arising*, carried on the Internet for some months and then withdrawn. Some things must wait for their appointed time, and so must certain kinds of information.

9.7 Remarks on Dirac Sea Holes, Currents, and Negative Energy

The subject of the Dirac Sea, Dirac holes, Dirac hole currents, and negative energy still has elements of strong disagreement within the scientific community and among leading theorists. Often the "conclusion" one reaches depends on the way the starting assumptions are made and then on how the mathematics is applied. There is no definitive experiment establishing that negative energy cannot exist; to the contrary, many things do occupy negative energy states. The binding energy of the nucleus, e.g., involves a loss of mass (loss of positive energy) and hence involves negative energy states, as is well known. Here the "negative mass" effect is immediately and experimentally verifiable, and is recognized. The total mass of the bound nucleons is less than the total mass of those same nucleons when unbound, and this fact is widely known and accepted.

A single white crow is sufficient to prove that not all crows are black. Hence a single experimental proof of mass-energy "loss" and negative energy states establishes that negative energy and negative mass are real. Indeed, every photon absorption by mass and every photon emission by mass prove the same point universally: mass is a variable. The same assembly of protons and neutrons in a nucleus, having lost mass, also has "lost" some of the gravity that the positive masses of those unbound protons and neutrons would otherwise produce. Therefore, there is an appropriate amount of "negative gravity" already acting in conjunction with positive gravity, in every atomic nucleus. It is associated with the negative energy states of the bound nucleons in every nucleus.

Consistent with the initial quotations and comments at the beginning of this chapter, we present an interpretation by which we can understand some of the major novel phenomena that arise in laboratory experiments with $COP > 1.0$ electromagnetic systems, including $COP \gg 1.0$ systems.

We propose that $COP \gg 1.0$ EM interactions are widespread in highly energetic astronomical interactions {572} and even in highly energetic phenomena on Earth, when the supersystem changes are also accounted.²⁶⁵ We argue that novel negative energy phenomenology — such as encountered in the $COP > 1.0$ experiments by Magnetic Energy Ltd. in

²⁶⁵ As an example, in looking at sprites and other such sharp electrical discharge phenomena, we may be observing the prompt *decay* of $COP \gg 1.0$ interactions which were self-initiated in the atmosphere.

various versions of the $COP > 1.0$ motionless electromagnetic generator (MEG) {573, 574}, by Bedini {575} in his induction of negative resistor actions inside the batteries of battery-powered $COP > 1.0$ EM systems, and by Sweet and the present author in experiments with the Sweet $COP \gg 1.0$ vacuum triode amplifier system {576} — is also generated in these $COP \gg 1.0$ highly energetic astronomical interactions, yielding the same kind of negative energy and negative energy currents.

This Dirac hole negative energy generation of $COP \gg 1.0$ EM processes is proposed as the mechanism which directly produces the negative energy fields and potentials that generate the mysterious antigravity accelerating the expanding universe {577}. This is a reasonable assumption, even though it is against the received view, because it is based on some laboratory experiments, not just theory. It also is the unexpected effect of the cosmological constant introduced by Einstein {578}, and it is consistent with Zeldovich's demonstration that the energy density associated with Einstein's repulsive cosmological constant is — or is associated with — vacuum energy.²⁶⁶ The received view *is not* based on direct experiments with $COP > 1.0$ EM systems, but only on $COP < 1.0$ EM systems. Until the received view is broader based, it does not adequately represent nature. Hence it does not represent a valid refutation of experimental negative energy systems producing antigravity processes.

In Bedini's experiments and in the MEG experiments, antigravity is essentially absent or so small as to be nearly nondetectable. However, these experiments generally have COP of 1.5 to 4.0, mostly, and sometimes 10 or 12 (we have experimented up to 20 or more stably, and unstably at nearly 100). Hence the Dirac hole current is relatively small in them, since the magnitude of the Dirac current is a function of $(COP - 1)$.

Sweet's $COP > 1,500,000$ experiments produced a very large flow of negative energy back across the system, substantially curving the local spacetime and reducing the weight of the system on the laboratory bench. Figure 6-7 shows the first Sweet device, which produced six watts output in open-loop operation. Figure 6-8 shows a later Sweet device which

²⁶⁶ Believed to have been demonstrated in 1967. But check Ya. B. Zeldovich and A. A. Starobinsky, "Particle creation and vacuum polarization in an anisotropic gravitational field," *Zh. Eksp. Teor. Fiz.*, Vol. 61, 1971, p. 2161 (*Sov. Phys. - JETP*, Vol. 34, 1972, p. 1159); Ya. B. Zeldovich, "Vacuum theory — A possible solution to the singularity problem of cosmology," *Uspekhi Fizicheskikh Nauk*, vol. 133, Mar. 1981, p. 479-503. Translation in *Soviet Physics — Uspekhi*, vol. 24, Mar. 1981, p. 216-230.

produced $COP = 1,500,000$ and was pushed past that COP to produce the antigravity in the laboratory, smoothly reducing its weight by 90%. Figure 6-9 is a plot of the actual readings taken during the antigravity experiment. Sweet performed the experiment in California, reading off the measurements to me over the phone as he made each one.

Another indication of the negative energy effect present in the output section of the Sweet device was tested by suddenly shorting the output leads. This resulted in instant freezing of moisture from the air, so that the leads were instantly frozen and covered with ice. Contrast this to the normal heating of shorted wires, where the energy is positive.

Sweet never revealed his activation process, whereby he initiated very strong self-oscillation — of the nucleus of the barium atom in barium ferrite magnets — with the local vacuum treated as a semiconductor. One part was known to the present author and another part was known to Rosenthal, a professional test engineer. In addition, how Sweet converted his excessive hole current is not completely clear. It appears that he somehow used his coils in quadrature together with special circuitry to interact the excess hole current into his magnets, directly with the self-oscillating barium nuclei and thence with the other nuclei in his magnets. If so, it created the "rough equivalent" of increasing the associated binding energy offset and locked with concomitant additional local spacetime curvature.

If this speculation is correct, he "locked" the nuclei of his magnets to the local curved spacetime, maintaining the overall local binding energy in the nuclei themselves while producing a great excess of "binding energy" (negative energy) in the immediate vacuum. This would explain the antigravity, and would be consistent with the experimental results as well as the increase in antigravity as the output load of the device was deliberately increased.

We must use the supersystem concept, as in the quoted comment at the beginning of the chapter, to enable a better understanding of these novel phenomena. Together with the Dirac negative energy production and high COP system, the hypothesis of "additional negative energy acting on local spacetime immediate to each nucleus" allows the generation of the observed antigravity to be understood. However, we accent that this mechanism is still a hypothesis, and it must be further substantiated by experiment.

9.7.1 Lattice Holes

In a material conductor or other component of an electromagnetic circuit, the conventional model envisions currents in the Drude electrons as the electrons moving by "hopping" from molecules or atoms in the material lattices into the Drude gas, with each hop leaving behind a positively charged "vacated electron position" called a *lattice hole*, or just a "hole". Subsequent Drude electrons are attracted to fall into the holes, etc. This net movement of the hopping electrons down the conductor, etc. comprises the conventional electron current through the conductor. We point out that the actual movement of the electrons in their "hopping" is vastly more energetic than the very feeble net "drift" of the overall ensemble of Drude electrons longitudinally down the wire as current. The energy of the total electron activity ongoing in a simple 1-foot length of copper wire would power a city, if it could all be harnessed and utilized.

At the same time the electrons hop with a slow net progress down the wire, the "holes" in the material lattices are also collectively seen by the external observer as if "slowly changing their net positions" longitudinally in the opposite direction. One speaks of a corresponding "hole current" or "lattice hole current" in the opposite direction to the electron current. However, there are subtle differences in the flow of the two currents, because an electron in the Drude gas is far more kinetic than the positive ion left behind by an electron that has "hopped up into the electron gas". Nonetheless, the positive lattice ions do "rock" physically from the induced forces upon them, as the holes are opened and filled. In conventional electrical power systems, this equal and opposite energy reaction in the ions of the lattice materials, induced by the applied fields, is usually ignored. In most classical EM power system theory the holes and their "composite equal and opposite energy and work in the system" are also ignored, except in semiconductors and semiconductor circuits.

9.7.2 Newton's Third Law Is Accounted in the Supersystem

Because half the EM energy and work in the circuit is usually ignored (e.g., in the Maxwell-Heaviside-Lorentz standard equations), electrodynamics is said to be free from Newton's third law reaction. This may be a non sequitur, and it follows from the assumption that — for an EM wave, field, or potential in space — no interaction exists with the active vacuum or with the curvature of spacetime. In fact, those reactions do exist in the supersystem. The field, wave, and potential do indeed interact with both the quantum mechanical vacuum and the general relativistic spacetime.

Indeed, the field, wave, and potential may be said to *identically be* changes induced in general relativistic spacetime. The absence of the "transmitting" physical system leaves us with the remaining two components of the supersystem, each of which extends to infinity. Again, Figure 9-1 shows the actual interactions (the supersystem) and Figure 9-2 shows the erroneous and arbitrary "kill of the supersystem" by standard classical electrodynamics.

When higher group symmetry electrodynamics such as $O(3)$ is applied, then the interactions between the three parts of the supersystem emerge and must be accounted. This is particularly true of $COP > 1.0$ EM systems. However, as Finster points out {564}, the Dirac sea effects exist *wherever* there are EM fields, potentials, and waves. We add that curved spacetime effects also exist *wherever* there are EM fields, potentials, and waves. And wherever Dirac sea effects exist, or wherever curved spacetime exists, then there the local vacuum and local spacetime interact with each other.

However, as we shall point out, usually most of the Dirac sea hole effects can be neglected in $COP < 1.0$ systems and in most lower gain $COP > 1.0$ systems because of the time-energy aspects. For $COP \gg 1.0$ EM systems, the time-energy aspects are partially reversed, and instead of carrying the hole effects away from the system, the time-force from system output to input forces the Dirac sea holes to flow back in the local vacuum across the system from its output to its input. This flow constitutes an additional "load" appearing in the input section and requiring additional electron current from the external power supply to fill the holes. If the power supply does not furnish sufficient electrons to fill the hole current at the input section of the system, then the unfilled hole current passes back into the feeder line toward the external power supply, and even into the distant power supply itself. In its progress, it eats incoming current all along the way, requiring that more current be furnished by the distant generators.

9.8 Remarks on the Observed Acceleration of the Expanding Universe

As a candidate for *dark negative energy*, the present author has proposed vacuum negative energy and currents in curved spacetime regions partially containing excess *empty* Dirac sea holes as well as normal *filled* Dirac sea holes. The process by which these excess Dirac holes are produced has been advanced, and is supported by at least one dramatic experiment. One result of such "negative energy areas" of negative spacetime curvature would be "jumps" increasing the velocity of light and high-energy particles

traversing these altered regions of spacetime. In fact, there is some evidence for just such jumps, according to a hypothesis by Richard Lieu of the University of Alabama in Huntsville {580a, 580b}. Otherwise, high-energy particles produced in distant processes in the cosmos would not be detected on earth, but would be annihilated in highly energetic collisions.

The departure of large-scale spacetime from homogeneity would also result in some loss of correlation in the presently fitted red shift versus distance relationship. Again, there is tentative indication that such may prove to be the case. The most distant galaxy recently detected has a red shift of 6.56, which — assuming homogeneity of space — implies look-back of 14 billion years or so.²⁶⁷ (conventional view) Best estimates of the age of the universe based on the Big Bang assumption is some 14.7 billion years. It would seem that 0.7 billion years is a very short time for that observed galaxy to have formed. If even more distant galaxies are observed with larger telescopes to become available, then by the redshift correlation to homogeneous space one would be observing galaxies "before the beginning of the universe" — an obvious non sequitur. It appears that the redshift correlation to velocity and distance, as well as the homogeneity of space and in fact the Big Bang itself— are already in some difficulties and may be in serious trouble in the near future.

The empty Dirac sea 4-holes in the vacuum are special "Dirac negative action quanta" and the holes and their dynamics form negative action potentials, currents, and fields. This type of vacuum condition containing some empty Dirac sea holes is referred to as a *Dirac-polarized vacuum*.

However, we do not envision the Dirac-polarized vacuum as just simple *static* polarization, but as possessing rich dynamics such as negative energy currents, potentials, fields, waves, etc. including in the time-energy medium in the time domain. We also include the interaction of the dynamic Dirac-polarized vacuum with spacetime.

²⁶⁷I am indebted to Prof. Stanley Jeffers for this information, in his E-mail discussions with the Alpha Foundation's Institute for Advanced Study fellows. Dr. David Roscoe contributed the fact that the Big Bang theory has so many parameters that nearly anything can be "fitted in". But he also pointed out that W. M. Napier, *Astronomy & Astrophysics*, Vol. 310, 1996, p. 353 gives a very thorough analysis of the quantized cz phenomenon, which does present a difficult obstacle to Big Bang theory. Napier is **the** originator of the cometary catastrophe theory of biological extinction. One way or another, the theory of the Big Bang is in trouble, even though many theorists are still complacent about it.

Due to ongoing COP»1.0 processes involved in highly energetic astronomical phenomena, Dirac sea 4-hole regions and dynamics are believed to occur and exist in the vacuum across the observable universe. These occur especially in appreciably curved spacetime regions with large tempic potential gradients and thus large *time-forces* across the region.²⁶⁸ The 4-holes and 4-hole currents in the vacuum are generated in great quantity in large cosmic explosions. Also, the energetic fluctuations of the local vacuum energy can separate a Dirac hole from its occupying electron by lifting the electron (pair production), and so can a curved spacetime. In a properly curved spacetime, fluctuation can lift an electron from a hole, and enter a stationary state by accommodating reaction of the local spacetime curvature. In that case, hole and electron go their separate ways. The hole and that or another electron may later recombine, or in sufficient local spacetime curvature, they can remain apart. We point out that every positive energy electron is accompanied by an appropriate local curvature of spacetime that prevents the accoutrement of a free Dirac sea hole,²⁶⁹ and thus prevents the electron from disappearing.

The more energetic the local region, the more severe and violent are local spacetime curvatures in that region, and — in our view — the more frequent the occurrence of COP»1.0 interactions producing significant Dirac 4-hole currents, negative energy EM fields and potentials, etc. Indeed, the measurements that yielded the accelerating expansion of the universe were measurements of the relative velocities existing with stellar explosions known as type Ia supernovae. In our view, in explosions of such violent nature — particularly including in optically active gases such as where gamma ray bursters form — an appreciable fraction of the hole currents are transduced into positive energy electron currents. This produces — at least for a finite time — a net positive feedback, self-powering COP»1.0 phenomenon, resulting in very rapid asymptotic

²⁶⁸ We also conjecture that these regions may account for a tentatively observed slight change in the fine structure constant, but leave that to the advanced theorists to validate or falsify.

²⁶⁹ This needs a bit of modification. Rigorously, the so-called "isolated" observable electron is clustered around by *virtual* positrons (Dirac sea 4-holes) in the vacuum. So a positron influence is present, though from virtual positrons instead of observable positrons. The magnitude of both the positive charge and the internal or "bare" negative charge is infinite. The difference, however, is finite and is the "observed" magnitude of the observable central charge. There is thus a net observed shielding of the bare charge of the electron, and this is taken into account to yield the observed charge of the electron.

output energy increase. This is what we have hypothesized as producing the gamma ray burster itself. *Quenching* of this asymptotic rise in COP occurs only after the physical geometry of the "closed-looping" gas particles is broken a short time later. The maximum output energy is determined by a function of the *rate* at which the geometry is broken and the corresponding *rate* at which damping of the asymptotic rise and quenching occurs. The afterglow remaining in the gas is due to the extra positive energy produced in it by the transduction of negative energy into positive energy during the asymptotic rise of the self-powering burster, with excess positive energy being absorbed in the gas while the burster magnitude is rising. After damping and quenching, the gas has been heated (that is how the geometry was disturbed in the first place, to produce damping and then quenching). Re-ignition can occur whenever a new close-looping $COP \gg 1.0$ situation spontaneously occurs. As in the gamma burster, this can often happen as the disrupted geometry of the gases stabilizes.

All 3-space EM energy comes from the time domain, as previously developed. In the more violent positive energy $COP \gg 1.0$ regions, there is an increased conversion of time-polarized EM energy into 3-spatial energy and back. On the average there is a higher "time-energy conversion" or "tempic" potential. In those regions, a tempic conversion potential is higher at the higher center magnitude of the spatial energy density. Hence there are strong tempic forces from "inside to outside", providing a "tempic broom" effect to sweep outward the excess Dirac sea holes separated from their electrons in the curved spacetime. The result is the presence of increasingly unoccupied Dirac sea 4-holes toward the outside of violent regions of spacetime,²⁷⁰ until the effect is overcome by the decreasing spacetime curvature. The 4-hole current radiating out from an asymptotically increasing (exploding) burster provides an asymptotically increasing (exploding) negative energy and negative mass reaction with spacetime. That reaction explosively creates curved spacetime for negative gravity (repulsive gravity), acting upon the local system and upon distant masses as well. The result appears to be the cause of the acceleration of the expanding universe.

It follows that re-ignition of the gamma burster can occur if, as the quenching continues, the geometry stabilizes and reaches another "close-

²⁷⁰ I.e., the violent astronomical phenomena — while generating and increasing are more violent at the center, and less violent at the outside.

looping" positive feedback condition. In fact, just such re-ignition of the gamma burster is very often observed.

Therefore, we hypothesize that the more distant violent astronomical regions have greater amounts of repulsive gravity being produced by their local Dirac-polarized vacua particularly during their explosive asymptotic energy density rise. This produces violent streams or bursts of negative energy outflow, which is equivalent to negative mass outflow and which provides outgoing negative curvature of spacetime (antigravity). At sufficient distance from us, the increasingly earlier, more violent events and resulting greater curved spacetime regions have created sufficient cumulated Dirac-polarized vacua to override the normal attractive gravity between galaxies, etc. and produce net repulsive gravity. This results in observed distant acceleration of the expanding universe {581a-581f}.

9.9 A Solution to the Hole Current Problem and Close-Looping

Bedini and the present researcher have filed a patent application {582} on the above special capacitive process to *convert* or *transduce* the detrimental Dirac sea hole current reaching the system's input section into electron current, and put it to use in powering the system. This transduction process receives the hole current as a special potential, then regauges the "negative energy" potential into a "positive energy" potential. This regauging is accomplished by charging the capacitor with Dirac hole current and then discharging electron current from it. The transformed positive energy potential is then applied to the Drude electrons, producing an ordinary electron current in the input that can be used to power the system itself. If sufficient excess positive electron current is provided, then the system can "feed itself in self-powering mode and also feed power back into the main power supply line.

When conversion of the arriving hole current in the input section produces an output "positive energy" electron current equal to the system's normal power needs (Kron's condition), the external power supply can be disconnected and the system will remain powered by the steadily converted negative hole current arriving in the input section.

Our patent-pending process allows this otherwise devastating special form of "negative energy feedback" to be converted into "positive energy feedback", allowing the system to be close-looped successfully for self-powering of the system and its load. Regulators of the transduction process may be added to cover the situation when the load is erratic and changing.

At Magnetic Energy Ltd., we have also filed a patent application for an outtrigger method of close-looping a $COP > 1.0$ system, which greatly eases the problem. This method is covered in Paragraph 9-14 below.

9.10 Negative Energy: Localized and Nonlocalized

It sometimes appears there are as many views on negative energy as there are scientists who mention it. Simply put, the Dirac theory of the electron requires negative energy states. The negative energy electron state was envisioned by Dirac as a sort of "hole" in the ambient vacuum, where the hole could contain a positive energy electron. The combination of equal positive energy of the electron and negative energy of the hole itself, would give a "normal" vacuum zero state of the "filled hole". In other words, the normal or ambient vacuum consists of holes filled with electrons. Considered in that fashion, such a vacuum is referred to as the **Dirac Sea** or the **ambient Dirac Sea**, or the **ambient Dirac vacuum**.

If positive energy is added to a filled Dirac hole, the electron can be lifted out, leaving the hole. Note that adding positive EM energy, e.g., is actually the addition of spacetime curvature and dynamics to the Dirac sea vacuum. In short, it is a supersystem interaction, not a system interaction.

In that case, the curvature of the local spacetime interacts upon the electron mass, producing a force that lifts it from the hole. The result is the appearance of a positive energy, positive mass electron and a Dirac sea hole (a 4-positron) in a curved spacetime. That is known as *pair production*, and it is a supersystem interaction. When a positron and an electron meet, the electron falls into the hole, changing the Dirac sea which also changes the local ST curvature. That change in local ST curvature is a change in the energy density of space, and is normally radiated away as a photon or photons as the local curvature decays back to a flat spacetime. The emitted radiation may further decay into particles, etc. by several reactions well known in particle physics. That "conventional" set of supersystem interactions is known as *pair annihilation*.

If we deliberately change the ST curvature appropriately, however, the pair annihilation radiation need not be emitted since the excited local spacetime curvature does not decay back to a flat spacetime to emit it.

Dirac's original paper tried to identify a negative energy state vacuum hole as the proton, but later that was falsified and it was taken as the positron. There is a very strong aversion in physics to considering negative mass; hence, the mass of the positron was proclaimed positive (for many reasons

not really connected with our thesis). Nevertheless, some physicists (in the minority) still speculate or theorize that negative mass "can exist." Not only "can" it exist, but also it *does* exist widely and one can demonstrate it in actual electrical circuits. It certainly exists in the binding energy of the nucleons in the nucleus of an atom. Again, a single white crow is sufficient.

We take a very straightforward view: we consider a positron — an electron observed with positive mass and "observed" to be traveling backward in observer time — to be a different (transformed) entity than a Dirac 4-hole traveling forward in observer time.²⁷¹ The observation operator accomplishes both velocity reversal and time reversal, and — since time is not an observable, the time reversal is "seen" as a reversal in spatial direction. *Prior to observation, neither reversal has been imposed.* The major distinction, we hypothesize, is that the observed positron has positive mass in 3-space, which is concentrated positive energy, and therefore produces positive energy electrical fields and positive gravitational field. Mass is an observable, hence, it is the iterative frozen 3-space snapshots of an ongoing 4-space process. Observation (and any observable) is the effect of applying the operator $\partial/\partial t$ upon spacetime LLLT in which a 4-space process is occurring. As we stated earlier in this book, our view is that no observable *continuously persists* (in time), but continually and iteratively *recurs* by the continual ripping of time from the ongoing 4-space reaction, to see the 3-space intersection at a frozen moment. We also advanced the *mechanism* that generates the flow of a mass through time, consisting of a mechanism for $\partial/\partial t$ (LLLt) - photon emission, converting mt to m — and the mechanism for \int_t (LLL)dt — photon absorption, converting m to mt .

²⁷¹ This point is stressed. The *unobserved* positron is not identically a positive mass electron traveling backwards in time, but a negative mass, negative energy electron traveling forward in time. When Dirac theory of the electron was written, broken symmetry and the CPT theorem had not been discovered. Further, there was no distinction made in the difference between the observed entity (the *effect* of the observation interaction) and the non-observed entity (the *cause* of the observation interaction).

²⁷² We stress that we are once again confronting the ubiquitous substitution of the effect for the cause in classical electrodynamics. The observed positron and the unobserved positron are two quite different entities — just as the "cause" of an observation is quite different from the "effect" of the observation.

We may also consider mass to be condensed 3-spatial energy (say, EM energy) compacted by c^2 . Modern physicists tend to consider the mass-energy itself as the source of the gravitational "attraction of mass" rather than the mass itself {583}. Let us accept that assumption, but differentiate between the observed 3-positron with positive mass and opposite direction in positive observer time, and the unobserved Dirac sea 4-hole with negative mass and without change of direction in the observer's positive time. The 3-positron is an *observed effect*, while the unobserved Dirac sea 4-hole is an *as-yet-unobserved cause*.

We also surmised that all EM energy in 3-space comes from time, by our solution {584a} to the long-vexing source charge problem {68}. In our view, we may then consider that the positive energy compressed as 3-space mass has been extracted from the time domain of surrounding spacetime, via entry of that time-energy into the surrounding 3-space at each 3-space point, producing a surrounding spacetime curvature which is known as the *gravitational field*. This gravitational field represents "withdrawn" 3-space energy from surrounding space, and withdrawn time-energy from the time associated with each surrounding 3-space point.

Hence the gravitational field may be said to consist of "negative energy" since it represents *lowered* energy of spacetime due to the curvature. This viewpoint yields results consistent with the received view that the energy of the gravitational field is negative. In our view, it is negative precisely because it represents "withdrawn energy" from the normal energy density of that otherwise flat space. The withdrawn nonlocal energy has been localized (as what we call "mass"). Simultaneously that withdrawn 3-spatial energy also represents "withdrawn energy" from the time-domain, since all the withdrawn spatial energy came from the time domain in the first place. The result is the curvature change in spacetime, that is taken as the gravitational field.

The 3-space energy comprising the mass is positive because it is *added to* the normal energy of an otherwise flat spacetime, at that concentrated locality.

The "energy in the gravitational field" is negative because it represents lowered energy density (i.e., lowered "pressure" in a fluid analogy) of that surrounding nonlocal spacetime compared to when that spacetime was flat

Thus when we add positive energy (a positive energy state) to 3-space, we create normal "positive" gravity because "mass" is a process of withdrawing some positive energy from the energy density of surrounding 3-space.

Here is the shocker: When we add localized negative energy (a localized negative energy state or "4-hole" — or a localized negative mass!) to a local 3-space region, we create "negative" gravity (antigravity) in surrounding space because the withdrawn energy from the local 3-space "hole" must have been added to the energy density of the surrounding spacetime, once we apply conservation of energy. Or in other words, the surrounding spacetime changed (curved) in interaction to the production of the hole.

If we wish, for simplicity we can just consider localized positive energy to generate positive gravitational charge in the surrounding nonlocal spacetime. We can consider localized negative energy to generate negative gravitational charge in the surrounding nonlocal spacetime.

This is where our concepts differ from the rather arbitrary way that a Dirac sea hole is interpreted in the received view. In spacetime, we try to account for the entire energy process and we apply a conservation law by including the supersystem interaction in every case. We insist that positive energy concentrated in positive local mass must have been extracted from surrounding spacetime.²⁷³ That "negative energy" in the surrounding spacetime is what is known as the *gravitational field of the source mass* (where the energy was withdrawn to). Similarly, we insist that positive energy extracted from a localized region of the ambient vacuum to leave a "Dirac sea hole" must have been spread out into the surrounding spacetime, where it would properly be known as the *antigravitational field of the source Dirac hole*.

As an analogy in very simple lay terms, the holes associated with a local mass system or region involved in COP>1.0 operations create higher "pressure" outside the system or region with respect to other objects. Higher pressure between any two objects pushes the objects apart. The masses associated with a mass system create lower "pressure" outside the system or object with respect to other objects. Lower pressure between any two objects results in the objects being pushed together by the higher pressures beyond them.

²⁷³ Alternatively, if we add local spacetime curvature, the surrounding nonlocal spacetime interacts as mediated by the supersystem changes in all three components. What we are saying is that there is no such thing as just a system, vacuum, or spacetime change. Any change to one is accompanied by a change to the other two, *a priori*.

We submit that this new view provides an exact (and testable) antigravity mechanism. It appears to have been validated by the Sweet antigravity experiment {576}, which was designed in advance by the present author with increasing the local negative energy reaction in mind.

9.11 Tests Reinforcing the Antigravity Mechanism

9.11.1 Dirac Sea Hole Current Effects in a $COP \gg 1.0$ EM System.

For $COP \gg 1.0$ electromagnetic systems, we recall that the temporal energy will flow negatively across the system from output section to input section. Hence the Dirac sea hole current in the local vacuum flows back across the system, from its output to its input section. Regarding the output section: *Specifically, all $COP > 1.0$ systems produce both positive and negative energy outputs. The greater the COP of the system, the greater the fraction of negative energy produced with respect to the fraction of positive energy produced.*

The positive energy will flow on out of the system output section (as into the external load) as in a normal circuit, but the negative energy output will flow from the output section through the local vacuum back across the system to its input section.

At the input section, the arriving Dirac holes appear to the input electrical current as a special kind of "load" added to the system input section. Hence, as previously stated, the external source must input electrons (as electron current) to "fill the holes" prior to having any input electrons available to power the circuit in normal fashion.

That is nature's unexpected overunity decay mechanism for $COP > 1.0$ EM systems. The $COP > 1.0$ system is in a condition of disequilibrium *a priori*, since the system exhibits negentropy and only systems in energy flow disequilibrium with their active environment can do that. Any $COP \gg 1.0$ EM system is therefore in a highly excited state, and all excited states in nature have decay mechanisms. A highly excited state usually has a prompt decay mechanism, and the $COP \gg 1.0$ system is no exception.

This emergence of the Dirac hole current from the system output section back to the system input section, is nature's decay mechanism to trigger $COP \gg 1.0$ EM systems back into $COP \leq 1.0$. With this current, a "negative energy load" is added to the input section, causing the system to draw additional electrical power from the external power supply to

"power" the killing of the Dirac holes²⁷⁴ as well as to "power" the normal circuit (the system itself).

If the external power source connected to the COP»1.0 system is not furnishing sufficient electron current to kill the hole current in the input and power the system as well, the excess hole current will pass back through the conductors and on into the external power source, "eating current" and power as it goes. The product of the hole current and the voltage gives a negative power imposition, wherever the hole current interacts with the power system and its external power supply, even back into the distant huge power generator in the distant power plant. For a battery-powered circuit, e.g., excess hole current will pass into the battery and discharge it (change its chemistry in discharge mode) more quickly.

Indeed, a lead-acid battery (and some other kinds as well) can be supercharged with Dirac holes. What this actually means is that the local vacuum — in which the battery and its components and chemistry are embedded and in a continual exchange with — is altered to increase the number of empty Dirac sea holes devoid of electrons. At the same time, the local spacetime is also negatively curved. The end effect is that the battery is charged with negative energy, rather than positive energy. We propose that a battery or capacitor possessing an extreme negative energy charge should be lighter in weight than the same capacitor when uncharged.

As previously stated, some years ago, Jim Watson developed a very large multi-kilowatt COP>1.0 battery-powered generator, publicly demonstrating it at a technical conference (see again Figure 5-12). Engineering measurements at the conference verified that the batteries were constantly charging while the load was constantly powered at 8 kilowatts.

The longer Watson's system would run, the more charged his batteries became with *negative energy*. After one of his batteries had been used for a couple of weeks in extensive experiments, one could obtain a most novel effect when it was placed on a normal "positive energy" battery charger. The battery's excess "Dirac hole charge" or "negative energy charge" accumulated in its local vacuum would "eat positive power and electrons" from the battery charger for an extended period, sometimes as long as a week, with no symptoms of "charging" the battery at all (no increase in

²⁷⁴ By converting separated incoming electrons and incoming holes to resulting filled Dirac sea electron holes, in the input section itself.

battery voltage at all). During this period, the battery charger was indeed recharging the *battery supersystem*. It was filling the excess Dirac sea hole charge in the vacuum with the steadily supplied electrons. In the process, it was gradually relaxing the previously formed negative spacetime curvature.²⁷⁵ When all the Dirac holes were filled, the relaxed spacetime then was relatively flat (normal) as was the local vacuum, and suddenly the battery would charge-up normally again with positive energy, with its voltage increasing in quite normal fashion.²⁷⁶

With tongue in cheek, we point out to the COP>1.0 researcher that these effects are not described in the available storage battery manuals, no matter how technically they are written. To the electrical engineer, we point out that they are not in his textbook.

Whenever Dirac sea holes have accumulated in the input area of the COP>1.0 system and are being filled by the external power supply, normal ammeters and voltmeters will only "see" that the external power system is furnishing more current. That is true, because the holes are an additional load being powered. The holes "eat incoming electron current and power", and require the external power supply to "power the killing of the holes" as well as "power the system".

The unwary overunity experimenter can successfully have the first phase of an overunity system working and not realize it, because his initial COP is too high and he does not know about the associated hole current decay

²⁷⁵ This proves that a system's supersystem can indeed be negative-energy-charged, so that the local spacetime around that system is negatively curved, even though the system itself seems normal and functions normally. If the negative energy charge is sufficient, conceivably the antigravity produced will be sufficiently great that the system itself "floats" or even levitates. We hypothesize that an intense negative energy beam can indeed be technically created which will accomplish this "negative-energy-charging of the supersystem" effect when continuously absorbed by a targeted system's local spacetime supersystem component, as the system is continuously irradiated by the beam. In that manner, levitation beams, tractor beams (both attracting and repelling) are at least hypothetically possible. If this proves to be a valid hypothesis, we foresee the day when such beams will revolutionize transportation and handling of otherwise heavy loads and very heavy systems. Even the heaviest vehicle could then negatively charge its own supersystem's local curved spacetime, thereby floating in the earth's gravity, in the atmosphere, in space, and under the ocean.

²⁷⁶ We deliberately omit discussion of the extraordinary all-purpose weapons implications of negative energy electromagnetic pulse (EMP) directed energy weapons, already developed and deployed by several major nations.

of overunity systems back to underunity systems. His system may actually be at $COP > 1.0$, but the negative energy component being produced in his output section is back-flowing and continuously degrading his input section by adding a "new load" right in the input section.

So his overall power draw from the external power source can be such that his positive power output in the load is less than his total power draw at the input of his system. Unless he is aware of the process and how to handle it, he may never realize that his system is actually at $COP > 1.0$ condition, when the negative energy component is credited as an output "plus".²⁷⁷ *COP > 1.0 research starts by evaluating the absolute value of the output energy, then working from there!* The experimenter must be ever aware that he can and will have Dirac sea 4-holes and currents in any unitary $COP > 1.0$ electrical power system, and particularly in those with very high COP. He must understand what the 4-hole currents and the negative energy actually do and how they function in the overunity system unless corrected.

Any $COP \gg 1.0$ EM system demonstrates the Dirac sea 4-hole current phenomenon as nature's special decay mechanism to reduce overall performance of the $COP \gg 1.0$ power system and its external power supply to $COP < 1.0$ — unless one *corrects* the problem and prevents the decay process (developed later in this chapter).

One symptom of the negative 4-hole currents is their cooling capability rather than heating. Another is that the excess current (and power) drawn from the external power supply also does not heat the input section of the system. Another is that semiconductors operating within the Dirac 4-hole current flow are likely to fail immediately and permanently.

We strongly suggest that, for high COP systems experimentation, the experimenter use a system of synchronized clocks where the lab clock is synchronized with a remote clock prior to the experiments, then the two clock times are examined after significant experimentation at $COP \gg 1.0$. If deviation beyond normal error in synchronizing occurs, then the involvement of spacetime curvature effects is indicated. Two decades ago, anomalous experiments by Golden — with whom I was working at the time — charged the area with negative energy, producing a significantly

²⁷⁷ In other words, in the presence of both positive and negative energy output, true COP is not "positive energy out" divided by "positive energy input by the operator", but is more appropriately "total absolute value of the energy output" divided by the "positive energy input by the operator".

curved local spacetime which disrupted local clocks and watches for four days as the charge gradually decayed away. Another indicator is that Geiger counters and other nuclear radiation detectors often "read" when bathed in vacuum 4-hole current, because of the ionization changes induced in them and also because of their individual previous "time-charge" histories. After all, ionization instruments "read" anything which causes ionization of their internal gases. Dirac sea hole current, if interacting with the gas, is in fact a very special new form of "ionizing" radiation.

9.11.2 Antigravity Hole Current Effects in a COP»1.0 EM System.

Any COP>1.0 EM system can exhibit minor, usually barely detectable antigravity effects due to the presence of the negative local energy 4-holes in the hole current if the hole current is not transduced or corrected. It can also produce minor antigravity "thrust" due to the flow of the local energy holes. Usually these effects are not even noticeable in an overunity system unless it has very high gain (very high COP, say in the range of 10^5 to 10^6 or more.).

However, if the EM system's COP » 1.0, and reaches 10^5 to 10^6 or more, the antigravity and thrust effects may become significant and easily detectable. At 10^9 they become highly significant and are very detectable: The unit will lose appreciable weight on the laboratory bench, and may even levitate easily.

An example is provided by the Sweet vacuum triode amplifier discussed above, with the results that were given in Figure 6-9. Such effects are also what generate the anomalous levitation phenomena of free-spirited John Hutchison.²⁷⁸

9.11.3 Negative Energy Effect When Leads Shorted

When the leads of a COP>1.0 EM system are shorted, a noticeable cooling effect can sometimes be detected. If COP»1.0, shorting the leads will result in instant icing from the water vapor in the surrounding air.

If one accidentally shorts oneself across the leads of a COP»1.0 system, the effect is to freeze the nerves along the pathway of conduction. Experimenters are cautioned to use every safety precaution. Their experimentation is at their own assumed risk.

²⁷⁸ John Hutchison, "The Hutchison Effect apparatus." *Proc. Intl. Symp. New Energy*, Denver, Colorado, May 12-15, 1994, p. 191-198.

Anecdotally, some older researchers reported that their constant handling of overunity circuits resulting in charging their bodies, apparently with negative energy. The body after all may be considered as a special kind of complicated capacitor or set of capacitors, so this is reasonable, based on Bedini's and Watson's demonstrated negative energy charging of a battery. Some of the older overunity researchers reported that, after charged in that manner, they could produce a 3-inch spark from their fingers, or a "slight shock" into the body of a person they touched.

There is even a special form of acupuncture in the East in which the practitioner uses special exercises to charge the body with negative energy in this fashion. The "electro acupuncture" is then administered by the operator twirling the inserted acupuncture needles between his fingers, and deliberately administering a jolt of negative energy from his body into selected points in the body. I have personally tested a person who could deliver strong "electric shocks" into one's hand or body, and who could consistently produce a 1-inch spark discharge between the hands at will. That person could also deliver a very astonishing "jolt" to one's body, particularly in the vicinity of the liver.

There appear to be similar rare negative energy phenomena in semiconductors {585a-585c}. Anecdotally, it appears that the body does have structures or methods of storing and using Dirac sea holes (negative energy) and mechanisms for accessing the negative energy charged in its supersystem. This is suggested as a fruitful line of future research for interested biophysicists. Again, we call attention to the fact that, whenever EM fields, potentials, and waves are present, Dirac sea effects are also present and involved. Little or no biophysical experimentation has been done utilizing higher symmetry electrodynamics and analysis of the supersystem effects. Contrary to the received view, the understanding of EM effects on biological systems is not mature at all, but is still in its infancy.

9.12 Susceptible Unitary System without Conversion of Dirac Sea Hole Current

A *unitary system* is simply a self-contained single power system with an overall closed current loop between the source dipole and system loads and losses. A unitary system is contrasted to an array system of synchronized separate power subsystems without a common closed current loop, with the array subsystems connected to the source dipole by energy

transmission-reception only. Hence the array system utilizes the Kron open path concept.

Beginning at about $COP = 1.2$ to 1.5 , a few highly susceptible unitary $COP > 1.0$ electrical power systems will experience significant Dirac hole current from output to input. This will produce a "negative energy load" in its input section and feed line from the external power system, resulting in decay back to an overall "system plus negative energy load" of $COP < 1.0$. At the $COP = 2.0$ level, in the susceptible system the effect will forcibly decay the COP back down to overall $COP < 1.0$. It does this by forcing excess power to be furnished by the external power system to "power" (fill) the Dirac hole current arriving in the input section of the power system. In short, it converts the system to a composite system containing an additional Dirac negative energy load in its input section.

Or in other words, it forces the operator to "pay" for both the *positive* energy output and losses of his system and the *negative* energy output and losses of his system.

In addition to usual powering of its load and losses, such a system is also "powering" the return of its own locally altered vacuum back to a more normal ambient vacuum, instead of stabilizing its supersystem in a stationary disequilibrium state. It is a supersystem interaction and effect. A $COP > 1.0$ system that significantly exhibits this phenomenon is said to be a "susceptible" system.

One of the first tasks of the $COP > 1.0$ experimenter is to ascertain whether he is working on such a highly susceptible $COP > 1.0$ system. Ironically, he does this by observing his $COP > 1.0$ system kick itself back into a $COP < 1.0$ system. If he carefully observes the initial $COP > 1.0$ condition followed by decay into $COP < 1.0$ condition, he must then realize that not all is lost! In short, he must realize he has developed a susceptible system. If he obtains $COP > 1.0$ only to watch it subsequently decay back to $COP < 1.0$, he has just discovered he is working on a susceptible $COP > 1.0$ system, *and that is experimental progress*. He isn't there yet, but he is en route. In that case, he must concentrate on transducing the excess hole current into usable electron current, to "stabilize" and "lock" his system in its $COP > 1.0$ operating condition.

9.13 Unitary System with Conversion of Dirac Sea Hole Current

Using the Bedini conversion process, a unitary system can be close-looped to maintain $COP > 1.0$ and stable overunity operation. The 4-hole current reaching the input section is intercepted by the Bedini mechanism, and transformed to ordinary electron current furnished to the input section. Thus the transduced negative energy feedback becomes a positive energy feedback, by conversion. This converted positive energy in the input section will reduce the demand for incoming electron current from the external power supply, increasing the $COP > 1.0$ even more.

A feedback and governing system is adjusted until the system's converted positive energy feedback current reaches the Kron condition. At that point, the transformed electron current is sufficient to power the system with the external power supply disconnected. The governing and control system thus disconnects the external power supply, and the system is smoothly transitioned to self-powering operation, powering both itself and its load.

We stress that all the energy to power the system and its load is now being furnished from the active local vacuum interaction and from the local curved spacetime. No laws of nature, physics, higher symmetry electrodynamics, or thermodynamics are violated. Conservation of energy rigorously applies, but to the supersystem. The system is an open, *stabilized* disequilibrium system — of the kind referred to by Kondepudi and Prigogine as nonequilibrium stationary states — as a freely receiving all its energy from its active external environment. No standard $U(1)$ electrodynamic analysis will show this condition or this mechanism, and neither will electrical engineering. Higher group symmetry electrodynamics such as $SU(2)$ or $O(3)$ will show it easily. For a modern treatise on $O(3)$, we refer the reader to the recent *tour de force* by Evans {586}.

9.14 Non-unitary Outrigger Array System

See Figure 9-14, which is a diagrammatic representation of a $COP > 1.0$ array system that is non-unitary. In the non-unitary (outrigger array) system, no part of the outrigger array works at $\xi > 1.0$. All external parts operate at $\xi < 1.0$, but independently and with $COP > 1.0$. Each of the external outrigger systems is an open system freely receiving excess energy from its active environment, because it is an "energy-receiving" system and the energy is freely transmitted from the central system. The central part of the array is the unit whose purpose is to stimulate or evoke

an excess energy flow from the vacuum, so that the outrigger receiver/power units can individually intercept and utilize radiating energy flow surrounding the central unit.²⁷⁹ The usable (output) energy intercepted and captured (collected) from a given free flow of energy depends totally on the intercepting reaction cross section — usually the total array amount of intercepting charge, together with the degree of resonance (sweeping a larger geometrical cross section) of the intercepting charge.

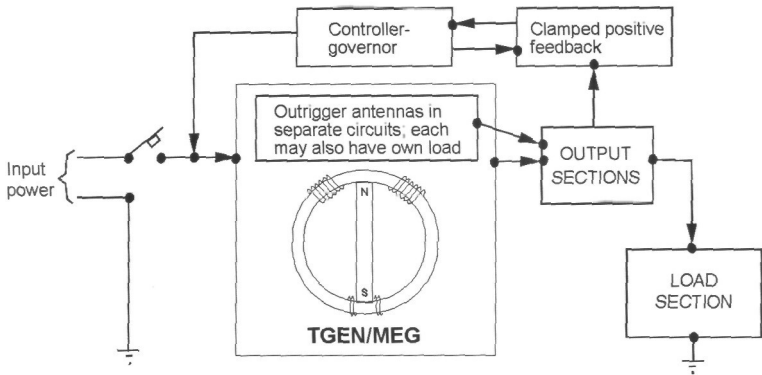


Figure 9-14 The nonunitary (outrigger array) system and its functioning.

Each outrigger unit (subsystem) has its own complete closed current loop *separate* system and load, plus its "antenna" or "interception section" or receiving component for intercepting and collecting the free flow of energy coming from the central source unit (the energy transmitter). Thus, the loads in the outrigger units are not closed-current-connected with the central source unit at all. Each outrigger unit has its own independent electrical ground and its own closed loop system with its load.

²⁷⁹ We emphasize that, when the usually unaccounted Heaviside nondiverged energy flow component surrounding the conductors of the external circuit is accounted, every EM power system is already a $COP \gg 1.0$ EM energy transduction system. Consequently, in the received view the array system can be operated at $COP > 1.0$, or even in self-powering mode, even though the central system is "said" to be at $COP < 1.0$. It is at $COP < 1.0$ only because of the self-applied Lorentz symmetrical regauging and ignoring the excess unused energy flow available to and surrounding the circuit, but not conventionally used. If we account the COP for what we have to furnish to the central unit, then the COP of each array unit is $COP = \infty$. The point is that we ourselves do not have to pay any *extra* input energy for the output energy of each array circuit.

This schema in fact separates the two functions of Poynting energy flow theory: (i) the extraction and radiation of the EM energy flow from the seething vacuum, and (ii) the interception, collection, and dissipation of some of that available energy flow, to power the loads and losses of the intercepting system.

In this fashion, multicollection from a single energy flow (generated from a central source "transmitter") occurs by direct, independent interception and collection in each of the $COP < 1.0$ outrigger units. However, the input power to each outrigger units is *free* with respect to that outrigger circuit itself. We of course must pay to generate the flow of energy from the central unit, but that can be done in normal $COP < 1.0$ manner (such as $COP = 0.95$) while powering its load.²⁸⁰ Let the output power of each numbered unit (including the central source unit) be given by P_i , n be the number of power units, and P_T be the total power output. Then the total output P_T of the array system is given by

$$P_T = \sum_i P_i = P_1 + P_2 + \dots + P_n \quad [2]$$

The total input power P_I is simply the input power $P_{I(1)}$ to the central source unit. The COP is given by $COP = P_T/P_{I(1)}$.

In the motionless electromagnetic generator (MEG) array, for example, the central unit is the transformer-like unit, deliberately using a special core to contain the magnetic flux of a permanent magnet in contact with the core material, thereby stimulating the Aharonov-Bohm effect and freely filling the surrounding space with the uncurled magnetic vector potential A . We will explain the non-unitary (outrigger array) system using the MEG as an example.

²⁸⁰ We again stress that, from any nonzero potential ϕ , or from any EM field in space, any amount of EM energy can be collected if there is sufficient intercepting and collecting charge. For example, the simple equation $W = \phi q$ applies for the potential, where W is the energy collected from a potential with point intensity ϕ by collecting charges q . A similar equation applies with respect to collecting as much force (emf in the various outrigger circuits) as desired. Here a single given E-field E can be assumed, and $F = Eq$. What is happening in the outriggers is that they are intercepting and collecting some of the excess Heaviside energy flow component that is wasted by the central circuit.

The MEG freely induces the Aharonov-Bohm effect,²⁸¹ thereby extracting excess energy from the vacuum in the form of that novel field-free A-potential. Being field-free, A represents an energy flow without swirl (without curl). When the MEG input section is perturbed, the surrounding A-flow is perturbed also, giving a pulsed or AC flow of energy that can be intercepted and utilized by each outrigger circuit as an E-field energy interception.

The central unit's $COP < 1.0$ function is to output almost as much, or as much, energy as is required to power the MEG, while also evoking that excess A-flow and serving as a $COP \gg 1.0$ energy flow transducer. The function of each outrigger is then to intercept some of the pulsed A-flow (as E-field energy via the equation $dA/dt = -E$), in its antenna or interceptor section. Each outrigger has its own independent and conventional closed loop circuit. It simply is a receiver and user of extra Heaviside EM energy produced from the central MEG unit in the new form of the curl-free A-potential. Perturbing the A-potential produces a large E-field impinging on all the external outrigger subunits. Hence these units freely collect and use some of that available excess energy. The COP of the total array is thus $COP > 1.0$. For best results, tuned antenna theory and near field theory should be utilized.

Suppose we operate the MEG central unit at $COP = 1.0$. In that case, there is no 4-hole current of significance associated with the central unit or the outriggers, and transduction of hole current into electron current for close-looping is not necessary. Instead, sufficient outriggers are employed so that the total energy W_O caught and dissipated in their loads by all the outriggers is given by $W_O \geq W_I$, where W_I is the input energy in the main central section. Since $COP = 1.0$ for the central unit in isolation, the total input E_{IN} is $E_{IN} = W_T$ (the additional huge Heaviside nondiverged EM energy input component is there also, but just neglected in conventional engineering). The total output W_A of the entire array is $W_A = W_O + W_T$. The overall COP_A of the entire array is thus

$$COP_A = W_A/E_{IN} = (W_O + W_T)/W_T = (W_O/W_T + 1.0) > 1.0 \quad [3]$$

²⁸¹ The reader should recall that the Aharonov-Bohm effect is not included in classical U(1) electrodynamics. See Terence W. Barrett, "Electromagnetic Phenomena Not Explained by Maxwell's Equations," in A. Lakhtakia (ed.): *Essays on the Formal Aspects of Electromagnetic Theory*, World Scientific Publishing, River Edge, NJ, 1993, p. 6-86.

Hence the array has a $COP > 1.0$, even though every single component of the array has $\xi < 1.0$. With the outriggers fully functioning, many schemes of operation can be used. E.g., the energy from the outriggers can be used to steadily charge a capacitor bank by "shuttling". We define shuttling as use of two capacitor banks: (1) a capacitor bank which is continually connected and charged by the outriggers as their effective output, and (2) an input capacitor bank for the central unit that is continually connected and recharged from the outrigger capacitor bank. By adroit switching, the charge of the input capacitor bank is maintained by replenishing from the output capacitor bank, and the input capacitor bank powers the entire system, including the output load in the central section.

The non-unitary outrigger array construction is one means of close-looping a non-unitary overunity power system without bothering with the transduction of hole current into electron current. It is the easiest of all $COP > 1.0$ systems to close-loop for self-powering.

An additional adaptation is for each outrigger also to continuously power a separate load, and only contribute *intermittently* along with the other outriggers to charging the output capacitor bank.

Another adaptation is to operate the central unit in the array in solitary self-powering mode.

These and similar modes of nonunitary array system operation allow close-looping the system for self-powering of itself and its load, without concern **for** 4-hole current transduction. A real advantage of such nonunitary systems without worrisome 4-hole current is that transistors can readily be used for switching etc. in them, without the destruction of the transistors by a damaging Dirac 4-hole current in the supersystem.

The nonunitary overunity system can also be close-looped by *conventional* (simple) "clamped positive feedback" means if good isolation (e.g., optical isolation of the circuitry switching) is used in the feedback loops.

9.15 Some Instrument Considerations

9.15.1 Time Effects

As previously indicated, there are time-domain effects (potentials, forces, and currents) associated with a $COP > 1.0$ EM system, particularly as the COP increases toward $COP \gg 1.0$. A useful method of indicating time-effects is to utilize a transistor in a circuit capable of measuring

recombination time in the transistor.²⁸² NASA has such circuitry available, but I do not have the reference at hand. We leave it as an exercise to the reader to explore that possibility.

For "very large COP" devices, ordinary watches, clocks etc. may be affected. Particularly significant is the slowing of timepieces in the presence of substantial time-domain effects due to substantial negative energy. In addition, for high gain devices (and for some at lower COP), the negative energy charge can build up in the local area, and may then require some days to dissipate. As we stated, in experiments years ago with Frank Golden, we experienced just such alteration of multiple kinds of clocks and watches in an area. It required four days for the negative energy charge in the area to gradually drain off (for the excess Dirac sea holes to gradually be filled with electrons, as the tempic potential gradually returned to normal).

Effects that were even more dramatic were exhibited in experiments conducted by Sid Hurwich in Canada some years ago {587}. In a series of experiments lasting a half-hour, Hurwich inertially jammed a police revolver so that a human finger could not pull its trigger. *The watches of the witnesses did not change their setting during that entire half-hour.* This cannot be understood by conventional electrical system analysis, but potentially it can be understood by supersystem analysis.

9.15.2 Calorimetry Is Taboo for Overunity System COP Measurement

It is standard dogma that calorimetry is a "true" measurement of power, and is always accurate in the hands of a skilled practitioner. In general, that is true for a $COP < 1.0$ system, where one is concerned only with *positive energy* in the input and output sections. However, with respect to $COP > 1.0$ systems, nothing could be farther from the truth. Indeed, for a significant $COP \gg 1.0$ system, a calorimeter is one of the most inaccurate instruments that can possibly be used.

As previously stated, all $COP > 1.0$ EM systems produce a mixture of negative and positive energy in their output section. The higher the COP, the greater the percentage of negative energy and the greater the flux of Dirac 4-holes back to the input section. The output energy, immersed in a calorimeter, will both cool the water with its negative energy output fraction and heat the water with its positive energy output fraction. Hence, the calorimeter will show the *difference* between the water's simultaneous

²⁸² This suggestion is courtesy of John Schnurer some years ago, and is appreciated.

heating and cooling. If the calorimeter measurement is misinterpreted as the *total energy output*, this "definitive test" will always erroneously show $COP < 1.0$. After all, it itself already applies the decay mechanism for converting any overunity system to an underunity system.

The only good use of the calorimeter in an overunity EM system is to verify that negative energy is present, when comparing its measurements to more sophisticated electrical measurements of the system. It can be used along with other measurements to ascertain (1) the total energy output, whether negative or positive, (2) the difference in the two forms of energy output and the algebraic sign of the resultant (positive if calorimeter heated, negative if calorimeter cools), and (3) thereby help determine the output's energy fractions (positive energy divided by total energy, negative energy divided by total energy).

Any test group insisting on testing a purported $COP > 1.0$ electrical system with a calorimeter as the *definitive statement of energy output* is totally devoid of knowledge of $COP > 1.0$ systems and their phenomenology. Usually such "test groups" tend to regard themselves as "measurement experts" (which they well may be, in $COP < 1.0$ positive energy systems!). That does not make the team even minimally knowledgeable or qualified in $COP > 1.0$ system measurement. To the contrary, the team members have zero experience or knowledge of $COP > 1.0$ systems. The proposed test group may consist of physicists, thermodynamicists, electrical engineers, technicians, or all four, but they still will have no knowledge or expertise in $COP > 1.0$ EM power systems unless they have actually worked with such systems before, and at length.²⁸³ This is particularly true of $COP \gg 1.0$ systems. My advice to all $COP > 1.0$ researchers is simply to keep the "calorimeter addicts" out of one's laboratory in the first place.

9.15.3 Other Instrumental aspects.

Here we just point out some simple and obvious things, familiar to the experienced researcher but sometimes not appreciated by the novice. One is usually dealing with nonsinusoidal waves, pulses, spikes and the like. As is well known, RMS meters are useless for measuring such nonsinusoidal electrical entities, since they are designed and calibrated to measure sine

²⁸³ To date, we have found none who have actually worked with $COP > 1.0$ electrical systems. We have, however, found quite a few who, though totally inexperienced with $COP > 1.0$ systems and not knowledgeable, have regarded themselves as "real experts" in such systems. They claim to already know how $COP > 1.0$ systems work and behave, and assume just ordinary electrical system phenomena.

waves only, or to measure DC. One must use a good differential sampling scope with multiple synchronized channels, with professional software to perform accurate integration under the curve, and with special differential probes for the scope. Simultaneous triggering of the multiple measurement channels on the same time line is required. The necessary high quality probe set may cost as much or more than the oscilloscope!

Dirac sea hole currents are generally not separately measurable, so one measures where the hole currents are not significantly present. Results may be compared to measurements where the hole currents are known to be present. When directly measuring hole currents, the conventional meters often read "backwards" and interpret a negative energy output at the system output section as subtracted from the positive energy, and interpret a negative energy output at the input section of the system as additional input electron currents from the external power supply. If the electron currents from the external power supply are not present, then measuring hole currents will draw electron currents from the power system inside the meter itself, resulting in a "backward measurement". Again, the meter actually will measure a real electron current, whether from the external power supply or from a conversion within the meter itself.²⁸⁴

Recombination time in semiconductors can sometimes be used in instrumented circuits to differentiate between negative hole current and electron current, by observing the change in recombination time due to the negative energy currents. It will differ from the change in recombination time due to positive energy currents.

Again, what is needed in the field is a set of solid, reliable instrumentation specifically developed for these peculiar measurement phenomena involving both positive energy and negative energy. To my knowledge, no such thoroughly designed and tested instrument package presently exists. Further, there are not even any standards for such, since there are apparently no standards for negative energy measurement at all.

9.16 Still Anomalous Aspects

Several aspects of COP>1.0 systems are still not properly understood. The behavior of curl-free A-potential, sometimes produced in such systems, is

²⁸⁴ What is very much needed is a meter of sophisticated design where this "drawing of excess electron current from within the meter itself has been taken into account in the design, so that the meter functions correctly for either positive energy measurement or negative energy measurement.

a case in point. This type of energy can exhibit characteristics as if it were electrostatic energy, which my associates sometimes refer to as the "crawly stuff. It exhibits the characteristic of "crawling" all over the surfaces (outside and inside) of the objects in the area, including the scopes, producing internal electrostatics and possibly magnetostatics everywhere. This can easily destroy the amplifiers etc. in a good scope or an expensive meter. It is best to transform this field-free A-potential into an ordinary "EM field energy AC wave", and then utilize it in that fashion.

Scalar stress waves are also sometimes produced, leading to anomalous effects. This is best regarded as a "time-polarized" EM wave, or more accurately, as a combination of scalar (time-polarized) EM waves and longitudinal EM waves in 3-space. For macroscopic waves in $COP > 1.0$ systems, the Mandl and Shaw 1:1 correlation between scalar photons and longitudinal photons can apparently be corrupted, so then one has "abnormal" (improperly correlated components which normally correlate to make "ordinary" EM waves). These abnormal EM scalar stress waves also exhibit the "crawly" phenomenon, and can be hazardous to one's instruments.

In addition, some instruments such as ionization counters, Geiger tubes, etc. read in the presence of such waves as if nuclear radiation were present (which it is not). Also, the individual time-charge history of a given instrument determines or substantially influences how the instrument reacts in the presence of the "corrupted" scalar stress waves. Essentially, at a given time any instrument has a small "time-energy charge" depending upon its past history. The corrupted scalar stress wave accomplishes further "time-charging" of the instrument, which combines with the initial time-charge to produce more time-charge, ordinary EM waves by scalar EM interferometry {588}, or abnormally correlated longitudinal EM wave emission.

In an ionization-measuring instrument, *ionization is ionization, by whatever means achieved*. And in the presence of the "abnormal" radiation and charging, ionization-type "nuclear radiation" instruments will vary from one to another, *depending upon the individual time-history of each instrument*. So from a group of identical instruments made the same day on the same assembly line, one may read anomalously and several others read normally. Or two may read anomalously, while all the rest read normally. A very good example of this anomalous measurement effect is seen in the rigorous electrolyte experiments in U.S. Navy research facilities at China Lake {589}. The present author has previously given an explanation of this time-charging and decay phenomenon {590}.

Negative energy reacts in different ways with different materials. The more nonlinear the material, the greater the effects and unpredictability of the interaction, as a rule of thumb. In a copper wire, Dirac hole current introduced into the wire will "eat" Drude gas electrons, reducing the "pressure" at that point or area in the wire. This "combining of electrons and causal Dirac holes is not normal pair annihilation, and radiation does not occur. Instead, the two curvatures of spacetime (one by the positive energy of the electron and the other by the negative energy of the Dirac hole before observation) interact and adjust.

The Drude gas in the copper further back toward the external power system still has normal (higher) gas pressure, and so the differential in pressure induced in the Drude gas will drive electrons from the "normal" pressure areas into the "reduced" pressure area where some of the Drude electrons disappeared after being "eaten" by the Dirac holes. To look at that in lattice hole terms, the "eating" of Drude electrons in a selected volume of the wire leaves positive ions, which are "lattice holes" vacated by the eaten electrons. So these excess positive charges attract electrons from further up the wire nearer the distant power supply, filling the lattice holes to bring the Drude gas back up to "normal". However, that also draws and "eats" additional power from the distant power supply. Meanwhile, the Dirac 4-holes fed from the input of the COP>1.0 system back into the power feed conductors continue to interact with the lattice and eat electrons to create more ions (lattice holes).

One may visualize the Dirac sea holes producing excess lattice holes, which then causes the Drude electron gas to change so that the "average" demand current increases. In short, we must also consider the effect of Dirac hole charges or currents upon the lattice material itself, and the structure of holes and electrons as charge carriers in the material lattice.

Semiconductors are very vulnerable to negative energy due to its disruption of their donor-acceptor and band gap design functions. With mild negative energy exposure, a semiconductor may just cease operation entirely and later recover when the negative energy application ceases, or it may fail and never recover. For pulsing, strong "opposing force pulses" (stress pulses) are created deep inside the semiconductor materials. In case of sharp pulsing, sometimes an exposed semiconductor will just suddenly explode in a nice little fireball about one foot in diameter. This along with some minute stinging fragments from the explosion assures that the COP>1.0 bench researchers stay alert and on their toes. Needless to say, when experimenting with COP>1.0 systems and circuits, one should exercise all safety precautions, including safety glasses, until the **"negative**

energy beasts have been tamed and controlled". One should not experiment with such things unless one is an experienced and safety conscious experimenter. One experiments at one's own risk.

Negative energy effects in coils and toroidal coils are largely still unknown, though we have outlined some of the major effects. For a normal helical coil, one can derive a concept of the effects by considering the lattice effects in the wire. In this case, introduction of hole current at one end of a helical coil will induce electron current from the other end and into the coil. Thus, hole current can be "switched" back and forth between the ends of a helical coil to induce an ordinary AC electron current in the coil, accompanied by normal magnetic fields etc. A point can be reached where the coil is actually in resonance with the frequency of the switching, and with the "seeming capacitance" of the hole current introduction in each switching. With the proper material in the coil and a keen balance between the negative energy capacitance effect and the normal positive energy induction effect, *in theory* a single coil can be turned into a self-oscillating, self-powering system.

With core material inside the core of a coil, the situation dramatically changes. Often the type reaction experienced will appreciably depend upon the core material, and changing the core material can dramatically change the effects upon the coil and the effects that the coil produces. One may even use dynamic changes in the core material to produce corresponding dynamic changes in the coil. A toroid may act differently from an ordinary helical coil, as does a flat (spiral-wound) coil. Here the experimenter must simply perform his own experiments to seek out and understand the phenomenology he uncovers.

For exploratory experimenting with core-filled coils, we advise strong caution and testing at very low power only. Sometime effects can apparently be experienced by the researcher (headaches, nausea, dizziness, etc.) It is suspected from some evidence (but not proved) that the core material's chemical characteristics can sometimes be "imprinted" upon the human body chemistry, from the novel radiation of a core-filled coil or some core-filled coils. This is particularly true in the presence of strong stress potentials, such as from bi-wound coils with fields in opposition, and particularly if the biwound coil contains a nonlinear material core. The nonlinear core induces modulation (multiplication) of the two waves, rather than linear mixing. Thus, the two waves are "locked together" to form a true stress potential and local spacetime curvature sets, when the biwound coil has a nonlinear material core. In short, one is now engineering pure general relativity, locally.

Again, we iterate that the experimenter should be knowledgeable and take all safety precautions. He experiments at his own assumption of risk.

The appearance of an extra stress potential (field-free) in a biwound coil is in fact a new Lorentz symmetrical regauging, and the equivalent of rotating the frame of the coil. As signals are introduced, this is the equivalent of continually changing the degree of the frame rotation, which is a general relativistic effect, with direct curvatures of spacetime being produced. In short, one is producing spacetime curvature and rotation engines, previously discussed.

The magnitude of the stress potential (field-free) falls off inversely as the distance. Thus one's body can be exposed to it, including the body chemistry, every cell and every part of every cell, the nervous system, etc. Placing signals on the biwound coil can conceivably result in slight variation of the scalar stress potential, including inside the body, and inside each cell and each part of each cell. Variation in the stress potential ϕ in a little local region inside the body produces $-\nabla\phi$, which is an electric field E . The rate of change of this E -field then produces a magnetic field H .

Consequently, very minute EM fields are produced throughout the body and all its parts, or can be. It is as if the entire body is "electromagnetically washed" in internal EM fields throughout its matter, structures, and dynamics. The hydrogen bonding actions ever ongoing are particularly sensitive and can restructure appreciably in the presence of this stimulus. They can also "imprint" and take on a specific induced structure and dynamics, correlated to the persistent changes induced from the biwound coil. As can be seen, such EM biological effects have not been appreciably investigated and documented in the Western scientific literature. Hence our urging and insistence that the researcher use all caution, and our warning that he experiments at his own will and assumption of risk. Neither the publisher nor the present author is responsible for any accidents or blunders that may occur.

Capacitor effects also vary between types of capacitors, when applying negative energy or a mix of positive and negative energy. Some capacitor dielectric materials are also photo-refractive and are semiconducting materials, hence photoactive. The rich effects capable of being generated in capacitors — by EM fields, waves, potentials, and pulses of negative energy or negative and positive energy mixed — are largely unexplored and not catalogued.

Almost all modern permanent magnetic materials are also photo-refractive or photoactive materials as well, and many are semiconducting materials. Hence a rich variety of effects can be produced in permanent magnets by the introduction of negative energy fields, potentials, waves, and pulses.

As can be seen, a very rich combination of effects exists for "normal-appearing" coils, capacitors, semiconductors, and magnets when applying appreciable negative energy or controlled mixes of positive and negative EM energy. This is a still largely unknown materials science region, and one that has not been systematically and rigorously explored and catalogued, if at all.

In addition, there are effects from *pulsing* negative energy (Dirac hole currents) that are not completely understood. These appear to occur almost — or partially — at random, and also seem to be affected by the natural surroundings, by the various materials, etc. The "imprinting" phenomenon, when it occurs, seems to be augmented by pulsing, and sometimes by the pulse shape and pulse repetition frequency as well as the surroundings.

We also legally state that we are not responsible for any risks the researcher chooses to take, but are only alerting him to be very careful and use very good safety practices. Any experimenter is himself responsible for stringent adherence to good safety practice and common sense, and he legally assumes his own personal risks for all experiments he chooses to undertake.

Another effect to be alert to is the effect of "charging" the local area's supersystem with an altered active vacuum and curvatures of spacetime. This phenomenon is usually experienced as a "slow growth" of the COP of the system, over a long time (months or years). Tiller in private discussions has reported such phenomena in his detector built at Stanford University. Golden and I experienced such phenomena with a small $COP > 1.0$ system Golden was developing. Over a period of five years, the system slowly increased its COP to about 2.0. Moved several hundred miles, the system then exhibited COP of about 0.9, but with occasional fluctuations of overunity temporarily.²⁸⁵ Golden had gradually charged his local area with the "engine" or spacetime curvature operational and functional form of his unit. Thus in that repeatedly charging area, gradually the operation of the unit improved. We referred to this *engine-*

²⁸⁵ In fact, Golden and I were astounded at these results, until Tiller explained it to us and explained his own experiences with "growing" his detector. Thanks to Professor Tiller, thereafter we had this new phenomenon firmly fixed in our lexicon.

charging of the environment with a particular effect or dynamic form as *kindling*.

The kindling or "charging to favor the dynamic form of the engine or device" problem, should it occur, is in fact usable because it is possible to produce it everywhere on earth, and fairly permanently. To use the kindling effect once discovered, the mechanism is to build several identical units. Keep the original unit working in the original area, and "outrigger" the others at radial distances as distant as possible, but maintaining $COP > 1.0$ for the outriggers. Then simply run both the outriggers and the central unit, steadily. The "structural charge" will grow and reinforce at the outrigger locations, then spread on beyond the outriggers, and a much larger area will now be "charged with that dynamic form". With sufficient additional outriggering (three to five, or seven in an especially difficult case) where the successively internal outriggers are retained and operating, the charging will eventually spread around the entire Earth, and *it will become a permanent fixture of the Earth environment itself*.²⁸⁶ Thereafter, anytime one of the units is turned on anywhere on earth, it will perform with its normal overunity condition. In other words, not only can one grow the dynamic form (engine) in a supersystem in a given locality, but one can also kindle it into the entire Earth's supersystem permanently {591}. One is strongly reminded of Feynman's observation that physicists with their big accelerators may in fact be partially creating their own reality. He pointed out that often the physicists look and look for a new, predicted particle. At last and after years of difficulty, finally a "glimpse" of the particle occurs in an accelerator and is reported. The physicists quickly crank up the other accelerators and look intensively, and — after some moderate difficulties — they find that particle. Thereafter, *every time an accelerator turns on and looks, that particle is readily seen, easily*.

The supersystem's spacetime is part of the local spacetime of the Earth, and all supersystems also interact with each other. As Kron put it {592}:

"An electric network differs from all other types of non-electric networks in that it is always surrounded in all directions to infinity by an invisible dynamic electromagnetic field of its own creation. ... Each Inductance L produces its own magnetic field, each

²⁸⁶ We have proposed an application of this phenomenon to kindle and maintain a specific disease organism's "anti-engine" as a startlingly new kind of medical therapy for permanently eradicating a particular disease vector from the earth.

capacitance produces its own electric field and each resistance R creates a thermodynamic field of its own. Moreover, there exists a continuous interaction between the magnetic, electric, thermodynamic, and radiation fields. Thus any correct and basic theory of the electric network must include all the parameters of its surrounding electromagnetic field and must satisfy all the field equations of Maxwell. The theory must also dovetail with the Hamiltonian and Lagrangean equations of dynamics containing both time and space derivatives, as well of the equations of irreversible thermodynamics. "

So decades ago, Kron was struggling with the "supersystem" problem, in different terminology, and he eventually originated *diakoptics* {593}, an entirely new way of breaking the problem down piecemeal so it could be solved. But Kron strongly stressed that the interactions of the fields and potentials of a circuit and all its parts reach to infinity and have an n -dimensional set of degrees of freedom and an infinity of spaces. The fields and potentials of every charge reach to infinity (for those charges in matter from the beginning), and so every charge in the universe interacts with every other charge and its fields, potentials, and dynamics. Spacetime itself is filled with these interacting EM fields, potentials, waves, and dynamics. Little wonder that the horrendous set of ongoing EM interactions at every point in the vacuum has such incredible energy density and fluctuations. We may even regard the fluctuations and interactions as completely causal, but — with no information on each interaction — they must be treated as totally statistical. Ultimately nature confounds our Aristotelian logic and insists that, in the limit, one is dealing with 5-law logic as developed earlier in this book.

Since the earth near an ongoing $COP > 1.0$ system experiment has innumerable electrical aspects, materials, etc., it follows that the surrounding earth is indeed in direct interaction with the experiment. It then follows that "slow conditioning" of the surrounding area should be possible, say, after some years as Golden experienced. It also follows that the effect diminishes in magnitude with distance from the experiment.

The "growth of the activation (kindling) to include the entire Earth" is a slow process, requiring years and much expense to aid the "spreading" — as the physicists may be experiencing, according to Feynman. But it is a doable.

We highly recommend that the researcher work on $COP > 1.0$ systems that are not charge and location dependent, so that the kindling problem does not arise. We have assumed non-kindling $COP > 1.0$ systems throughout most of this book.

Chapter 10

Cold Fusion: Low Spatial-Energy Nuclear Reactions at High Time-Energy

"This book is about time. I would have liked to have named it Time, the Forgotten Dimension..." [Ilya Prigogine]. {594}

"The notion of time may be unfolded into an independent pure science... a science of pure time is possible." [Sir William R. Hamilton, 1837]. {595}

"...contrary to the conclusions of classical mechanics, there exist effects of potentials on charged particles, even in the region where all the fields (and therefore the forces on the particles) vanish." [Y. Aharonov and D. Bohm] {596}.

"...global behavior greatly modifies the very meaning of space and time. Much of geometry and physics is based on a simple concept of space and time, generally associated with Euclid and Galileo. In this view, time is homogeneous. Time translations may have no effect on physical events. Similarly, space is homogeneous and isotropic; again translations and rotations cannot alter the description of the physical world. It is quite remarkable that this simple conception of space and time may be broken by the occurrence of dissipative structures. Once a dissipative structure is formed, the homogeneity of time, as well as space, may be destroyed." [Ilya Prigogine] {597}.

"As we expand our observation, we extend our concepts. Thus the simple symmetries that once seemed self-evident are no longer taken for granted. Out of studies of different kinds of interactions we are learning that symmetry in nature is some complex mixture of changing plus into

minus, running time backward and turning things inside out. " [T. D. Lee] {598}.

*"The desirable features of a system of units in any field are convenience and clarity. For example, theoretical physicists active in relativistic quantum field theory and the theory of elementary particles find it convenient to **choose** the universal constants such as Planck's quantum of action and the velocity of light in vacuum to be dimensionless and of **unit magnitude**. The resulting system of units (called 'natural' units) has only **one** basic unit, customarily chosen to be length. All quantities, whether length or time or force or energy, etc., are expressed in terms of this one unit and have dimensions which are powers of its dimension. There is nothing contrived or less fundamental about such a system than one involving the meter, the kilogram, and the second as basic units. It is merely a matter of convenience."* [J. D. Jackson] {599}.

[Violation of Second Law of Thermodynamics] *"We experimentally demonstrate the fluctuation theorem, which predicts appreciable and measurable violations of the second law of thermodynamics for small systems over short time scales... Our results show entropy consumption can occur over colloidal length and time scales."* [Evans et al.]²⁸⁷

[Implications] *"This result has profound consequences for any chemical or physical process that occurs over short times and in small regions."* [Evans et al.]²⁸⁸

[Implications] *"The smaller a machine is, the greater the chance that it will run backwards. " [Evans et al., *ibid.*]*

[Implications] *"Physicists knew that at atomic scales over very short periods of time, statistical mechanics is pushed*

²⁸⁷ G. M. Wang, E. M. Sevick, Emil Mittag, Debra J. Searles, and Denis J. Evans, "Experimental Demonstration of Violations of the Second Law of Thermodynamics for Small Systems and Short Time Scales," *Phys. Rev. Lett.*, 89(5), 29 July 2002, 050601.

²⁸⁸ BBC News, 18 July 2002, <http://news.bbc.co.uk/1/hi/scitech/2135779.stm>.

beyond its limit, and the second law does not apply. Put another way, situations that break the second law become much more probable. ...the new experiment probed the uncertain middle ground between extremely small-scale systems and macroscopic systems and showed that the second law can consistently be broken at micron scale, over time periods of up to two seconds." [Chalmers]²⁸⁹

10.1 Explaining Time as Energy

See Chapter 1, paragraph 1.1.3 and 1.4.1; see also Chapter 2, paragraph 2.1.3. As highlighted in the quotation from Jackson {599}, it is well known that the fundamental units chosen to model physical phenomena are arbitrary. In a physics model whose only fundamental unit is the joule, time is obviously modeled solely as a function of energy, just as mass is modeled today as a function of energy — hence the term "mass-energy". We may also equally well use the term "time-energy", since in a model using the joule as its only fundamental unit the second is purely a function of energy. Specifically, for our purposes $1 \text{ sec} = 9 \times 10^{16}$ joules of spatial energy, compressed by the factor c^2 and placed on the 4th Minkowski axis to constitute one second of time. If the compressed spatial energy had been left in 3-space, it would be recognized as *mass*. For our purposes, *time* has the same energy density as mass.

The flow of time becomes a special form of EM energy flow, analogous on the fourth axis to mass flow (translation) in 3-space. Further, as previously pointed out the overall flow of time has extensive internal structuring of component time-energy flows. However, time-flow is in the imaginary plane or connected with it, since in Minkowski space the 4th dimension is modeled as *-ict*. Note that the only variable in *ict* is the *t*, hence anything varying on the fourth axis is a variation of time and time-energy *a priori*.

Further, we can apply conservation of EM energy to the time domain as well as in 3-space. And we can have "broken symmetry" in time-energy flow as well as in 3-spatial energy flow, so long as the net energy flow is conserved. The most fundamental conservation of energy law is giant negentropy: the automatic circulation of energy from the time domain into 3-space via decompression by the negative charge, thence the slight flow of 3-space energy to the positive charge where the 3-space energy is re-

²⁸⁹ Matthew Chalmers, "Second law of thermodynamics 'broken'." *New Scientist*, 19 July 2002, <http://www.newscientist.com/news/print.jsp?id=ns99992572> .

compressed, thence from the positive charge back into the time domain.²⁹⁰ That was our solution to the long-vexing problem of the source charge and its associated 3-space fields and potentials and their 3-space energy. From special relativity, one already knows that time can dilate and then *un*-dilate, but each action is associated with an appropriate change in spatial energy. While that change in spatial energy can be kinetic, it does not have to be. It can be a change in potential energy instead. In short, a static object rotates its frame with respect to the observer (lab) frame, whenever it absorbs or emits potential energy.

We also pointed out the connection of time-energy to electromagnetics and to quantum field theory, via the four polarizations of the photon considered to travel in the z direction in 4-space. These four polarizations are with the energy vibrating along x -, y -, z -, and t - respectively. Vibration of the spatial energy of the photon along the x - or y - axis gives an ordinary transverse photon. Vibration of the spatial energy of the photon along the z - axis gives the longitudinal photon. Vibration of the time-energy component along the t - axis gives the scalar or time-polarized photon. We assume a similar four polarizations for EM waves in 4-space.²⁹¹

10.2 Mechanism Generating Flow of a Mass through Time

As we covered in the referenced paragraphs in Chapters 1 and 2, the fundamental generatrix of the flow of a mass through time — and the structuring of that flow — is the total photon interaction with the mass and all its parts. This includes both observable and virtual photon interactions.

As a recapitulation: Mass m does not exist in time, since it is an observable and observation is the imposition of d/dt upon spacetime LLLT, removing the T to give a "frozen LLL snapshot." In short, mass m is an *effect* (of the iterative very high speed observation process), not a *cause* (which is an *input* to the observation process). This is why all observation is 3-spatial rather than spatiotemporal: it yields the 3-space *effect* (at a given time, of a

²⁹⁰ Note the relationship with such things as time dilation, which represents a broken time-flow symmetry, where net energy flow from the time domain to the 3-space domain occurs. Hence time dilation is associated with the increase of spatial energy, such as kinetic energy due to the relativistic velocity of the moving object.

²⁹¹ In this book, we have limited our discussion to four dimensions. If we model in five or more dimensions, then additional symmetries and broken symmetries **are** possible, as are new kinds of multi-dimensional EM waves.

given interaction), not the 4-space cause of the interaction and not the ongoing 4-space interaction.

By absorbing and emitting photons, observed mass m may be said to move through time in a succession of $m \Rightarrow mt \Rightarrow m \Rightarrow mt \Rightarrow m \dots$ jumps, each involving change of physical state as a photon is absorbed by m , changing it to mt which is nonobservable. Then a photon is re-emitted by mt , changing it back to m and completing another observation with this new m as the output (effect). We note that masstime mt is as different in nature from mass m , as impulse Ft is from force F . In mass m , every tiniest differential dm is also interacting with photons continuously (even though they may be *virtual* photons), hence dm also exhibits its own "digital flow through time" as a part of the structure of the overall flow of the parent mass through time.

Interaction primarily with the mt state yields wavelike interactions. Interaction primarily with the m state yields particle-like interactions. This is proposed as a possible resolution of the wave-particle duality problem, which has never been resolved but just accepted without further argument. Previous consideration of wave-particle duality has assumed that "mass has two states, one particulate and the other wavelike". We correct that assumption by pointing out that two different "states in which mass exists" are involved, and the two are quite different: one is mass m , and the other is masstime mt . We stress the function of the myriads of virtual photon interactions during an mt state, where an observable photon has not yet been re-emitted. These virtual photon reactions create streams of virtual $dm \Rightarrow (dm)dt \Rightarrow dm \Rightarrow (dm)dt \Rightarrow \dots$ on all the differential parts of mass m , which creates the rich structuring inside the "time-flow" of the overall observable mass m through time. The rich dynamics of the $dm \rightarrow (dm)dt$ streams also accounts for the seeming existence of mass m as a set of 4-dynamics which interpret as a set of waves. We note that the emitted photon carries with it the internal structuring of the spatial energy domain and the time-energy domain. Herein we have the basis for the Kaznacheyev's demonstrated electromagnetic induction of cellular damage and disease at a distance.²⁹²

Finally, we tentatively assume that, prior to its interaction, the antiphoton carries negative spatial energy and positive time increments, while the photon carries positive spatial energy and positive time increments. In a

²⁹² Vlail Kaznacheyev and L. P. Mikhailova, *Ultraweak Radiation in Intercellular Interactions*, [in Russian], Novosibirsk, 1981.

very small region where an excess of antiphoton interactions occurs temporarily, time-reversal occurs and the physics "runs backward". It has recently been experimentally proven that such "reversing" of the physics processes occurs up to micron size and for times up to two seconds.²⁹³

10.3 Time-Polarized EM Waves and Longitudinal EM Waves

10.3.1 Waves, Photons, Spacetime Curvature, and Observation

Spacetime (ST) curvature involves not only the change of *spatial* energy density of local spacetime but also a change of its *time-energy* density. That component of the total ST curvature due to time-energy density change — i.e., time-polarized EM photons and waves — can be far more powerful, because of the enormous energy density of the time-energy compared to the far less dense 3-spatial energy. As previously stated, time may be regarded as having the same energy density as mass, except that the highly compressed 3-spatial energy is moved to the 4th Minkowski axis to constitute "time" rather than being left in 3-space to constitute "mass".

Hence ST curvature can be made very powerful when one uses longitudinal phase conjugate EM *wavepairs*, as shown by Whittaker {600} in 1903 with slightly corrected interpretation as argued by the present author {615}. Each longitudinal EM wave in 3-space is accompanied by a precisely coupled time-polarized (scalar) EM wave in the time domain, which latter wave is a longitudinal EM wave on the fourth Minkowski axis involving changes in the *t* variable in the axis *-ict*. We previously discussed the giant negentropy that this represents with respect to the source dipole. At various times in the past, we have emphasized the time-domain aspects of the coupled phase conjugate longitudinal EM wave-pair by calling such a coupled wave by terms such as *time-density EM waves*, *time-polarized EM waves*, etc. These terms imply additionally altering and structuring the *time density* and *time-energy density* of spacetime rather than merely altering and structuring its *3-spatial energy density*. Such time-density induced ST curvatures may be nearly 10^{17} times stronger than ordinary spatial energy density ST curvatures {601}.

Interestingly, at least one researcher — Matsumoto {602} — has realized the basic implication in cold fusion processes of using the strong EM force

²⁹³ See footnotes 287, 288, and 289.

as the agent of spacetime curvature. He has shown consistency of the postulated EM-induced ST curvature approach with some important cold fusion results. However, Matsumoto has utilized the conventional interpretation of spacetime curvature due to alteration of *3-spatial energy density* of spacetime. This misses the primary time-density functions, but does include the resulting spatial-energy functions after transduction from time-energy to spatial-energy. His work, however, does support the involvement of a more intense form of energy in the cold fusion effects.

There are intriguing but still mysterious relationships to be noted between cold fusion and deep astrophysical mechanisms. Continuing reference is made to these similarities, including black holes and white holes. Black holes and white holes involve spacetime curvatures — extreme, but still spacetime curvatures. So one would suspect that the entire scale of spacetime curvature — including black holes and white holes in the limit — should be of interest to cold fusion researchers, since in their use of time energy they are inadvertently involving more intense forms of energy than ordinary spatial EM energy.

Most nuclear scientists and even some relativists seem unaware of the much more powerful spacetime curvature effects obtained by alteration of the *time density* of spacetime rather than just its *spatial energy density*. Physicists have largely omitted specializing on time density ST curvatures because they have largely omitted the absorption and emission interactions of the time components transported by photons and EM waves.

Longitudinal EM phase conjugate wavepairs (each wavepair a coupling of a time-polarized EM wave and a longitudinal 3-space EM wave) of the type shown by Whittaker {600} in 1903 involve net *time density oscillations* as well as 3-spatial energy density oscillations, according to our reinterpretation. The infolded "inner EM content" of all conventional EM potentials, fields, and waves thus contains extraordinary dense time-energy, normally lost in the d/dt observation interaction.

In short, the infolded "internal Whittaker electrodynamics is a pure "general relativistic electrodynamics" and a unified field dynamics. Further, it can be engineered, which leads to startling new physical processes previously thought to be impossible and forbidden by the laws of nature.

Prior to observation, the internal highly compressed time-energy structures associated with the interior EM structure of all conventional EM potentials, fields, and waves are extremely powerful spacetime curvatures.

In short, all "conventional" electrodynamics has an internal structure of strong spacetime curvatures and dynamics.

Organization and patterning impressed on, or inserted in, this internal structuring can provide extraordinary actions in materials, living biological systems, cells, etc. Adding deterministic structuring inside these normal EM entities is referred to by Russian energetics weapon scientists as engineering the *information content of the field*. This is the approach behind deliberate engineering of *spacetime curvature engines*, or vacuum engines — or just "engines" for short.

In theory, any physical change to a mass can be engineered by inserting such "engines" into the mass. Any mass-energy is a mass-energy EM potential with an internal structuring (engine) for all the mass's internal dynamics. This engine is referred to as the *resident engine* of that mass (and all its dynamics). Introducing to a given mass a potential with a desired "delta engine" structure, results in the superposition of the two potentials, resulting in exchange sharing of the engines. In that manner, a desired "delta engine" diffuses into the mass's potential structure and its resident engine, changing it to a new resident engine which now acts on the mass at every level to change it. Potentials superpose, and their engines diffuse and superpose as well. Direct engineering of matter — even inside the nuclei and inside the nucleons themselves — can be performed by introducing the desired engine or engines for the changes desired.

This area has been highly weaponized by one or more nations. E.g., the Russians — in several decades of so-called "microwave radiation of the U.S. Embassy in Moscow — induced health changes and diseases in U.S. personnel in the Embassy by inducing deliberate "disease engines". Such EM-induced diseases and health changes were generated in the zones where the potentials were field-free, and therefore stable for stable engine diffusion.

Note that the common scalar potential decomposes by Whittaker's 1903 decomposition {600} into the longitudinal EM wavepairs we are speaking of. Also note that, per a second paper by Whittaker in 1904 {91b} that initiated superpotential theory, all EM fields and waves can be decomposed into two scalar potential functions. Each of those base potentials involved in the potential functions further decomposes by Whittaker 1903 into a harmonic set of phase conjugate longitudinal EM wavepairs as previously discussed. Therefore, the infolded EM inside all the "conventional" EM fields, waves and potentials is indeed a highly organized set of such bidirectional longitudinal EM wavepairs and thus a

highly organized set of extreme localized ST curvatures. In other words, it is comprised of these special "engines" of deterministic spacetime curvatures and their dynamics.

Constructing the potential by assembling one's own set of phase conjugate longitudinal EM wavepairs to form it, one can insert any kind of ST curvature set — any kind of vacuum engine desired — inside the base potential(s), hence inside the two potential functions comprising a given set of EM fields and waves utilized as "carriers". The specific internal structure of a "carrier" radiation field or potential designed to carry such engines is called the "information content of the field".²⁹⁴ The Russians have long had a disinformation campaign to suggest that the term refers to conventional spectral analysis. It does not.

Johns Hopkins scientists did detailed measurements inside the Embassy and confirmed that all the anomalous health changes and diseases had occurred only in areas where the EM fields B and E were absent. That is, the health changes occurred only where the potentials were field-free and therefore stable and unchanging, so that an exposed body was immersed in a steady sea of "vacuum engines" being diffused throughout the targeted body's EM potentials in and on its cells, its cellular membranes, etc.

In general relativistic terms, every physical set of changes and altered dynamics (syndrome) of a specific disease has a specific *delta* set of spacetime curvatures and dynamics associated with it, which interacts on the body, its chemistry, its electrodynamics, its cells, etc. A desired set of

²⁹⁴ Indeed, in theory one can *construct, functioning robotic systems* of these internal engines. In clandestine Russian weapon research, it appears that at least elementary "causal robots" of such internal engine type have been developed and tested. In a sense, these are the ultimate "nanobots" made of infolded longitudinal EM waves and their dynamics. In theory, command and control functions (via longitudinal EM wave communication) can be included, as can certain kinds of weapons effects based on scalar interferometry. The eventual development of such startling weapons seems intended to produce an army of eerie "internal EM" robots which can be "sent in" *through the interior of EM fields, waves, and potentials*, to targets anywhere on earth, beneath its surface, in space, or beneath the ocean. This may be intended to become the ultimate robot or "high tech" warfare, and it is also the ultimate "information" warfare. There are no shields against this type weaponry. Defense, however, is accomplished by first using longitudinal wave "scanning" to pick up and track the systems, much like radar picking up aircraft. Once detected, scalar interferometry is utilized to disrupt and destroy them in place. Progress on these robotic weapon systems appears to be well along, as does progress on their countering longitudinal EM wave weapons.

ST curvature deltas for a given disease was inserted inside the base potentials in a combined Whittaker 1903 and 1904 decomposition of the stable field-free potentials in the Embassy. The Russians thus induced the desired engines for induction of the specifically desired disease(s) in the assigned personnel in those field-free potential zones in the Embassy. The purpose was to use the tests as (i) a guaranteed means to provoke high level U.S. governmental attention, and (ii) a probe to see if the U.S. knew about such technology and had developed defenses. Other tests of such disease induction in entire populations have also been conducted, but these are beyond the scope of this book.

We point out one very important thing: the cells of the body have their normal "resident engines" and resident engine dynamics inside their internal fields and potentials and waves. For any specific disease or disorder condition, there exists a specific associated change (delta) in the normal set of vacuum engines and their dynamics, in the cells and the body. In short, there exists a specific "delta engine" for any cellular disease or disorder, added to the normal engine.

It is not the immune system that heals. Instead, it is the cellular regenerative system. The natural healing method used by the cellular regenerative system is not chemical. The regenerative system uses the phase conjugate wavepair composition of increased scalar potentials (on cellular membranes and every part of the cell) to "pump" the cells in the time-domain. This creates an "anti-engine" for the specific disease delta or disorder, and it slightly amplifies this anti-engine within the limited capabilities of the body. This action places this amplified anti-engine also into the stricken cells' engine complex. Engines superpose, just as do potentials. This action by the regenerative system has the effect of slowly producing complex anti-forces in the body and inside the cells themselves, eliminating the detrimental engine delta, restoring the normal resident engine and thus time-reversing the stricken cells back to a previous healthy condition. It does not kill pathogens at all; that is the function of the immune system. In the 1960s and early 1970s, Antoine Priore in France demonstrated remarkable cures of terminal tumors, infectious diseases, clogged arteries, and other disorders in laboratory animals,²⁹⁵ unwittingly

²⁹⁵ See (a) A. Priore, *Guerison de la Trypanosomiasis Experimentale Aigue et Chronique par L'action Combinee de Champs Magnetiques et D'Ondes Electromagnetiques Modules* [Healing of intense and chronic experimental trypanosomiasis by the combined action of magnetic fields and modulated electromagnetic waves], Priore's thesis submitted in candidacy for the doctoral degree, 1973. The thesis was rejected when the project was suppressed. See also (b)

amplifying the body's own master regenerative mechanism. His work was suppressed in the mid-70s.

Check our website, www.cheniere.org, for a 119-slide "porthole" briefing on the present author's extension whereby specialized mixes of ordinary EM waves can be used to initiate and perform this "delta engine elimination" healing process, and it can be highly amplified well beyond the body's normal healing capabilities.

In 1998 we seriously proposed to the DoD, the USAF, the NIH, and other U.S. government institutions that a crash development program be initiated to develop portable units capable of rapidly (5 minutes per patient) treating mass casualties from coming terrorist attacks with weapons of mass destruction such as anthrax, smallpox, bubonic plague, Ebola virus, etc. Sadly, no one in the U.S. government had the foggiest notion of what we

"Le Probleme Priore," *Rapport de la Commission de l'Academie des Sciences a Monsieur le Ministre d'Etat charge de la Recherche et de la Technologie*, 1982, p. 1-22; (c) Antoine Priore, "Precede et dispositif de production de rayonnements utilisables notamment pour le traitement de cellules vivantes," [Procedure and Assemblage for Production of Radiation Especially Serviceable for the Treatment of Living Cells], Republique Francais Brevet d'Invention P.V. No. 899,414, No. 1,342,772, Oct. 7, 1963; (d) Antoine Priore, "Method of producing radiations for penetrating living cells," U.S. Patent No. 3,280,816, Oct. 25, 1966; (e) Antoine Priore, "Apparatus for producing radiations penetrating living cells," U.S. Patent No. 3,368,155, Feb. 6, 1968; (f) A. J. Berteaud and A. M. Bottreau, "Analyse des rayonnements electromagnetiques emis par l'appareil Priore," [Analysis of the electromagnetic radiations emitted by the Priore apparatus], D.R.M.E., 1971, p. 3-12.; (g) R. Courrier, "Expose par M. le Professeur R. Courrier, Secretaire Perpetuel de L'Academie des Sciences fait au cours d'une reunion a L'Institut sur les effets de la Machine de M. A. Priore le 26 Avril 1977," [Presentation by Professeur R. Courrier, Perpetual Secretary of the Academy of Sciences, made at the meeting of the Academy on the effects of the machine of M. A. Priore]; (h) R. Pautrizel, A. Priore, M. Dallochio and R. Crockett. (1972) "Action d'ondes electromagnetiques el de champs magnetiques sur les modifications lipidiques chez le Lapin par l'administration d'un regime alimentaire hypercholestrole." [Action of electromagnetic waves and magnetic fields on provoked lipidic modifications in the rabbit by the administration of an alimentary hypercholesterol diet.] *Compt. Rend. Acad. Sci. (Paris)*, Vol. 274, 1972, p. 488-491. The same university that rejected Priore's doctoral thesis in 1973, accepted a doctoral thesis on the same subject some 11 years later due to the persistence of Pautrizel: See (i) Eric Perisse, *Effets des Ondes Electromagnetiques et des Champs Magnetiques sur le Cancer et la Trypanosomiasse Experimentale* [Effects of Electromagnetic Waves and Magnetic fields on Cancer and Experimental Trypanosomiasis], Doctoral thesis, University of Bordeaux No. 83, March 16, 1984.

were discussing. At NIH, we never got out of their "policy" (i.e., "spin control") department. Not a single capable scientist reviewed the extensive package. The attack on the World Trade Center and the Pentagon on Sept. 11, 2001 is just a forerunner of that which is to come. We could have been prepared to save hundreds of thousands of Americans, even millions. We shall not be ready, and the first really professional anthrax or smallpox (or camel pox, which is easily available and almost exactly the same as smallpox) attack on a major U.S. population center may leave from one to three million Americans dying in the streets and in their homes. Presently nothing will save them. It could have been different.

10.3.2 Photons and Waves in Minkowski Spacetime

Photons are made of angular momentum (action); i.e., of *energy \times time*. Waves, being made of photons, carry both spatial (decompressed) energy and time (highly compressed) energy — although physics has largely omitted the *time-energy-carrying* aspect, and only accounted for the *spatial energy-carrying* aspects. An EM wave in space is actually a wave of the particular spacetime curvatures that produce angular momenta in interacting charged masses. The standard notion of E and B fields at right angles in a plane in 3-space, traveling along the z -direction and with the plane orthogonal to z -, and with E and B field vectors oscillating back and forth, is nonsense, as acidly commented upon by Romer {603}, the former editor of *American Journal of Physics*.

Nonetheless, using the standard way of modeling the "transverse" EM wave: In conventional electrodynamics, a *transverse EM wave* is one where the 3-spatial energy density is considered to be varying rhythmically at right angles to the direction of wave propagation, and the time-density is assumed to be non-varying, or at least altered only by special relativistic considerations in certain cases.²⁹⁶ A longitudinal EM wave has its spatial energy density fixed in x - and y -directions, and its energy density is oscillating along z -, the direction of wave propagation, by a "compression" and "rarefaction" process much like squeezing an accordion. This, however, leads to a "galloping" motion where the wave is alternately very superluminal and very subluminal at given instants, but moving at an *average* velocity of c {604}. On the other hand, a *time-density (scalar) EM wave* by definition is not varying in its 3-spatial energy density, and

²⁹⁶ We point out that a wave of varying spatial energy density is moving in a varying curved ST a priori, by general relativity. If the "wave" were in a flat spacetime as normally assumed, the EM flat spacetime would eliminate the EM wave itself. **This** has been particularly pointed out by Sachs and by Evans.

therefore is not varying in x -, y -, or z -. Instead, the energy is in the form of time-energy, and its variation is in time density. So its energy density is oscillating along the fourth Minkowski axis, ict , as an oscillation of the energy density of the variable t . It is therefore polarized in the t - direction.

10.3.3 Time-Charging, Internal Structuring, Vacuum Engines, and Diffusion

Photon interaction as a *spatial* energy collection or energy exchange process is well known in physics. However, the time-charging or time-excitation interaction between the mass and the time component carried by the photon is usually ignored.

As is well known, an atomic electron that absorbs a transverse photon increases its spatial energy and changes into an excited spatial energy state. When the electron subsequently "decays" from that excited energy state to a lower state, the spatial energy differential between the two states is emitted as the spatial energy component of an emitted photon. This is the *spatial energy density* reaction of a transverse photon with an absorbing and emitting mass particle.

Unaccounted for by physics, at the time of the energetic excitation of the mass (i.e., when the photon is absorbed), a time excitation — time charging — also occurred because the time-component of the absorbed photon is also attached to the mass, converting it to *masstime*, a new entity. Re-emission of the photon is accomplished by the decay of both the *spatial energy* excitation and the *time-energy* excitation. In the previously excited state after photon absorption, however, one did not have the entity "mass", but the entity *masstime* having greater topology. If mass is an observable and taken to be 3-spatial (as is conventional), then photon absorption and emission oscillates between 3-space and 4-space effects, generating both spatial energy and time-energy (or *angular momentum*) excitation and decay.

Further, only *masstime* emits a photon. This immediately casts a very different light on such things as radioactive elements, which are in an initially excited state. Discussion of this aspect, however, is beyond the scope of this treatise.

On the other hand, a *scalar (time-density)* photon {605, 606} has a rather different interaction, regardless of how physics presently treats it. Any atomic electron at any energy level is continually receiving and emitting virtual photons - transverse, longitudinal, and scalar- in its virtual photon exchange with the energetic vacuum. Hence it is continually "connecting to" or "absorbing" time components, thereby changing its nature from

mass to masstime, back to mass, back to masstime, etc. Not only the entire electron but also each differential piece of it is performing that dance between mass and masstime. This is a continual changing from 3-space to 4-space and back. There thus is a violent "chatter" of the electron (and each differential piece of it) in the myriad levels of its *time* exchanges, giving it

- (i) An average rate of time component exchange,
- (ii) An average "time-charge", and
- (iii) A dynamically changing, specific structuring of its time components.

Whenever a mass absorbs an observable photon, the mass converts to masstime, with an "extension in time" as well as extension in 3-space. During the time-interval created in the masstime, myriads of virtual photons are absorbed and emitted by that mass component of the masstime entity. Hence every dt portion of the masstime state after observable photon absorption, is "internally structured" by the entire virtual photon interaction set's At 's occurring within that time interval.

By tailoring at least the larger elements of this internal structuring of the masstime state's virtual photon bombardment, by a deliberately induced virtual photon bombardment, the emitted photon from the masstime decay will carry away with it a desired internal "vacuum engine" structure of organized curvatures of spacetime. In short, two potentials superpose; that is one of their primary features. When they superpose, they also diffuse their internal structures (internal vacuum engines) into each other.

We speak of the *diffusion of a specific vacuum engine* placed in one interacting EM potential, field, and or wave as *dimensioning* the potential, field, or wave. Adding a dimensioned potential, field, or wave to other potential(s), field(s), or wave(s) diffuses the dimensioning (the engines) between all of the participating entities. With steady radiation of such dimensioned signals into a targeted object, field, wave, or potential, the dimensioning is gradually created (kindled) in the target, simply diffusing throughout it and gradually accumulating. If the irradiating signal carries a specific disease — e.g., necrotizing fasciitis — then gradually in the irradiated body there will emerge all the symptoms of necrotizing fasciitis. If the irradiating signal carries a specific disease antiengine — e.g., for necrotizing fasciitis — then gradually the necrotizing fasciitis condition will be eliminated, with the disease organisms also being eliminated.

This is a more fundamental extension of the disease vector concept. Not only can a disease vector be induced by a physical organism such as a virus or bacterium, but it can also be introduced by simply capturing the fundamental vacuum engine pattern of the disease and using it to condition or dimension signals used to steadily irradiate the targets.

This is the explanation of the Kaznacheyev experiments {607}: thousands of experiments performed by Vlai Kaznacheyev and his colleagues demonstrated the induction of almost any kind of remote specific cellular death and disease patterns in targeted cells, by absorption of radiation emitted from appropriate dying or diseased "emitter" cells with that condition, if the experiments were performed in the dark.

Instead of looking for biogenesis causes in amino acid precursors to cellular life in meteorites etc., one might well look into the *vacuum engine structures* inside the light from the sun, the planets, the stars, and the universe in general. E.g., dead sperm can often fertilize female cells, if not too much physical damage and deterioration to the dead sperm cells has yet occurred. This is understandable, since for a time a dead but undamaged sperm cell will have the same resident engine as a living sperm cell.

10.3.4 Some Cosmological and Gravitational Effects

Each of the observable-sized dt's in all the serial masstmc excited states of the mass moving through time, is internally and precisely structured. **The** precise time history of any mass — together with all its interactions, experiences, etc. — is present inside the time stream of ongoing interactions of that mass with photons. These virtual photon changes are in fact deterministic and come from every part of the universe, as shown by Puthoff {608} in his self-regenerative cosmological feedback cycle. We have merely extended his cosmological feedback to include the time **domain** as well as the energy domain. We hypothesize without further **discussion** that this internal structuring of the time-domain for every mass or object will eventually be connected with the quantum concept of the **geometric** phase {609}.

When a transverse photon interacts with a mass in the presence of other **photon** interactions, the mass can act as a phase conjugate mirror and form the phase conjugate replica photon (an antiphoton). For a longitudinal **photon**, the antiphoton *prior to observation* is a scalar photon. We propose that in the unobserved causal state the photon and antiphoton can couple (strong interpretation of the distortion correction theorem) and form a spin-**2 graviton**. According to quantum field theory, one may already interpret

the common scalar potential as being comprised of such spin-2 gravitons {610, 611} if we speak of the situation prior to observation.

As opposed to the accounted *spatial energy charging* of the familiar transverse photon interaction, the longitudinal photon interacting with mass will cause immediate phase conjugation by the mass because of the accompanying scalar photon (accompanying antiphoton prior to observation). When one pumps with longitudinal EM waves, one also inadvertently pumps with time-polarized EM waves simultaneously.

From its background "time-energy pumping" in its vacuum exchange, the mass forms the phase conjugate replica, which couples to the incident longitudinal EM photon. This forms (wave view) bidirectional longitudinal EM wavepairs (conjugate pairs), comprised of (particle view) internal coupled longitudinal photon-antiphoton pairs. Each of those internal photon-antiphoton pairs is a spin-2 graviton.

Each such conjugate longitudinal wavepair actually contains a time-density (time-polarized) or scalar EM wave. So the interaction of LWs and their accompanying scalar waves immediately initiates the formation of time-density waves, which then primarily perform a time-charging interaction. In addition, even for an equilibrium time-charging state, the "masstime" state of the interacting electron contains a specific structure of the time elements in the electron-time's time component. Each of these infolded time elements is also time-charging the electron.

10.3.5 Charging and Excitation Considerations For Cold Fusion Purposes

So there are several new types of charge or excitation that are involved in cold fusion and other phenomena. One may speak of charging and excitation such as gravitational charging, time charging, time-energy excitation, time-energy charging, etc.

Both the longitudinal photon and the scalar (time-polarized) photon are in fact known in physics, but usually neglected, at least at the end of calculations. E.g., Gray {612} puts it this way about the four kinds of photon polarizations and the habitual elimination of the higher ones:

All that quantum theory can say is that there are two transverse photons, a longitudinal photon and a scalar photon. It must be decided by other means which are "desirable" states and then it is customary to "eliminate" the longitudinal and scalar photons by invoking a

subsidiary condition, now somewhat weakened from the Dirac form.

For our purpose in examining the cold fusion experiments, there exists a completely unsuspected "time-charge" set of excited states for an atomic electron, a proton (as in an H⁺ ion), etc.²⁹⁷ There also exists a "time-structuring" of the time-charge excited time-state, which we will see is important in certain highly anomalous instrument phenomena. Uncovering this time-charging and time-structuring interaction has been one of the major results of this author's long effort to decipher the functioning of the healing (cellular regeneration) system of the body as well as his efforts to decipher the fundamental nuclear transmutation mechanism in cold fusion transmutation interactions at feeble *spatial* energy.

In summary: For longitudinal photon interaction, the atomic electron "absorbs" the longitudinal photon and its accompanying scalar photon, being simultaneously spatial-energy excited (charged) by the longitudinal photon and time-energy excited (time-charged) by the scalar photon. This time-excited state (of masstime) then subsequently decays, emitting a longitudinal photon accompanied by a scalar photon in the process.

²⁹⁷ See again footnotes 287, 288, and 289. From our mechanism propelling a mass through time, time-charging and discharging play the causal role. The acquisition of dt by mass m produces masstime mt , then the subsequent photon emission decay of mt back to m produces "propagation of mass m forward through time" by one "jump". Time charging with $-dt$ and subsequent photon emission is what produces "propagation of mass m backwards through time" by one "jump". Evans et al. proved that even up to the micron scale physical particles and their dynamics can run backwards in time for up to two seconds or more. The fluctuation theorem proved by Evans and his colleagues in 1993 shows us that, at the scale of a proton and neutron, there can become a high probability of significant time reversal of the physical dynamics. This means that the law of attraction and repulsion of charged particles

—such as two H⁺ ions in solution — "runs backwards" or is reversed, so that momentarily like charges attract and unlike charges repel. We have called the region in which this reversing of the physics occurs a *time reversal zone* (TRZ). With the recentwork of Evans et al., the existence and occurrence of TRZs even well above the proton (the H⁺ ion) level is now clearly established, including the reversing of the physical dynamics. These concepts have not yet been applied to cold fusion interaction results by the leading cold fusion researchers, but they now stand as explaining the most probable mechanism for the observed phenomena. In this Chapter we have written some of the typical new nuclear reactions that can occur in such a TRZ, and the exact products of these reactions are widely reported in several hundred successful cold fusion experiments.

We shall return to time-charging and time-charge decay when we examine and explain the odd instrumental anomalies experienced for some time in experiments at China Lake.

10.4 Time Reversal Zone and New Nuclear Reaction Mechanisms

It follows that the flow of a mass through positive time must involve a preponderance of reactions with photons rather than antiphotons, since *net* absorption and re-emission of photons (rather than antiphotons) is involved. Otherwise, the absorbing and emitting mass would not accomplish little "jumps" forward in positive time.

Suppose we deliberately arrange a situation where the target mass is interacting with a preponderance of antiphotons. In this case, the mass will be time-reversed, as will be the EM energetics.²⁹⁸ This leads us to the novel concept of a *time reversal zone* just described in footnote.

A time-reversal zone (TRZ) is a region of space, or electrolyte, etc. in which given masses or charges of interest are interacting on the average with more antiphotons than photons. Consequently, in the TRZ the usual EM energetics are reversed and normal charge reactions appear to "run backwards" insofar as the spatial 3-space observer is concerned.

For example, in electrolytes in a region of highly loaded positive charges in a loading palladium lattice with properly prepared surface, a very great number of double surfaces exist. Hence a great number of scalar interferometries continually occur from that large number of double surfaces acting as scalar interferometers {613}. Because of the highly excess positive charge loading, these interferometers are predominately fed by negative EM energy from the positive charges. Hence, in the distant interference areas in the electrolyte outside the palladium lattice, some

²⁹⁸This *is not* time-travel in the classical science fiction sense. For time-travel, the traveling object must remain moving in its own forward time, while the entire remainder of the universe must be reversed in its time and must move backward in time to a past coordinate. That is not what is happening here, and no one is suggesting we can time-reverse the rest of the universe! Instead, energy can be reversed in time, as proven in nonlinear phase conjugate optics. So can mass-energy and charge-energy, as shown by the Dirac theory of the electron. An *observed* positron is an electron observed while traveling backwards in time, so to speak, with respect to the observer. But it is observed in observer forward time as traveling in the opposite spatial direction, having positive mass and positive energy, and with the sign of its charge reversed from negative to positive.

negative energy fields and negative energy potentials are produced dominantly. An excess of antiphotons is produced in those interference zones where an excess of antiphotons appear due to the scalar interferometry. In *those* little interference zones, the simple positive ions are momentarily bathed in an excess of antiphoton interactions. This is therefore a time-reversal zone of momentary time-reversed EM energy flow.

From a palladium lattice loaded with H^+ or D^+ ions, and also having a proper surface with many work grooves and thus many small interferometers, random fluctuations in the scalar interferometry occur in the adjacent electrolyte. Some of these random scalar interferometries continually form fleeting time reversal zones (TRZs) in their interference zones in the surrounding electrolyte. The very large energy required for the formation of each TRZ and its reversal of the normal laws of attraction and repulsion of charges, is available from conversion of time energy from the time domain as a result of the giant negentropy mechanism in 4-space ongoing in the loaded positive charges (614, 615) in the palladium lattice.

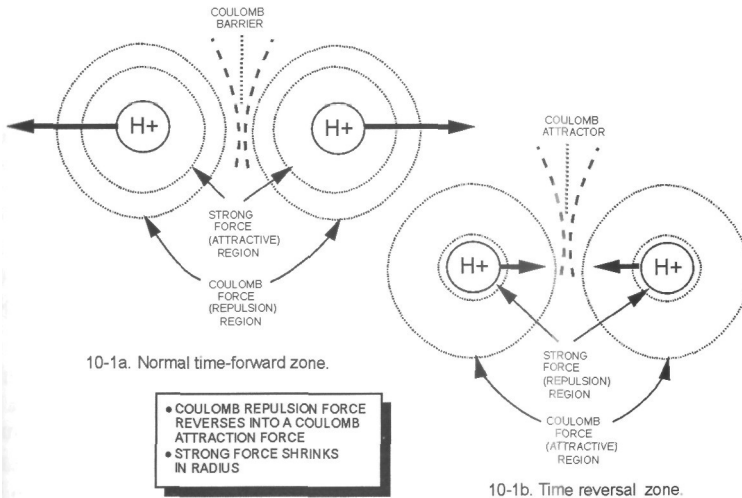


Figure 10-1 Forces on nuclei of simple ions in time-forward and time-reversal zones.

See Figure 10-1. In Figure 10-1a, two hydrogen ions (two free H^+ protons) in a normal electrolyte and in a normal time-forward zone are shown. The

Coulomb barrier dramatically increases the forces of repulsion between the two H^+ ions as their kinetic energy may be driving them momentarily toward each other. This Coulomb barrier becomes so strong that it stops the approach of the two ions and forces them back apart, or to deviate aside from their paths, before each can ever enter the very short-ranged strong force region of the other. Consequently no nuclear reaction occurs, but only a common chemical reaction. The maintenance of that Coulomb barrier is all that prevents energetic ions from being driven together closely enough to engage the strong force and cause the ions to form a new nucleus (cause a transmutation).

Now see Figure 10-1b, for the same two ions that suddenly find themselves in a momentary time-reversal zone (TRZ). In a temporary TRZ, suddenly like charges attract and unlike charges repel, exactly in reverse of the *normal* behavior of charge attraction and repulsion. The usually increasing Coulomb barrier (repulsive force between the two approaching H^+ ions) has disappeared and been replaced by an increasing Coulomb attractor (attraction force). Further, the strong force has been partially reversed and much weakened since the gluon forces are dramatically reduced and fluctuating.²⁹⁹ The attractive strong force is now a partially *repulsive* force and so it is much weaker. Consequently, the quarks in a proton or neutron are not nearly so strongly bound as they are in a normal time-forward zone (TFZ).

A TRZ represents a highly time-charged excited local state in that local region of the electrolyte. The moment a TRZ is formed, the surrounding ions in the electrolyte outside the TRZ immediately move or deviate their movements to reverse this TRZ action³⁰⁰ and convert it back to a time-forward zone (TFZ). Hence once it is born in the electrolyte, the TRZ decays rapidly due surrounding ion movement changes, and even more

²⁹⁹ Again we stress the tremendous energy density of the time-energy involved. These cold fusion interactions are actually higher *total* energy reactions than nuclear physics presently uses, even though the *spatial* energy density of the reactions is very small. Together with the now-proven fluctuation theorem of Evans et al., the TRZs and reversal of the normal Coulomb barrier into a Coulomb attractor open up a vast new nuclear chemistry of direct nuclear transmutation reactions at low spatial energy but at very high tempic energy. The ability to directly engineer the quarks and the gluon forces, e.g., opens up a new chemistry of direct subparticle engineering heretofore considered quite impossible by chemical means.

³⁰⁰ Their approach increases the fraction of photon reactions relative to antiphoton reactions, since the other ions are moving in a TFZ on the average.

rapidly due to the rapid variation in the fluctuating scalar interferometers in the loaded palladium lattice. In most cases, the random fluctuation in the scalar interferometry is so rapid that the TRZ decays back to a normal TFZ before the two approaching H^+ ions can reach each other (reach each other's reduced strong force repulsion region). However, in a certain percentage of approaches, the two approaching like-charged ions will "reach each other" — i.e., each will enter the weakened strong force region of the other before decay of the TRZ occurs.

See Figure 10-2. In Figure 10-2a, we show the case in which the TRZ lasts long enough for the two H^+ ions to reach each other's strong force repulsion zones and form a quasi-nucleus. Here they vibrate back and forth in a dynamic dance around the zero net force axis between their repulsive strong forces and their attractive Coulomb forces. In this case, a new kind of nuclear reaction is set up to occur. Decay from this excited quasi-nucleus state in a TRZ can occur into a real nucleus in a normal TFZ. Energetically, because the quarks are so loosely bound now³⁰¹ the preferred decay mechanism when $TRZ \rightarrow TFZ$ is by appropriate *quark flipping*.

As a little bit more time passes, the interferometry changes and the TRZ decays, returning back to a normal TFZ. In a change from TRZ to TFZ, the energy change is enormous because time-energy is involved, with energy density equal to mass. The only difference in a proton and a neutron is the orientation of one quark (three quarks make up each of the particles). As TRZ decay starts and progresses, the strong force changes back to a powerful attractive force. It increases its strength far more powerfully and quickly than the Coulomb attractive force reduces its reversal and changes back to a repulsive force. The addition of the extra energy from the now-increasing strong attraction force simply causes one nearly-freed quark in one of the two H^+ ions to flip, converting that H^+ ion into a neutron n.

Instantly the preferred decay product is the deuterium ion D^+ . So the H^+ and the n simply draw a bit closer together, each now fully inside the

³⁰¹ To appreciate the sheer raw power of the time-energy control of interactions, simply examine the enormous *spatial* energy density required in high energy physics to try to approach the "free quark" condition. Enormous and very expensive *spatial energy* accelerators are used, at the absolute state of the art. By going to the use of the extraordinarily dense time-energy, quarks can readily be freed or nearly freed in electrolytes, and they are nearly freed in more than 600 relatively simple and inexpensive cold fusion experiments {753} on the bench-top to allow new nuclear reactions by quark flipping, where a proton turns into a neutron or vice versa.

rapidly increasing attractive strong force region of the other. This converts what had been a quasi-nucleus of two H^+ ions into a real D^+ nucleus. This result is shown in Figure 10-2b.

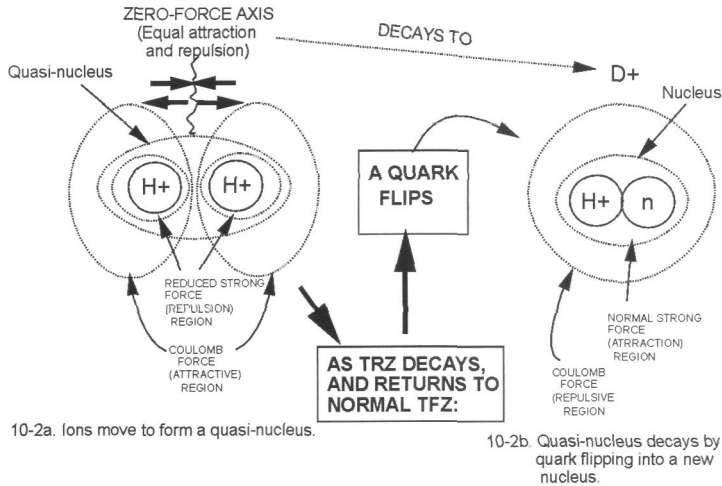


Figure 10-2. Production of quasi-nucleus and its decay by quark-flipping into a new nucleus as the time-reversal zone decays back to a time-forward zone.

Recapitulating: As the TRZ subsequently decays back to a normal time-forward zone (TFZ), the new quasi-nucleus becomes an excited state, and decays. However, the quasi-nucleus decays by very novel means. Because of the time reversal, the energy changes induced in the decay start at each spacetime point inside the quasi-nucleus, deep inside the quarks, and proceed outward. The first interaction of the decay mechanism is with the quarks comprising the nucleons (in this case, the protons). With the gluon forces still very much weakened, quark flipping becomes the preferred decay mechanism. Hence one quark in one proton flips its orientation (that is the mechanism of decay!) and the nucleus — now a nucleus comprised of a proton and a neutron — becomes a nucleus of deuterium.

As can be appreciated, the clustering of different types of like-charged but relatively simple positive ions in TRZs in solution, with subsequent decay of the TRZ into a TFZ, initiates a revolutionary new family of nuclear reactions at low spatial energy (but very high temporal energy), completely contrary to, and not included in, the present forward-time high-spatial

energy (but very low time-energy) reactions model known in particle physics.

In the future, as these new time-energy-based reactions are extended and mastered, scientists will simply assemble desired nuclides in solutions in the laboratory, at low spatial energy (but high time-energy) and at will. We point out but do not pursue further the fact that these new reactions also open up cheap, practical, electrochemical means of altering nuclear and chemical wastes. We therefore foresee a dramatic development in this area, in order to clean up the presently polluted biosphere of much of the chemical and nuclear waste contaminants.

Indeed, we propose that a very strong program in mastering these new nuclear reactions be launched and supported by the U.S. Department of Energy, so that the nuclear wastes storage problem can be permanently solved, much more cheaply, and without having to store hazardous nuclear wastes for centuries. Instead of merely *talking* about "out-of-the-box thinking and research", the DoE should actually do some of it, over the violent objections of the entrenched conventionalists of the national laboratories. Their own great national laboratories are the major part of the problem, not the solution, for both innovative nuclear reactions and innovative energy systems! The problem is that "in-the-box" entrenched conventionalists do not perform or allow "out-of-the-box" research that strongly threatens their vested interests.

The TRZ decay conversion of two protons into a deuteron — by easily flipping one quark in one proton — is an example of the so-called "nuclear reaction at low energy" that has been so controversial *to* the orthodox scientific community, even in the face of some 600 successful cold fusion experiments. Contrary to the assumption of the conventional physics community and the skeptics, these are not "low *total* energy" physics

reactions at all. Instead, they utilize energy density on a level commensurate with that achieved in the largest accelerators available and even much higher. *This is actually a much higher total energy physics than the present conventional high energy physics heretofore known or used.*

Particularly in a deuterium-enriched (deuterated) electrolyte, a variety of simple ion arrangements of D⁺ ions and H⁺ ions can occur. Many of these combinations and arrangements can and will occur in TRZs if sufficient loading of the palladium lattice is achieved. Below we will present and explain a few of these new nuclear reactions that have occurred in successful cold fusion experiments. First, to be tidy we must correct the

present statement of the conservation of energy law by extending it to include time-energy.

The excess heat usually experienced in the electrolyte is explained by the added negentropy (added energy) from the time-domain, which then dissipates randomly in the solution, producing excess heating. Later we will cite strong experimental evidence for the involvement of such time charging (time-energy charging), with subsequent time-charge (time-excitation) decay as ordinary photons in cold fusion experiments.

10.5 Revision of the Conservation of Energy Law

10.5.1 Unaccounted Transduction Extends the Conservation of Energy Law

Along with the re-emission of all the previously absorbed spatial energy, all the previously absorbed time-charge of the excited electron may be re-emitted with a longitudinal photon/scalar photon pair (a graviton) when the time-excited state decays. In that case, no energy-charging permanent change results to the electron's original energy state. Hence no "electron wiggle" will be created and our normal "electron wiggle" detectors performing such non-transducing longitudinal EM wave interactions will not exhibit an indication. In short, the "pure" time-charging EM LW interaction is unobservable to present instruments. All they "see" is the "same electron" sitting there and "flowing through time".

However, if two or more such gravitons are simultaneously emitted from various reactions in time-decays, the emitted scalar photons and waves may interfere at some little distance. In that case, transverse EM waves and ordinary EM energy will be produced in the interference zone {613}. To the external observer, these EM fields and forces will simply seem to arise spontaneously and emerge from every point in spacetime inside that interference zone, moving outward from there in conventional "propagation through space" manner. In that case, the normal "photon" (actually, graviton) decay processes plus scalar interferometry have resulted in transducing some time-energy into ordinary spatial EM field energy. Such reaction provides the excess heat demonstrated in successful cold fusion experiments.

This is also a true action at a distance reaction, presently unaccounted in particle physics. Action at a distance is required in quantum mechanics, and it has been experimentally demonstrated multiple times in distant photon correlation experiments. Once any action at a distance is admitted because it has been experimentally proven, there is no logical restriction

that only a single mechanism exists for it. Consequently, many of the present foundations assumptions of physics and some of the things previously abandoned because of their conflict with those assumptions will have to be re-examined {616}.

Scalarinterferometry is indeed a mechanism for action at a distance. While still mostly absent from open physics, it has already been weaponized by some 10 nations of the world. Indeed, U.S. Secretary of Defense William Cohen confirmed in 1997 that (novel) electromagnetic processes are already being used to initiate earthquakes, stimulate volcanoes into eruption, and engineer and control the weather {617}. Whether or not it is present in the particle physics texts, scalar interferometry is being widely used clandestinely in several armies today. It has also been used to shoot down missiles and aircraft as tests. The so-called "Cold War" was not quite as cold as the news media and U.S. scientific community were led to believe.

Because of the ubiquitous involvement of unaccounted time-energy in all photon interactions, an extension to the present form of the conservation of energy law is required. The present (special case) law is

$$E(E)_1 + E(m)_1 = E(E)_2 + E(m)_2 \quad [1]$$

where $E(E)$ =energy in conventional non-massive energy form, $E(m)$ =energy in mass form, subscript 1 refers to the measurement at time 1, and subscript 2 refers to the measurement at time 2. This is just the well-known Einstein formulation that the sum of the ordinary energy and the mass-energy is conserved.

However, that law is for a special case. It assumes that there is no transduction of time-energy into either mass-energy or ordinary energy.

I.e., it assumes 3-symmetry and t-symmetry in EM energy flow. Since every charge in the universe already violates both that 3-symmetry and t-symmetry of energy flow, the fundamental assumption in the Einstein formulation is falsified by the general case. The conventional conservation of energy law is a special case where only the two mentioned energy flow symmetries are upheld. When they are violated, then transduction of EM energy between 3-space and time occurs. For that case, the conservation of energy law must be extended to

$$E(E)_1 + E(m)_1 + E(t)_1 = E(E)_2 + E(m)_2 + E(t)_2 \quad [2]$$

The **new** law simply states that the sum of the ordinary spatial energy, the **mass-energy**, and the time-energy is conserved. This extension of the **conservation** of energy law becomes important in successful cold fusion

experiments, where transduction of time-energy into ordinary heat energy occurs and where one encounters very anomalous reactions differing from those reactions known and accepted in conventional nuclear physics.

10.5.2 Transduction Between Time-Charging and Spatial Energy-Charging

The oscillating energy (spatial and temporal) in a moving EM wave in the vacuum represents a moving oscillation of spacetime curvature. Simply put, the so-called electromagnetic wave in space is actually a gravitational wave in space, since it is an oscillation of the local energy density of spacetime and therefore an oscillation of the curvature of local spacetime. It "transports" gravitons (scalar photon/longitudinal photon pairs) rather than merely photons. So let us now consider it as a gravitational wave.

In the absorber under special conditions, a small fraction of the graviton wave time-density absorbed will sometimes change (transduce) its time-energy into what we call transverse photon energy effects {618}, with something like a 10^{17} gain in spatial energy in joules compared to the time in seconds that actually transduces. In other words, 1 second of time transducing into EM transverse wave energy (using the standard EM modeling approach) will yield approximately 10^{17} joules of spatial EM energy. Since one can change energy from one form to another, *one can change time-energy into 3-spatial energy and 3-spatial energy into time-energy*, the two being merely opposite sides of the same coin, and both always involved in any situation exhibiting electrodynamic dipolarity.

In one's physics model, the choice of fundamental units is purely arbitrary. Everything can be expressed in a single fundamental unit, as pointed out by Jackson (see quotation from Jackson at the beginning of this chapter).

In a situation where 3-symmetry and t-symmetry in EM energy flow are broken, part of the *time charging* of the atomic electrons (or ions) sometimes changes (transduces) into *spatial energy charging* and vice-versa. This cross-dimensional decay of time-excitation states results in the emission of some extra transverse photons that may be either photons or antiphotons, depending on the exact interactions. The point is, *tremendous excess EM spatial energy can appear and either be emitted as heat or interacted to perform new nuclear interactions as extraordinarily high local energy density*. This is the master mechanism enabling anomalous cold fusion transmutation reactions. The amount of time transduced will be so small that it will usually escape notice, unless stringent efforts are used to measure changes in the local flow of time.

The excess photon energy (excess 3-space EM energy) appearing in these rather random but powerful transduction interactions often accounts for the production of anomalous excess heat - for example, as occurs in many cold fusion experiments. Where scalar interferometry is maximized, a more exact action will be detailed below for the specific nuclear transformations that occur by novel new nuclear reactions. These novel nuclear reactions occur at low *initial* spatial energy but with some time-energy transducing into additional very high spatial energy to initiate the interactions.

10.5.3 Resolving the Energy Conservation Problem in Cold Fusion

When transduction is involved, standard "transverse EM waves only" computations will seemingly yield violation of energy conservation — e.g., from the emission of excess heat. That is an erroneous interpretation; energy overall is conserved, but some of the unaccounted *time-energy flow* is transduced into 3-spatial transverse photon energy dissipation. Neither 3-spatial energy nor mass-energy nor time-energy alone, or in any pairing, need be individually conserved; only the combined *total energy of all three energy components* is conserved. This resolves the present major "sticking point" between the cold fusion researchers and the conventional "transverse wave" nuclear and electrodynamic communities regarding energy conservation difficulties and perpetual motion accusations. Those making the accusations and those defending against them are both using only a special-case conservation of energy law, and a more general law is required.

Let t = time in seconds, and W = energy in joules. Rounding the speed of light to 3×10^8 meters/sec, the energy W_{TW} emerging as transverse wave EM energy in 3-space by the transduction of time into 3-space energy is approximately

$$\text{One sec} = c^2 \text{ joules} = 9 \times 10^{16} \text{ joules} \quad [3]$$

and

$$t \Rightarrow W_{TW} = 9 \times 10^{16} \times t \text{ (in joules)} \quad [4]$$

Let us present the new energy conservation law in slightly different form. Let W_{TW} = energy measured in spatial energy form, conveniently taken as transverse wave (TW) EM energy. Let W_m = energy in mass form (energy compressed by c^2). Let W_t = energy in time form (energy compressed by c^2). The present conservation of energy law is

$$W_{TW} + W_m = W_{(\text{total})} \quad [5]$$

The new extended conservation of energy law is

$$W_{TW} + W_m + W_t = W_{(total)} \quad [6]$$

The conventional particle physics accounting will see only

$$W_{TW} + W_m = W_{(total)} \quad [7]$$

The conventional accountant will be unable to see

$$t \Rightarrow W_{TW} \quad [8]$$

so he will observe that the experimenter is reporting that

$$[W_{TW} + W_m]_1 \neq [W_{TW} + W_m]_2 \quad [9]$$

which in his lexicon is a violation of the conservation of energy law itself. In short, he will identify it as a typical example of a claimed perpetual motion machine or interaction. Then the defender of the faith will wax eloquent, applying labels such as "perpetual motion nonsense", "voodoo science," etc. He himself is practicing a hoary old "voodoo" science and ignoring newer science. None of these defenders of the faith even know what powers an electromagnetic circuit or how it is that every little charge in the universe is able to continuously pour out observable EM energy in all directions, with no observable EM energy input.

On the other hand, a reasoned response will be given by real scientists still following scientific method, when faced with the numerous replicated successful experiments. The scientific method insists on the absolute priority of the replicable experiment over the predictions *of any* theory. Consequently, such reasonable scientists will advise that the protagonists cease their vitriolic rhetoric and let real science take its course; i.e., let further experiments confirm or refute reported successful results of cold fusion experiments.³⁰²

³⁰² Precisely such a reasoned response by chief editor Donald Kennedy of the journal *Science* has recently been given, providing a breath of fresh scientific air into an attempt by "defenders of the conventional faith" to destroy publication of important experimental results in sonoluminescence. The article which courageous editor Kennedy approved for publication — over intense objections of the professional critics — is R. P. Taleyarkhan et al., "Evidence for Nuclear Emissions During Acoustic Cavitation," *Science*, Vol. 295, Mar. 8, 2002, p. 1868-1873. We heartily commend Editor Kennedy for this classic example of how science should be conducted — so that experiments, not prevailing dogma, determine what is valid and what is invalid.

What the professional skeptic will not see is that his own expression of the conservation of energy law has been incomplete, and that it is his own inadequate "measurement yardstick" assumption that is now in error. The *extended* conservation of energy law of course still holds, but the *conventional* special case law is violated because its fundamental assumption — that time is not transduced to spatial energy in the experiments — has been violated in the experiment.

Indeed, with the publication of the work of Evans et al., experimentally proving the fluctuation theorem and the high probability of time reversal zones appearing for short but significant periods at up to micron levels, the second law of thermodynamics has been rigorously proven to be violated. Hence the conventional scientific community's rather dogmatic objection to the extra heat of cold fusion interactions is no longer scientifically justifiable.

Understanding of the extended conservation of energy law and the permissible violation of the second law of thermodynamics resolves the present thorny dissension within the scientific community over the excess spatial energy produced by cold fusion. It also resolves the issue of what could possibly be a source of such intense energy density as is required for nuclear transmutation reactions.

Any ordinary system is indeed an open system, freely and continuously exchanging energy with its *temporal* environment as well as the seething active vacuum.³⁰³ If the system is in temporal energy equilibrium in that exchange, then the present restricted conservation of "spatial and mass" energy law applies and one does not have to consider the interactions between supersystem components. If the system is placed in disequilibrium with its temporal energy environment, then supersystem components interact asymmetrically and the extended conservation of energy law applies. In that case, excess spatial energy can be and will appear in the system whenever time transduction into spatial energy is occurring.

³⁰³ But see our Appendix A. Present thermodynamics rather inanely defines a "closed" system as one where no mass exchange crosses its boundary with its environment, but energy exchange can and does. In that view, a "closed" system can be far from equilibrium in its energy exchange with its active environment, and thus demonstrate the five magic attributes of such disequilibrium systems. In this book we have deliberately chosen to treat a "closed" system as one in which neither energy nor mass exchange crosses the system boundary — which classical thermodynamics refers to as an "isolated" system. We explain all this (and why) in Appendix A.

The implications of cold fusion energy transduction are that

- (1) Time is being "burned" or transduced as a "fuel" and source of energy,
- (2) Transduction of only one microsecond per second will yield 9×10^{10} watts steadily. That's 90,000 megawatts of energy per second — the equivalent of 90 large 1,000-megawatt power plants — if all the transduced energy were collected and used to power loads with 100% efficiency.
- (3) Thousands of new nuclear reactions are made possible and feasible by local transduction of time-energy into 3-spatial EM energy.
- (4) Appropriate capture and use of a portion of the excess energy can be accomplished to power loads.

Even if we capture and utilize only 1% of the transduced time-energy to power the loads, where the *time-energy to spatial energy transduction* is only the transduction of 1 microsec/sec, that system will produce the normal EM energy to power 900 megawatts in the load. That's almost 90% of the capability of a modern 1,000-megawatt power plant. That is quite a respectable electrical power system. It only requires the transduction and "burning" of one microsecond of time per second, without any nuclear wastes or hydrocarbon byproducts.

As can be seen, transducing time into energy is by far the most efficient way to go to develop new power plants for the future. This is particularly true since every charge in the universe already transduces time-energy flow into spatial EM energy flow. Indeed, we may consider that the negative charge transduces time-energy flow into the spatial outflow of EM positive energy, while the positive charge transduces negative time-energy flow into an outflow of EM negative energy. The process is useful not only for power applications, but also for transport applications as we briefly pointed out in Chapter 8.

10.6 Some Resulting *Low Spatial Energy* Nuclear Reactions

Refer again to paragraph 10.4 above. Summarizing: The formation of time-reversal zones (TRZs) is what enables the appearance of the new nuclear reactions in the electrolyte in cold fusion experiments. It does this by changing the Coulomb barrier between like charged ions into a Coulomb attractor. Further, the rate at which TRZs form and decay in the solution is a function of the frequency and intensity of the scalar interferometry from

the loaded palladium lattice. This means that the appearance of the new nuclear interactions in the electrolyte is also a function of the degree of loading of the palladium lattice, as well as the "double surface" interferometry preparation of the palladium, its cracks, etc. These are the major variables. Once the major variables provide the solution for significant formation of TRZs, then the following reactions can and do appear.

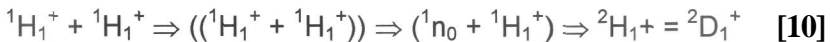
The sample reactions we present here are just a few of the thousands of new reactions possible. These example reaction products have been found in a great many successful cold fusion experiments in various laboratories around the world. Some 600+ successful experiments have now been done, and a sizable literature has built up and continues to be built up on the experiments and their results.

For our sample reactions, the primary mechanism of interest consists of several parts:

- (i) Formation of a TRZ, in which two positive ions (we shall look at H^+ and D^+), now attract each other. Also, the gluon forces in the proton and neutron, in the ions of interest, are significantly lessened, so that the quarks in each proton and neutron are very much more loosely bound. Consequently, decay from an excited state by quark flipping to turn a proton into a neutron or vice versa becomes an attractive option. The strong force is therefore reduced in radius.
- (ii) Two positive ions now attract each other so closely that each enters the edge of the weakened strong force region of the other. This forms a *quasi-nucleus* because of the limited involvement of the weakened strong force.
- (iii) The other ions in solution surrounding the TRZ immediately move (as soon as the TRZ is formed) to negate the TRZ and decay it back to a time-forward zone (TFZ). This action initiates the decay of the TRZ.
- (iv) As the TRZ lessens and then turns back into a TFZ, the strong force expands its size faster than the novel Coulomb "like attracting like" force reduces and reverses.

- (v) The rapidly expanding strong force of each of the two ions in the quasi-nucleus fully envelops the other ion, increasing the disequilibrium of the two-ion quasi-nucleus. A condition is reached where the most probable mode of decay is the flipping of one quark in one of the positive nuclei.
- (vi) The quark flips, turning that H⁺ ion into a neutron n. This is a quasi-nucleus of deuterium (D⁺), still in an excited state but with less excess potential energy in the excited state. At this point, the TRZ is vanishing and the TFZ state is returning.
- (vii) As the TRZ vanishes and TFZ state increases back to normal, the most probable mode of decay increasingly is to a full deuterium nucleus. Hence the H⁺ and n simply draw completely into normal deuterium binding position, bound by the normal strong force. This constitutes a normal D⁺ ion, now existing in a normal TFZ.
- (viii) So by formation and decay of a significant TRZ, two H⁺ ions have been drawn together into a quasi-nucleus consisting of two H⁺ ions partially bound by a weakened strong force. As the TRZ decays and the Coulomb repulsion resumes, the strong force increases back to full strength faster than the Coulomb repulsion force returns and repels the two H⁺ ions. Since the quarks are much more loosely bound than normal, a quark in one of the H⁺ ions has flipped, turning the ion into a neutron n. The H⁺ ion and the neutron, partially bound already in a quasi-nucleus, simply "tighten" into a normal D⁺ nucleus as the TFZ condition is fully resumed.

The nuclear reaction equation for the above interaction may be written as



In equation [10] we use the left superscript as the number of nucleons in the ion nucleus, the right subscript as the protons in the ion nucleus, and the right + superscript to show the overall charge of the ion and its sign. We use the expression in parentheses to show the involvement of a time-reversal zone (TRZ). Double parentheses show a stronger TRZ than single

parentheses. Thus from double parentheses to single parentheses to no parentheses shows the initial formation and subsequent decay of the TRZ.

Another interaction involves a D⁺ ion and an H⁺ ion, to produce tritium. This is:



That reaction transmutes a deuterium ion and hydrogen ion into a tritium ion. Without showing it, in a TRZ three ${}^2\text{H}_1^+$ ions may also attract into a quasi-nucleus, and as the decay of the TRZ occurs, first one proton turns into a neutron and then a second one does also, by quark flipping. This nuclear reaction also produces a fusion into tritium.

Another reaction between two deuterium ions is"



That interaction — particularly in pre-deuterated electrolyte solution — gives the excess particles produced in a great number of the cold fusion experiments.

A rarer but still occurring interaction is:



Indeed, reaction [13] may occur to completion and formation of a particles in some of the transmutations in an electrolyte, while it proceeds only to the intermediate phase in others. In that case, both deuterium ions and a particles may be produced out of the same overall "chain of reactions" where some reactions proceed all the way and some do not.

These interactions are directly using and transducing time-energy by use of the TRZ to time-reverse the Coulomb repulsion law for like charges. From the reactions, excess energy given off as heat may and will occur.

The nuclear physicist and nuclear chemist can immediately see a great many new nuclear reactions now made possible by the adroit production and decay of TRZs. A great number of these new nuclear reactions are now possible by this means, which are impossible in ordinary nuclear chemistry without the deliberate formation of TRZs.

These few examples serve to illustrate the process, and these reactions represent res alts already achieved in numerous cold fusion experiments worldwide, by many researchers and multiple laboratories. Now we turn to other evidence strongly supporting the novel nature of these reactions

rather than several other proposed reaction equations yet to be proven. The other proposals do not explain the next type of new experimental reaction.

10.7 Time-Energy Can Generate Instrumentation Anomalies

Strong evidence for time-charging and time-charge decay is experimentally demonstrated in electrolyte experiments where time-reversal zones (TRZs) are operating, and thus where some localized processes are running backwards in violation of the second law of thermodynamics. Weak time-charging of photon-absorbing and emitting matter, with special patterns of spacetime curvatures (engines) induced by time-density oscillations and structuring, is persistent in matter, having "charge-up" and "decay" times that may last for minutes, months, or even years. A very wide range of previously anomalous phenomena, both in inert and living matter, is explainable by these new interactions. This is very probably also related to the "memory phenomena" noted by Kondepudi and Prigogine³⁰⁴ as outside the present thermodynamics, but being worked on at the forefront in what is called "extended thermodynamics". Quoting Kondepudi and Prigogine, p. 460:

"...interesting memory effects ...appear for long times (as compared to characteristic relaxation times). ...nonequilibrium processes may have 'long-time tails'. In other words, the approach to equilibrium is not exponential, as was generally believed, but polynomial ...which is much slower. ... As a result, Nature has a much longer memory of irreversible processes than it was thought before. Again this shows that local equilibrium is an approximation, albeit a very good one. "

In this book, we focus primarily upon some typical anomalous measurements in China Lake experiments that are directly involved with time-charging and decay effects, lending strong support to our thesis of the novel TRZ-induced nuclear reaction chains. Note that these instrumental anomalies are also strong evidence for the association of time-charging and time-charge decay with the proven fluctuation theorem of Evans et al.

³⁰⁴ Dilip Kondepudi and Ilya Prigogine, *Modern Thermodynamics: From Heat Engines to Dissipative Structures*, Wiley, Chichester, 1998, p. 459. For a discussion of extended thermodynamics, see D. Jou, *Extended Irreversible Thermodynamics*, Springer-Verlag, New York, 1996.

at the Australian National University. We believe this to be a contribution to that very important work of Evans and his colleagues.

10.7.1 Ionization Detectors, Transduction, and EM LW Interferometry

Ionization processes obviously are processes where the partial transduction of LW time interaction into 3-spatial energy interaction would yield ordinary excited energy states of the affected electrons or ions. In turn, this would lead to ionization (e.g., of the atoms and molecules of a gas, liquid, etc.) Hence, ordinary ionization detectors such as Geiger Miiller tubes have the innate *capability* of detecting such transduction that generates ionization, and thereby have some capability of serving as "detectors" of longitudinal EM wave interactions (and time-charging) ongoing in the detector. In the usual situation, no excess time-charging results and no time reversal zones result. In that case, symmetry of energy flow in the time-domain exists, as does symmetry of energy flow in 3-space. Absolutely normal chemistry and nuclear chemistry results, and the nuclear detectors function normally, as familiar to every laboratory.

However, when significant TRZs emerge and persist for short periods, the symmetry of both time-energy flow and 3-spatial energy flow is broken. In this case, transduction of time-energy into 3-spatial energy (and vice versa) can result in anomalous ionization in nuclear ionization detectors, even in the absence of normal transverse EM nuclear radiation. The trick is to use and compare different detectors and different types of detectors to clearly demonstrate anomalous ionization detection effects.

As an example, a Geiger Muller tube will detect any ionization of its internal gas, regardless of what caused that ionization. If the ionization is caused by normal ionizing radiation from nuclear reactions, the instrument will detect and read a resulting internal ionization of the gas inside the tube.

On the other hand, if time-charging and decay are involved, then the asymmetry resulting in 3-spatial energy excitation of the gas inside the Geiger Muller tube (due to transduction of some time-energy into excess 3-spatial energy) may be sufficient to ionize the gas. In that case, the instrument will read "as if nuclear radiation were present. Note that there is indeed "ionizing radiation" present in the gas. However, now this ionizing radiation is not transverse EM wave in nature, but is due to the time charging and decay, and transduction of time into 3-spatial energy in the detecting gas.

This capability of an ionization detector to ionize in the presence of non-transverse wave ionizing radiation and energy can be used to provide an indication of time-density waves being formed and interacting in a process (such as a cold fusion process) where some transduction from time-energy to 3-spatial energy occurs.

Further, the previous "time history" of the individual instrument plays a part in whether the instrument "reads" or not for a given transduction situation. There will be a statistical variation of the actual "already present" low-level time-charge (and in its internal structure and engines) between instruments, even those made in the same factory on the same day from the same batch of materials and parts. That is because the time-charging and discharging history of each instrument has been different.

The production of transduced TWs, however, must be a function of scalar interferometry in the gases or other detecting media of the instrument, since scalar interferometry *creates* all transverse EM waves, as shown by Whittaker {619} and confirmed by Evans *et al.* {620}. In such interferometry, the entire inner structures of the transverse EM waves formed in the interference zone also interact wave-to-wave. Thus, this kind of interferometry is extremely sensitive to the exact internal longitudinal EM bidirectional wave structure (internal engine substructure) of the involved potentials.

As a consequence, the ability of an ionization detector to transduce a specific set of LWs and give ionization detection will vary appreciably, including for different variations in the instrument's original manufacturing process, and even for the specific past photon interaction history and experience of the individual detector itself. One detector's set of cumulated internal time-charges (and hence spacetime engines) may vary considerably from those of a second detector of exactly the same type. In general, multiple ionization detectors are unlikely to all detect a given time-density EM wave emission and interaction set {621}.

Even for two detectors of the same brand, from the same manufacturing plant, and from the same batch of manufacture, it is likely that significant differences in LW detection of a specific TDW set will occur because of the "past history" time-charge differences of the individual detectors. Indeed, a likely phenomenon is that, when one ionization detector detects the LW emissions (transduces them), several others will not detect them at all. This is one of the peculiarities of the new unified field area that must be overcome by further research in order to develop reliable, calibrated TDW and transduction detectors. It is one of the primary problems - if not

the primary problem - of cold fusion research to resolve this "*time-charge experience history*" problem, so that transduction detectors having calibrated, uniform responses to given TDW sets and interactions can be provided.

At present, no one has the foggiest notion as to how to "calibrate" a nuclear ionization detector that one desires to use as a time-energy transduction detector. Speculating, we would envision such calibration (in the transduction detecting functional response) to become possible when small, standard, calibrated sources of transduction are developed and available. In that case it will be possible to formulate procedures whereby varying the output of the transduction source will vary the transduction irradiation of the GM tube. The level of transduction intensity required to create ionization in the instrument will be a direct indicator. When small, calibrated sources of TDWs are also available, it will be possible to irradiate the GM tube to a specifically desired rate and level of time-charge and decay. In that case, an array of GM tubes can be "standardized" or "calibrated" for transduction detection. So far as this author is aware, those developments have yet to be accomplished or even undertaken. Indeed, the need for such a development program has not even been realized.

10.7.2 Experimental "Detector Transduction Phenomena" in Electrolysis

Let us look at one set of ongoing scientific experiments where just such anomalous detector results have been obtained.

Researchers at the Naval Air Warfare Center at China Lake, and at the Department of Chemistry, University of Texas at Austin, have detected precisely the kind of "anomalous" radiation and transduction effects we expect to be in the ionization processes of multiple kinds of detectors {622}.

According to a report by Miles and Bush {623}, anomalous radiation at China Lake was first detected by the exposure of dental X-ray films in two experiments producing excess power (excess TW energy emission). Film used in a control study during these experiments showed no exposure. There was also no exposure of similar films in more than 20 experiments where no excess power was present. In other words, the presence of excess heat (excess TW energy emission) strongly indicates the presence of transduction. In turn, the presence of transduction implies the presence of scalar interferometry wave interaction, where TDW waves and LW waves **are** absorbed and a mix of LW and transduced TW waves are emitted consisting of gravitons (paired scalar and longitudinal photons). This only

occurs when significant time-charge excitation has built up. Taken in reverse, the presence of LW wave absorption and emission — with transduction into detected excess ionization energy — directly indicates the emission of "anomalous" TDW or graviton radiation, as detected by the resulting TW exposure of the x-ray film. So the "anomalous" radiation detections are consistent both forward and backward.

The film in manufacture is quite strongly quality-controlled. Also, it is used (interacts and indicates) only once. Its past time-charge history has minimal variations between two samples of the film, because there is no repetitious past *detection interaction* history. Hence one would expect a high degree of uniform film detection interaction responses from film to film, to the same graviton emission set. That is precisely what occurs.

We conclude that the behavior of the film in the combined China Lake experiments clearly shows the time charging, graviton emission and interaction, and transduction nature of what is happening when it is known that no normal nuclear radiation is present.

Geiger-Muller (GM) detectors and sodium iodide (NaI) detectors were also utilized when electrolysis experiments using heavy water were ongoing. We again accent that a Geiger-Muller tube does not detect nuclear radiation per se; instead, it detects *anything* that will cause its internal gas to ionize sufficiently. Sufficient transduction in graviton absorption-emission interactions in a Geiger-Muller tube will cause the counter to indicate, because it ionizes the gas and produces an ionization discharge. However, both the specific transduction and scalar interferometry aspects of the ongoing experiment are involved, as well as the previous background time-charge history of the Geiger-Muller tube counter.

Several Geiger-Muller detectors gave anomalously high readings, reaching some 73 sigmas above normal background counts. Most experiments (i.e., most GM detectors), however, gave normal radiation counts, and no anomalous count rates were ever observed when the experiments were turned off. So these anomalous results are differentiated by using multiple, carefully calibrated Geiger-Muller tube detectors. Our interpretation here is that

- (i) There was a variation in the presence of transduction and scalar interferometry from experiment to experiment,
- (ii) The majority of the experiments did not produce significant time-charge and sufficient transduction or scalar interferometry to cause

detection (ionization discharge) on most (typical) Geiger-Muller tubes, and

- (iii) The transduction effects in the ongoing experimental process were mostly of the rapid variety, and not due to long-term "charge-up" effects conditioning the time-charge aspects and structuring of the experimental apparatuses.
- (iv) By using multiple detectors, the probability of one or more of the instruments having increased time-charge from specific time-charge histories was increased.
- (v) With sufficient experiments and sufficient detectors, there resulted a high probability of having at least one or more detectors capable of detecting the levels of graviton radiation and transduction expected from the experiments.
- (vi) A direct correlation would be predicted — and was observed — in the appearance of the anomalous radiation effects and the expected time periods required to load the palladium with deuterium. As reported by Miles and Bush, *ibid.*:

"... the anomalous radiation would appear within a few hours in the co-deposition experiments where the palladium is loaded with deuterium as it deposits from solution. In contrast the appearance of anomalous radiation required days of electrolysis for the palladium rods that load much slower."

We previously discussed the major variables indicated from many cold fusion experiments to include the strong correlation with the degree of loading of the palladium lattice. Hence the effect pointed out by Miles and Bush would indeed be predicted by the present approach and proposed mechanism.

Our interpretation is that the experiments show the time-charge rate effect to be expected in such graviton radiation and transduction interaction phenomena using collection of ions (in this case deuterium) that are much heavier than electrons. The faster the deuterium loaded, the greater the buildup of the interaction of the deuterium in phase conjugating and self-targeting iterative interactions — and therefore the greater the increase in scalar interferometry interactions — inside the palladium lattice. The rate of graviton radiation production and transduction production increases as some function (not necessarily linear!) of the rate of loading of the **deuterium**. As the rate of graviton and transduction production increases,

so does the expectation of anomalous ionization effects in the nuclear radiation detectors. And so does the rate of production of TRZs and the appearance of the new nuclear cold fusion reactions at low spatial energy but very high time-energy.

10.7.3 Experiment Confirms It

A clinching observation is given by Miles and Bush, *ibid.*, as follows:

"One GM-detector would measure anomalous radiation while another GM-detector would be "blind" to any anomalous effect. A few experiments, nevertheless, gave simultaneous anomalous effects from two different radiation detectors."

Here our comment is that this precisely fits our expectations for demonstrating involvement of

- (i) Time-charging and decay interactions,
- (ii) Consistency with transduction expectations,
- (iii) Consistency with the fact that two different radiation detectors may or may not exhibit or detect the anomalous ionization effects, depending upon the individual past time-charge histories of the two detectors, and
- (iv) Predictable variations in the individual experiments (based on palladium lattice loading time, specific geometry, ionization state of the chemical solution, internal time-charge state and decay rate, and structuring of the apparatuses and their parts, etc.) when transduction-associated phenomena are considered.

The anomalous non-nuclear, non-transverse wave — but ionizing — EM radiation detected at China Lake, and the resulting peculiarities in the measurement apparatus functioning, do strongly support the present proposed approach, the proposed graviton radiation phenomena, and the time-charging and decay and transduction mechanisms presented. It is decisive that sometimes two detectors both indicated, and sometimes one indicated and the other would not. Sufficient replications have ruled out any defect in a single given instrument as the cause of the anomalous detections. That immediately eliminates from consideration all purely transverse EM wave phenomena, conditional only upon the premise that the instruments were properly functioning and calibrated, and that sufficient replications were made for decisive statistics. Those conditions

were all met in the numerous experiments producing these results over a long time and in many repetitions.

As a final thought on the subject, we pose the possibility that the longitudinal EM waves involved may be the B(3) longitudinal field waves advanced convincingly by Evans {624a-624c}. We would recommend the attention of leading theorists and experimentalists to this possibility, as a matter that should be investigated both theoretically and experimentally.

10.8 Additional Implications for the Future

10.8.1 Longitudinal EM Waves and Undistorted Progressive Waves

There is a revolution in electrodynamics presently underway, due to the unique characteristics of *longitudinal* EM waves³⁰⁵ and *pseudo-longitudinal* EM waves. A summary by Rodrigues and Lu {625} is particularly revealing.

A pure longitudinal EM wave has infinite energy and infinite velocity — i.e., it appears everywhere at once. "Propagation through space" does not apply; instead, one has stumbled into that weird region where spacetime is multiply connected. In the real world, one meets imperfect longitudinal waves — or *pseudo-longitudinal* EM waves — that still retain a transverse energy density variation residue. These waves are called *undistorted progressive waves* (UPWs).

Such UPWs can move in space faster than the speed of light. This should not be too surprising, since superluminal velocity of intelligent signals has been positively demonstrated by several researchers in quantum-tunneling experiments. As an example, Nimtz {626} and his colleagues have beamed Mozart's 40th Symphony through a barrier in a waveguide at a speed of 4.7c. So the old notion that information cannot be transported at superluminal velocities is *passee*. The Fogal semiconductor has been used in experimental transmitter-receiver pairs to demonstrate superluminal transmission, such as TV pictures and programs. Direct signal transmission from earth to satellite back to earth and through many en route amplifiers and processors has been demonstrated by Fogal to occur far beyond the speed of light. Again, theoretical summary papers by Rodrigues *et al.* {627a-627f} are revealing.

³⁰⁵ We have pointed out a direct way to generate longitudinal EM waves, by simply oscillating the magnitude of the **Lorentz self-regauging** of a system.

10.8.2 Death Knell of the Speed of Light Limitation

Another giant shock has emerged in astrophysics during the last few years, and it is now threatening a dramatic revision to physics. Heretofore, it has been fashionable to assume that gravity itself propagates at light speed. A great deal of very comfortable physics theory has been built around that assumption.

Well, the assumption is not true. Experiments in astrophysics continue to refute it. It now is almost certain that the speed of gravity is at least 2×10^{10} c. A beautiful though somewhat controversial paper by Tom Van Flandern {628} summarized the entire situation. He articulates the comfortable general relativity view held to date {629} as follows:

"...GR proposes that such changes appear to act instantaneously in the 'near field', but eventually show their true, light-speed-delayed character in the 'far field', which is conveniently beyond our present ability to observe. The necessity of this dual behavior is to prevent the logical need for changes to continue to appear to act instantaneously at ever increasing distances, even to infinity."

In fact, Van Flandern {630} points out that general relativity already admits superluminal effects in the near field region. He also pointed out the startling nature of the experimental results to relativists, and points out that an attachment to a paradigm has been involved:

"To many, this result [astronomy's verification that gravity's speed $v_g \geq 2 \times 10^{10}$ c] is so contrary to 'common sense' in the light of relativity theory as to be absurd. But Thomas Kuhn has cautioned all scientists to avoid the trap of becoming so steeped in a prevailing paradigm that it starts to seem like common sense and makes other ideas sound and feel wrong. Eventually, even one's professional status can become linked to a prevailing paradigm."

As Van Flandern further emphasizes, it is not difficult to show by computer calculations of astrophysical situations that any strong limit on the speed of light destroys conservation laws:

"...anyone with a computer and orbit computation or numerical integration software can verify the consequences of introducing a delay into gravitational interactions. The effect on computed orbits is usually

disastrous because conservation of angular momentum is destroyed."

So here we have a new paradigm in the making. This is a startling change to standard relativity. Either we have to give up the conservation of angular momentum, or we have to accept superluminal speed of gravity in the far field. Years of struggle to detect quadrupole gravitational wave radiation have failed; no direct detection has ever been made. Indeed, the rather arbitrary nature of the entire quadrupole radiation assumption is not required by general relativity, as long pointed out by leading Russian scientists. For example, Vlasov and Denisov {631} *et al.* bluntly state it in these words:

"...Einstein's well-known quadrupole formula, which is usually employed in general relativity for calculations, is not a consequence of general relativity and is not contained in it. "

Therefore, it may not really be so surprising that physicists have not been able to detect such quadrupole radiation in a great many laboratory experiments. It is not in general relativity at all.

Of course, our thesis developed in this book is that what we have long called "EM radiation" is in fact gravitational radiation, always involving paired scalar and longitudinal photons and hence time-density waves and longitudinal EM waves. We have pointed out that prior to observation there is no such thing as a separate photon, but there is such a thing as two correlated photons, one time-polarized and the other longitudinally polarized. We believe that there is sufficient meat in our proposed explanation of the anomalous cold fusion results and the anomalous instrument results at China Lake to warrant serious and strenuous investigation of these hypotheses and proposed mechanisms.

Another oddity - usually never stated by Western physicists - has long been known but ignored. When Einstein characterized the gravitational field as a pseudotensorial field, and not a field in the sense of the Faraday-Maxwell field, the consequences were that the 3-space energy laws of the familiar kind really do not exist in general relativity. Shortly after Einstein published his theory of general relativity, this absence of familiar energy conservation was pointed out by Hilbert {632} in these words:

"I assert... that for the general theory of relativity, i.e., in the case of general invariance of the Hamiltonian function, energy equations... corresponding to the energy

equations in orthogonally invariant theories do not exist at all. I could even take this circumstance as the characteristic feature of the general theory of relativity. "

With our publication of the giant negentropy of 4-space once arbitrary 3-space symmetry and time-symmetry in EM energy flow is removed, one of the truths involved in Hilbert's remark was finally recognized. In addition, what Sen called "the most difficult problem in classical and quantum electrodynamics" {633} has been explained by giant negentropy {12}. Also, it is consistent with an appropriate reinterpretation of Whittaker's 1903 decomposition of the scalar potential {600, 615}. Finally, it is consistent with quantum field theory {634}.

Hilbert was evidently not understood by his contemporaries, since neither Einstein himself nor other physicists recognized the fact that, in general relativity, conservation laws for 3-space energy, momentum, and angular momentum — in the sense we are accustomed to in the rest of physics — in principle may be impossible. That is because one can readily remove 3-space energy symmetry when curved spacetime is permitted. Again, Russian scientists such as Logunov and Loskutov {635} have long pointed out the "unthinkable" and "astounding" fact that the predictions of general relativity are not unique.

In the West until recently relativists were conservative, and this resulted in the sidelining of innovative Western physicists who challenged the prevailing interpretation or extended it. With the experimental falsification of one of the fundamental tenets — that gravity moves at speed c in the far field — of the prevailing interpretation of general relativity, it appears that we may be approaching an asymptotic burst of great new theoretical work and a dramatic new reinterpretation. If it ever gets into production, we believe that the Fogal semiconductor will usher in that great change of communication speed paradigms that now appears imminent.

Nonetheless, general relativity — whatever the modifications and extensions now called for — will remain a very useful tool indeed. There is simply nothing else on the horizon that can replace it, string theory notwithstanding. The reinterpretation is likely to shed additional light on many present problems such as the nature of spacetime itself, the nature of dark matter, and new insight and progress on unifying physics.

In the new openness that should result, we hope that a great extension and reinterpretation of electrodynamics will also be undertaken, and that it will reveal the underlying powerful structured general relativity infolded inside conventional EM potentials, fields, and waves, as originally revealed by

Whittaker {636}. It may even be that one of the novel concepts {637} we have proposed in this book will yet see the light of day in practical systems.

If so, then hopefully much of what we are addressing in this book will be incorporated in the emerging new physics of the twenty-first century.

Chapter 11

Final Perspective: Permissible COP>1.0 Maxwellian Systems

"Are you certain of that?" [Augustine, in his famous confrontation with the Skeptics, who held that nothing can be known with certainty.]

"[It is usually]...assumed that the magnitude of potential energy is irrelevant, being arbitrary to the extent of an additive constant. " [Block and Crater]. {638}

"The potentials V and A , defined ... in terms of the fields E and B , are considered to be nonobservable in Maxwellian electromagnetism, since the energy density associated with them is zero... " [Lakes]. {639}

"[The total energy of the atom] depends on the bare mass and bare charge of the electron, the mass and charge that appear in the equations of the theory before we start worrying about photon emissions and reabsorptions. But free electrons as well as electrons in atoms are always emitting and reabsorbing photons that affect the electron's mass and electric charge, and so the bare mass and charge are not the same as the measured electron mass and charge that are listed in tables of elementary particles. In fact, in order to account for the observed values (which of course are finite) of the mass and charge of the electron, the bare mass and charge must themselves be infinite. The total energy of the atom is thus the sum of two terms, both infinite: the bare energy that is infinite because it depends on the infinite bare mass and charge, and the energy shift... that is infinite because it receives contributions from virtual photons of unlimited energy. " [Weinberg]. {640}

11.1 Introduction

The central message in this book is that all EM devices are already powered — though in an inappropriate fashion — by EM energy freely extracted from the seething vacuum. It is also intended to be a clarion call that we must rapidly develop the *appropriate* vacuum-energy powering of our EM circuits and electrical power systems, or else the survival of the nation and of the biosphere is at stake rather immediately.

For this summary chapter, we wish to place that specific area — EM energy from the vacuum — in sharp focus, with the major facets together in one place.

Consequently, for this closing chapter we have chosen and slightly adapted a previous technical rebuttal to the objections of "perpetual motion", "violation of the second law of thermodynamics," "impossible", etc. that we wrote in 2001 in the referee process, to the referees of one of the AIAS papers submitted to a major physics journal. The rebuttal was successful, and it was accepted and upheld by the referees. The paper was then published by the journal, after very vigorous refereeing.

That is as it should be.

Scientific journals provide a proper forum for the free expression and debate of scientific ideas and work. They do not and should not ensure that every paper conforms to commonly held concepts or to the most widely accepted model. As we stated, Chief Editor Kennedy of the journal *Science* has only recently had to restate and accent the principle that science is free from "truth by prevailing authority," and bound by "truth by replicable experiment". Insuring that every paper meets the accepted models and notions would be enforcement of religious belief, not experimental science. Ideas which are wrong will be refuted experimentally; experiment is still the basis of scientific method. In our rebuttal, the argument of the conventional skeptics is thoroughly refuted by experiments already well known in the literature, as we detail.

So we thought it appropriate to close the book with this strong statement of its primary pbjective: economical, clean, copious electrical energy from the vacuum.

11.2 Source Charges, Curved Spacetime, Efficiency, and COP

11.2.1 The Source Charge Problem

The received interpretation of the Maxwell-Heaviside theory treats the source charge and source dipole as perpetual motion machines, freely and continuously pouring out EM energy in 3-space in all directions with no energy input. Experimentally one verifies that there is no *3-space observable energy input* to the charge or dipole. In accepting that model, a scientist objecting to $COP > 1.0$ EM systems has unwittingly hoisted himself upon his own perpetual motion machine petard, by already accepting every source charge and dipole as precisely that to which he is objecting. To explain the source charge, either one holds to the U(1) Maxwell-Heaviside theory and surrenders the conservation of energy law, or one accepts a change to U(1) electrodynamics to add the concomitant input of energy flow from the active vacuum (from the *time* domain, which in Minkowski geometry is all that is left outside 3-space) to that charge or dipole. That corresponds to a violation of the second law of thermodynamics, as — as we discussed in Chapter 10 — Evans and his colleagues at the Australian National University have already experimentally proven that the second law can be violated up to micron scale and for times of up to two seconds.²⁸⁷ At the much smaller fundamental charged particle level and far shorter "switching" time of one spin completion, the probability is 100% and a certainty that the second law is violated. Hence the broken symmetry of the charged particle considered in the modern sense as a dipolarity (considering its associated **clustering** virtual charges of opposite sign).

Either way, the classical Maxwell-Heaviside theory must be changed. Every charge and every dipole — which themselves are Maxwell-Heaviside EM systems *a priori* — refutes the erroneous argument that no Maxwell-Heaviside system can output more energy than the operator himself inputs from an external power supply. To adamantly continue to challenge something already *experimentally demonstrated* by every charge and dipole in the universe is the epitome of scientific blindness.

As have others, Sen {641} called this source charge paradox the "most **difficult**" problem in electrodynamics. However, the basis for its solution - absorption and transduction of virtual KM energy from the vacuum via

the broken symmetry of a charge or dipole in its vacuum energy exchange — has now been known in particle physics for nearly a half-century {642a-642d}. It is not included in the Maxwell-Heaviside-Lorentz theory. Neither the proven vacuum interaction with Maxwellian system nor the broken symmetry in that interaction has been added to the model.

The present author has proposed an EM wave solution {643} to the source charge problem, by reinterpreting Whittaker's {644} decomposition of the scalar potential (as between the ends of a dipole) and treating the "isolated charge" and its clustered virtual charges {645} of opposite signs as a set of composite dipoles. Each of the dipoles then becomes a broken symmetry in the energetic exchange with the vacuum. Hence the charge pours out observable EM energy with no *observable* energy input because the input energy is in virtual photon form.

In the solution, the EM energy is input to the charge or dipole from the time-domain, so conservation of EM energy flow is upheld in 4-space, while time-like symmetry and space-like symmetry are broken individually. Powerful support for the proposed solution was given in a quantum field theory argument by Mandl and Shaw {646} nearly three decades ago. We challenge any scientist skeptical of $COP > 1.0$ Maxwellian systems to produce a solution of the source charge problem in Maxwell-Heaviside-Lorentz theory alone. In conventional theory, every charge in the universe experimentally exhibits $COP = \infty$. Any theory conflicting with a replicable experiment is falsified a priori.

11.2.2 EM Waves Imply Curved Spacetime

The oscillating energy of an electromagnetic wave is continuously changing its local spatial energy density. This is an *oscillating change of spacetime curvature* if one accepts general relativity (GR). Hence the EM wave in space is *always* moving in a locally curved spacetime; else, no EM wave exists because no change in spatial energy density exists. To reject that, is to reject GR in its entirety as well as all the experiments consistent with GR. If one accepts GR, then the classical U(1) EM *assumption* of the EM wave moving in a fiat spacetime is a non sequitur. It is unscientific to be suspicious of a higher group symmetry O(3) electrodynamics which *does* correct this known non sequitur in U(1) electrodynamics, while limiting oneself to U(1) electrodynamics *with* that known error. One might as well be suspicious of tensor algebra because it is more comprehensive than vector algebra.

There are many EM experiments such as the Aharonov-Bohm effect {647a, 647b} which violate Maxwell-Heaviside EM, as is well known

{648, 649a-649i}. The foundations of the Maxwell-Heaviside theory are well over a century old, and Maxwell's theory was substantially truncated in the 1880s (more on that below). The considerable physics developed since then has required dramatic extensions to the Maxwell-Heaviside theory such as developing non-Abelian gauge field EM theory, quantum electrodynamics, and modeling of the interaction of vacuum and matter in any material system.

11.2.3 On EM Systems with $COP > 1.0$

Conservation of energy requires that all energy output by an inert system must be input to it {650}. It does not require that the *operator* input all or even any of the energy utilized. The active environment can permissibly input part or all of it, else there could be no such thing as a windmill — or a charge, or a dipole, or a solar-cell electrical power system.

The *coefficient of performance* (COP) of a system compares the system's useful energy or work output to the *operator's* energy input. The *efficiency* \mathcal{E} of a system compares its useful output to its *entire* energy input. No inert system can output more useful energy than its total input, hence

$\mathcal{E} \leq 1.0$, being $\mathcal{E} = 1.0$ for a theoretically lossless "perfect" system and $\mathcal{E} < 1.0$ for a real system with losses.

Whether the operator must input all the energy that is output by the inert system depends upon whether the system is (i) an open system in disequilibrium with its active environment, and (ii) *designed* to accept and utilize excess energy from that environment, such as from the active vacuum. If appreciable environmental energy input is received and utilized, then a system with losses may permissibly exhibit $COP > 1.0$, even though its efficiency \mathcal{E} is $\mathcal{E} < 1.0$. The common home heat pump is an example. While the efficiency of a home heat pump may be $\mathcal{E} = 50\%$, its **COP** may be $COP = 4.0$.

As does the skeptical scientist, the electrical engineering community erroneously assumes that an inert electrical power system that outputs more energy than *one oneself* inputs to it — e.g., a generator outputting more EM energy flow than the magnitude of the mechanical energy input to the generator shaft — is against the laws of physics. To the contrary, it is permitted by the laws of physics and thermodynamics, *once the modern Vacuum interaction is included and disequilibrium exists in the interaction between vacuum and system*. Not only is it permissible, it is a universal fact once the arbitrarily discarded Heaviside energy flow component is re-accounted, and the source charge problem is reluctantly placed back on the

table. If we account all that EM energy pouring freely from the source charges in any EM circuit, then the actual output of EM energy from that circuit is enormous. It is many orders of magnitude greater than the magnitude of the input energy that the experimenter or operator provides.

We do not have to reprove the active vacuum; it has long been proven in particle physics. We also do not have to reprove the disequilibrium between electromagnetic systems and the active vacuum environment; that also has been proven since 1957 by the prediction and discovery of broken symmetry. One of the proven broken symmetries is that of opposite charges, such as are on the ends of a dipole. Hence every dipole or dipolarity in electromagnetics already freely absorbs virtual photon energy from the vacuum, transduces (coherently integrates) it into observable photon energy, and re-emits observable EM photons in all directions at the speed of light. If there are no COP>1.0 Maxwellian systems, then there can be no Maxwellian charges, dipoles, or dipolarity, and therefore no resulting fields and potentials from these sources — an absurdity falsified by every standard two-wire electrical circuit and ever charge and dipole in the universe. Any potential is a dipolarity, hence exhibits broken symmetry. That is why from any finite potential, as much EM energy as desired can be intercepted and collected, by the simple equation $W = \phi q$, where W is the collected energy in joules, ϕ is the scalar potential intensity in joules per unit point static coulomb, and q is the intercepting charge in coulombs.

Systems far from equilibrium in their energy exchange with their active environment {651a, 651b} can permissibly perform five important functions impossible to equilibrium systems. Such a disequilibrium system can:

- (1) Self-order,
- (2) Self-oscillate or self-rotate,
- (3) Output more energy than the operator inputs (the excess energy is freely received from the active environment),
- (4) Power itself and its load (all the energy is freely received from the active environment), and
- (5) Exhibit negentropy.

Any charge or dipole already exhibits all five of these functions — forbidden by classical thermodynamics but permitted by the well known

thermodynamics of systems far from equilibrium in their exchange with their active environment {651a, 651b}.

It only takes one small white crow to prove that not all crows are black. The known performance of the charge and the dipole totally refutes the notion that no EM system can output energy without operator-arranged input from other than the active vacuum. The entropy-consuming reactions from the fluctuation theorem, experimentally proven by Evans et al. in 2002, also is a sufficient proof to destroy any argument against permissible $COP > 1.0$ EM systems. Since all the EM field energy and potential energy in a power system or circuit must come from the source charges and dipoles, it follows that all our EM energy systems already take *all* their EM energy from the active vacuum, *not* from the operator's input. A solar cell array also refutes the notion that the operator has to input the energy, but the solar cells' environmental energy input may not be ubiquitous or dependable. The active vacuum is both.

Most power system electrodynamicists avoid the particle physics solution {652} to the source-charge problem {641} involving disequilibrium exchange with the active vacuum. Instead, they adhere strictly to the Maxwell-Heaviside-Lorentz theory with its *assumed* equilibrium between system and vacuum. Therefore they avoid modeling the vacuum interaction and solving the problem of open dissipative EM systems which freely and dependably receive energy from their vacuum environment in unusable form, translate it into usable form, and furnish it for further **capture** and use. They therefore cannot resolve the source charge problem in **their** model, for the model has already artificially excluded the solution.

By definition, an EM system in equilibrium cannot output more useful energy than the operator inputs. However, considered as an *energy transducer*, every EM system is in disequilibrium with the vacuum **because** of the charges and dipoles in the system, and it continuously receives energy from the vacuum. Because of the broken symmetry of the **charge** and the dipole, some of this energy from the vacuum is discharged by every charge and every dipolarity in the circuit as observable energy *a priori*. This creates a truly enormous outpouring of rather disorganized (in this case, *uncollected*) EM energy extracted from the vacuum and poured out without being intercepted and diverged into the circuit, where it is

organized for dissipation and use. The circuit "uses" only that amount of this enormous available outpouring EM energy that it first organizes (collects) and directs. That is its "organized excitation" energy, commonly known as *input energy* macroscopically — the Poynting energy flow component.

Upon completely discharging its excitation (input energy), the inert system outputs all its received (organized) energy, from whatever source. So every EM system already outputs far more energy than the experimenter inputs — when the system's *nondiverged, non-organized, and nondiverged* output energy flow is considered as well as its *diverged, organized, and collected* energy flow component. The fact that the *diverged Poynting* energy received in the external circuit enters the circuit from the surrounding space is shown by Krauss {653} (See Figure 1-1 in Chapter 1). We show it in Figure 2-4 of Chapter 2 as well. The remaining and nondiverged Heaviside energy flow component in space, which misses the circuit and is wasted, is also shown in Figure 2-4 of Chapter 2 and contrasted to the diverged (caught) Poynting component. To understand this experimentally demonstrable fact {653}, we need a bit of EM history.

11.3 Truncations of Maxwell's Theory and Discard of System Classes

11.3.1 Concept of EM Energy Flow Through 3-Space

The concept of the connection of EM energy and space did not occur until 1876 in a faulty work by Croll {654}. In the 1880s Heaviside {655} showed the huge nondiverged component filling all space around a circuit (see Figure 2-4 in Chapter 2). Poynting {656} never even considered the external nondiverged flow missing the circuit, but assumed only the *diverged* energy flow component that enters the circuit. Figure 2-4 in Chapter 2 shows both components of EM energy flow laterally, so they can be seen clearly.

It is stressed that the Heaviside nondiverged component of EM energy flow around every circuit is far greater (by many orders of magnitude) than the circuit's intercepted, diverged, and collected Poynting energy flow component. This follows from Heaviside's own original papers. So when the entire output energy flow is considered, every generator and every battery is already a $\text{COP} \gg 1.0$ *energy transducer*, outputting far more energy flow than the rate at which mechanical energy is input to the generator shaft or the rate at which chemical energy is dissipated in the battery.

In the 1880s the electron, atom, nucleus, special and general relativity, quantum mechanics, quantum electrodynamics, and active vacuum had not been discovered. There was no knowledge of any possible active vacuum interaction source for such an enormous energy flow pouring from the terminals of the generator or battery and surrounding the circuit, filling all

space around it. Heaviside's extra energy flow component was thus shocking and inexplicable, smacking of "perpetual motion" and total violation of the conservation of energy law. Heaviside — a brilliant, self-taught hermit who never attended university - spoke cautiously and obliquely of its magnitude in terms of angles with respect to a reference direction {657}.

11.3.2 Elimination of the Non-Intercepted Energy Flow Component

A perplexed and concerned Lorentz {658} cut the Gordian knot and arbitrarily *discarded* the Heaviside nondiverged component, eliminating the quandary. Lorentz stated that the huge nondiverged component had "no physical significance" (his phrase) since it powered nothing. Of course it **has** no physical significance, and powers nothing, unless one intercepts it and uses it!

By analogy, the component of a great wind on the ocean that is *outside* the intercepting sails of a single sailing ship, does not contribute to further powering *of that ship*. Figure 2-5 in Chapter 2 shows that situation. However, that nondiverged wind component can power a whole flotilla of **additional, separate** sailing ships with separate sails, as we showed in Figure 2-6 in Chapter 2. Electrodynamacists {659} have continued to utilize Lorentz' clever integration trick (Figure 2-3 in Chapter 2) to dispose of the huge nondiverged Heaviside energy flow component surrounding **every** circuit and missing it, and therefore pouring from the terminals of every generator. Most electrical engineers today do not realize that the original purpose of Lorentz's integration of the energy flow vector around a closed surface assumed surrounding every volume element of interest was merely to get rid of that perplexing and bothersome Heaviside nondiverged energy flow component while retaining the Poynting diverged energy flow component.

11.3.3 Lorentz's Previous Discard of all COP>1.0 Maxwellian Systems

Previously (circa 1890s) Lorentz had symmetrically regauged Heaviside's **equations** that had already seriously curtailed Maxwell's seminal equations of 1865. This Lorentz symmetrical regauging retained only that class of EM systems that are in equilibrium in their seething energy exchange with their active vacuum environment. It discarded that entire permissible class of the Maxwell-Heaviside systems far from equilibrium with the active vacuum. In short, it *arbitrarily* discarded all COP>1.0 Maxwellian **systems**, and all those even *permitted* to exhibit COP>1.0.

The ubiquitous use of closed current loop circuits containing both the **external** circuit and the source dipole inside the generator forcibly applied

(and continues to forcibly apply) the Lorentz symmetrical regauging. Thus all electrical engineers began using circuits which self-enforced equilibrium in the vacuum exchange, so that no *net usable* energy³⁰⁶ that could translate electrons and do work in an external load —could be received from that source.

However, so long as the enormous Heaviside nondiverged energy flow component outside the circuit remained, then separate outrigger antenna circuits and systems could always be inserted in this external energy flow to divert some of it into separate additional circuits. This would have opened up the COP>1.0 *ensemble* of systems and separate outrigger receiver circuits (with separate loads) fed by a single central generator, such as one version of the motionless electromagnetic generator of Chapter 7.

Consequently Lorentz integrated the entire energy flow vector around a closed surface assumed around any volume element of interest {658}, as shown in Figure 2-3. This integration trick — still universally applied {659a-659c} in all the texts today — arbitrarily discarded that troublesome and massive Heaviside energy flow component that could not be explained, and for which no source was known.

³⁰⁶ Lorentz symmetrical regauging does indeed require that the system receive excess energy from the environment (the active vacuum). It requires that the potential energy of the system is changed twice and continuously, which means the excess energy in each of those two changes must continuously enter from the active vacuum and do internal work on the system. Two new free force fields are created, each with its field energy, which is additional energy being continuously dissipated in the circuit to perform continuous work. However, the two free changes of energy in the system have been precisely selected so that these two force fields are equal and opposite. The two free changes of energy thus produce a *stress potential* without a net translation field. This means that the local spacetime has been curved, in a manner representing a rotation of the system frame away from the lab observer's frame. Further, the stress potential represents the continuous entry of extra stress energy from the vacuum, whose two force fields continually perform opposing local *internal work* within the system to stress it, while unable to translate electrons and power external loads. Contrary to the received view, the Lorentz-regauged Maxwell-Heaviside system is a dramatically altered and different system than the original system before the arbitrary application of the Lorentz condition. The system's inertial frame has been rotated, it has taken on extra energy from the vacuum that can only be used to do internal work upon the system, and that internal work on the system is continuously being done to increase the system's stress and hold it at the new level.

11.3.4 The Heart-Breaking Result of Lorentz's Actions

The combination of these two actions by Lorentz — symmetrical regauging of the model equations and discarding the excess Heaviside nondiverged energy flow component — unwittingly resulted in the design and building of only those electrical power systems which symmetrically and automatically regauge their discharge of their excitation energy. The symmetrical regauging is self-applied by the closed current loop circuit.

That circuit uses half of its collected Poynting energy to destroy the source dipole in the generator, and the other half to power the loads and losses in **the** external circuit {660}. Conventional EM systems are unintentionally designed to destroy their own source dipoles — and their free extraction of organized EM energy from the vacuum — faster than they power their loads.

11.3.5 Agreement with Classical Equilibrium Thermodynamics

These curtailments of Maxwell's theory resulted in the exclusive building of equilibrium EM systems. These systems obviously obey the classical equilibrium thermodynamics with its infamous second law. Lorentz had unwittingly discarded all that entire class of Maxwellian systems in disequilibrium in their exchange with their active vacuum environment; in those days, there was nothing known about an "active vacuum environment" or broken symmetry in its virtual energy flux. Consequently, Lorentz had discarded all those Maxwellian systems that *do not* obey classical equilibrium thermodynamics, but do obey the newer thermodynamics of systems far from thermodynamic equilibrium with their active environment. He discarded all permissible $COP > 1.0$ Maxwellian systems.

However, there was a total agreement between all the EM systems actually built using Lorentz's symmetrized equations and all measurements in their ubiquitous closed current loop circuits — all self-enforcing the Lorentz condition. This led to the iron dogma that all EM systems must inevitably **comply** with classical equilibrium thermodynamics — the circuits that were built *were* repeatedly and universally observed to do so!

11.3.6 Dogma that $COP > 1.0$ EM Systems are Perpetual Motion Machines

Finally, this total agreement (now for more than a century) between the theoretical model used, the circuits actually built, the measurements **performed**, and classical equilibrium thermodynamics led to the present fallacious but iron dogma that EM circuits and power systems cannot **output** more energy than we ourselves input. Today the vast majority of scientists consider it absolutely proven that **the** laws of nature prohibit

COP>1.0 electrical power systems, and particularly prohibit self-powering systems that freely power themselves and their loads (i.e., EM systems analogous to "windmills in a free wind"). As we stated, every charge and dipole falsifies the "COP>1.0 EM systems are impossible" dogma, as does the fluctuation theorem and its experimental proof by Evans et al.

Sadly, no one seems to have realized that we do not presently have COP>1.0 electrical power systems only because engineers have specifically designed and built their EM systems to destroy their own source dipole faster than they power their load. Ironically, every circuit and every power system used and measured by our engineers already outputs far more EM energy than is input by the operator or by turning the shaft of the generator, if the Heaviside nondiverged energy flow component is re-accounted. The Bohren experiment clearly proves it experimentally {662}, along with thousands of other similar experiments in "negative resonance absorption of the medium" {157a-157d}.

11.4 Examples of COP>1.0 Electromagnetic Systems

The motionless electromagnetic generator (MEG) {661} (Figure 11-1) does catch and use some of this available free energy, as explained below. So does the familiar Bohren experiment {662a, 662b} by resonating each intercepting charge so it sweeps out an increased geometrical reaction cross section in space, reaching past the usual Poynting interception cross section (for a static charge) and thereby absorbing additional energy from the otherwise non-intercepted Heaviside energy flow component.

Every charge and dipole in the universe also already acts as an electrical "windmill in a free wind," having a $COP = \infty$.

The present author has also nominated the long-neglected but vast nondiverged Heaviside EM energy flow, accompanying every field and charge interaction, as the long-missing source of some 90% of the gravity holding the arms of the spiral galaxies intact {663}. Our *supersystem* examination of several COP>1.0 EM systems developed by various inventors has also uncovered a proposed solution for the source of the distant antigravity accelerating the expansion of the universe {664}.

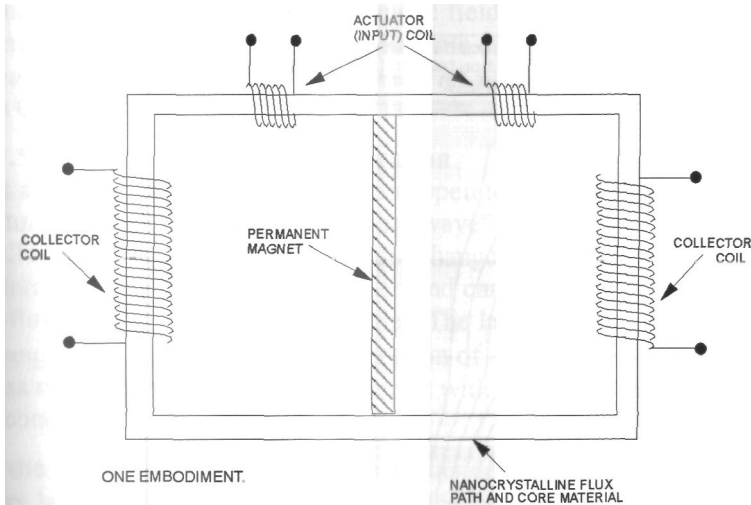


Figure 11-1. Transformer section of the MEG.

Experimental proof that EM energy $COP > 1.0$ is both possible and demonstrated is already in the literature — e.g., as in the Bohren experiment {662} which outputs 18 times as much energy as one inputs (see Figure 11-2). As another experimental example, the Aharonov-Bohm (AB) effect {647, 665, 666} freely adds additional nonlocalized field-free A-potential energy while all the magnetic B-field energy is sharply localized but still present and available. The AB effect is routinely implicated in physics, but apparently was never applied in an electrical power system prior to its use in the motionless electromagnetic generator

Bohren's experiment {662} was quickly and independently replicated by Paul and Fischer {667}. It can be replicated by any university laboratory at will, totally negating the conventional $COP < 0$ assumption. The AB effect is also easily replicated, using a toroidal coil, a long solenoid, or a permanent magnet and the special cores used in the MEG. When the toroid system's *total available output energy flow* is measured and accounted — including both the confined magnetic field energy flowing inside the toroidal windings and the field-free A-potential flowing outside — the toroidal coil system outputs more energy flow than the operator furnishes from his external power supply by conventional accounting {668}.

At or near resonance frequency, in the case shown the energy collection fraction (reaction cross section) increases dramatically.

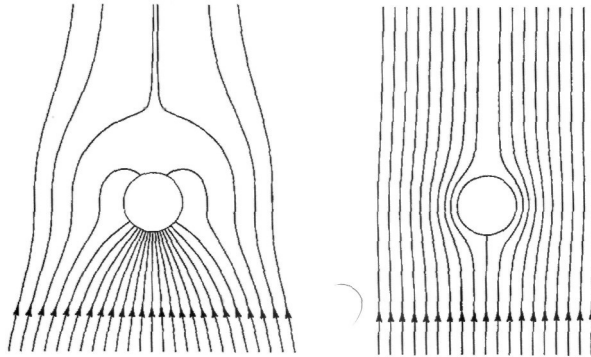


Figure 11-2 The Bohren experiment outputs 18 times as much energy as one inputs

In conventional terms, for a theoretically perfect toroid the operator only "pays for" the magnetic field energy "output component" confined inside the toroidal windings. The presence of an extra energy output component outside the toroid produces $COP > 1.0$ performance as an *energy transducer*. It *does not* produce system $COP > 1.0$ performance in a closed-loop circuit containing the primary power supply's source dipole.

The AIAS has previously nominated more than a dozen mechanisms as promising $COP > 1.0$ systems for investigation, research, and development {669}.

11.5 Motionless Electromagnetic Generator (MEG)

11.5.1 Overall Description

In the MEG {661} (Figure 11-1), one uses a nanocrystalline material core path with the unique characteristic of drawing in almost all the magnetic field energy of an emplaced permanent magnet. The B-field flux from the magnet is withdrawn from its normal position in surrounding space and sharply confined to that material core path. Around the core there freely appears an *additional* curl-free magnetic vector potential A energy flow, since the surrounding spacetime is still curved due to the interaction exchange of vacuum and magnet dipole, and therefore still contains extra energy. The operator inputs no energy whatsoever after the magnet is once

emplaced, yet has appreciable magnetic field energy and field-free magnetic vector potential energy available to utilize. As an *energy transducer*, the MEG has a $\text{COP} \gg 1.0$. As a power system powering loads, its $\text{COP} > 1.0$.

11.5.2 An Example of MEG Operation

As a replicable example, suppose one operates the MEG core at less than saturation, and places a small "square wave" pulsed signal upon a primary coil wound around the core. The core changes its permeability as the internal magnetic B-flux is perturbed and changes, so all the perturbed B-flux is retained in the core material. The large E-fields produced by the changing B-flux in the core as a function of $-\partial \mathbf{B} / \partial t$ are *not* localized, but pass readily out of the core and interact with the coils, particularly with the secondary.

In the A-potential region in the space outside the core, one also produces very large E-fields by $\mathbf{E} = -\partial \mathbf{A} / \partial t$. At the frequencies being used (40 to 80 kHz nominally), all these E-fields produced by the core flux perturbations and by the external A-potential perturbations are essentially in phase. The large E-fields thus coherently add and interact directly with the secondary coil acting as a receiver.

In the secondary, the very large and sharply changing E-fields interacting with the coils also produces large B-field flux changes in the core. However, again the core changes its permeability and holds-in all the extra B-flux. The changes in that secondary B-flux also make additional non-localized E-fields, and so on.

The surprising and shocking result is that the transformer secondary undergoes a coherent, purely E-field reaction with the electrons in its coils. This results in the output voltage and current being in phase (within 2° , since there are inevitably some small remaining inductance effects due to a tiny bit of external B-field leakage from the junctures of the ends of the permanent magnet with the core material).

The magnitude of the powerful E-fields produced by these processes — and interacting with the secondary coils — depends on the rise and decay times of the input signal's pulse edges. So the *average* power input to the signal coil may be small, but — using sharp rise and decay times of the input pulses — very large E-fields will be produced in the adjacent surrounding space outside the transformer section and interacting with the secondary coils, as well as in the sharply changing B-flux localized in the core.

One then uses transmission-reception theory and near-field antenna theory for separate receiving circuits containing loads, added in the large E-field region in space outside the core. Those E-fields arise from both the changing A-potential outside the core and the changing localized flux inside the core. We stress again that the E-fields produced in the core are not localized, but pass outward into the external space to interact with whatever interceptor/receivers are placed out there.

A "outrigger array" version of the MEG uses separate external receiving circuits, containing loads, to intercept, collect, and use more of the EM energy available in the surrounding space outside the core.

Within physical space limits, the energy intercepted and utilized by these *separate, independent receiving circuits containing loads* can be increased by adding more receiving circuits with loads or adjusting the rise and decay time of the input pulses to provide greater collected voltage. These *separate* loads will be powered by the incident E-fields' interception in the external receiving circuits. This is not at all a *transformer* action, but a *near-field transmission and separated multiple antenna circuits' reception* action.

There is no back-current coupling between the external circuits and loads with the primary circuit of the transformer section. In the external A-potential region alone, the secondary coil in the transformer section will interact with the large incident E-fields from that adjacent space and from the changing B-flux inside the core, producing at least as much energy as one inputs to the primary. Actually, that process alone will produce more output energy in the secondary than the operator inputs in the primary.

If one operates the core below saturation, the magnetic flux in the core will also be switched, giving additional intercepted E-field energy in the secondary coil attached to its load. The total work out in all loads is permissibly greater than the total energy dissipated in the input by the operator's energy input {668}. The MEG is an open system far from equilibrium with the active vacuum {670}.

11.5.3 The MEG Is Replicable

Any university laboratory can replicate this effect, and demonstrate more work in resistive loads than is input to the MEG primary from the external power supply. For replication, we suggest initially designing to $COP = 1.5$, since beginning at $COP = 2.0$ there *can* be other effects not in the U(1) EM literature, but which are dealt with in the actual MEG. Some of the methodology {671} used for $COP > 2.0$ is still proprietary information not

yet releasable due to patent law requirements, while some of it was included in Chapter 7.

Without elaboration we advance the *supersystem* concept, and strongly insist that, to properly analyze the performance of any similar EM circuit or system, one must analyze the dynamics of the entire supersystem consisting of (i) the physical system and its dynamics, (ii) the curved local spacetime and its dynamics, and (iii) the local vacuum and its dynamics {672}. All three components of the supersystem are mutually interacting.

For a $COP > 1.0$ system, the mutual interactions are utilized from disequilibrium processes evoked between all three supersystem components. U(1) electrodynamic analysis system in an inert vacuum and a flat spacetime is insufficient. Previous AIAS analysis {661} has addressed the supersystem by use of higher O(3) symmetry electrodynamics to include vacuum dynamics (energy currents, both space-like and time-like) and curved spacetime dynamics.

11.6 Physical Considerations of Gauge Freedom

Additional physical considerations must be accounted when *gauge freedom* is invoked or utilized with respect to physical systems. Applied to electrodynamics systems, gauge freedom assumes the ability to freely change any potential of the system being studied. From the physics of the situation, a system potential change concomitantly assumes changing the *potential energy of the system itself* for which gauge freedom changes are being theoretically applied to system-descriptive equations.

If one *can freely increase* the potential energy of an EM system, the extra energy has to come from a physical asymmetry of the system with its active environment — the active vacuum. Else, one must surrender the conservation of energy law. At worst, gauge freedom would then imply the creation and destruction of energy at will. At best, it would imply a return to the view that potentials are mere mathematical conveniences with no physical reality — a notion falsified for decades by the AB effect {647}. *freely decreasing* the potential energy of the system by simply depotentializing it, has a similar vacuum asymmetry requirement for de-excitation of the system, where energy must flow from the system to the vacuum.

11.7 Special Modeling of the Vacuum

Having EM energy density, the vacuum *is and should be modeled as* a scalar potential of great magnitude. For deeper (supersystem) analysis, one will also have to examine the internal EM longitudinal phase conjugate wavepair structure and dynamics of the scalar potential vacuum {672}, along the lines shown by Whittaker {644} in 1903 and re-interpreted by the present author {643} in 2000. From quantum field theory arguments, Mandl and Shaw {646} give strong support to the proposed reinterpretation. They argue that neither the scalar (time-polarized) photon, nor the longitudinal photon is independently observable, but the combination of the two is observable as the instantaneous scalar potential.

Transforming this argument to EM waves yields a solution consistent with the reinterpretation {643}. The result is that all 3-space EM energy comes from the time-domain, in a manner not previously utilized in EM circuit analysis. It is experimentally established by proving (measuring) that the source charge and dipole do not *receive* observable EM energy in 3-space, but continuously *output* observable EM energy in 3-space. Simply making and destroying dipoles in an electrical system turns out to be a method for direct engineering of negentropy and entropy respectively — or, from another viewpoint, it directly engineers regauging.

The greatest unrecognized problem in conventional electrical power system engineering is its total failure to include the making and destroying of dipoles as direct engineering of negentropy and entropy respectively.

Every EM potential in an EM system is a change to the energy density of the ambient vacuum potential — and thus is a spacetime curvature — or it is a change to an intermediate potential that *is* such a vacuum potential change. Vacuum exchange with every EM system and asymmetry in that exchange, is ubiquitous and cannot be prevented. Whenever one makes or changes an EM potential, field or wave, and whenever one regauges, one invokes and utilizes asymmetry in the interaction of the active vacuum and the system, either wittingly or unwittingly. Else one must discard the conservation of energy law altogether. There is no symmetry of a mass system alone {673}, without including the vacuum's asymmetrical interaction with it. The reason is simple: all observables involve asymmetry {674} *apriori*, and mass is an observable.

11.8 Every Charge and Dipole in an EM System Receives and Transduces Vacuum Energy

In particle physics, every dipole — and every charge considered with its associated clustering virtual charges of opposite sign — is recognized as an asymmetry in the vacuum flux {675}. The very definition of broken symmetry means that a charge or dipole receives and absorbs virtual photon energy from the vacuum, transduces it into observable form, and re-radiates it as real, observable EM energy. This results in an observable outpouring of 3-energy from the charge or dipole, with no observable 3-energy input.

To save the conservation of energy law for physical EM systems, one must therefore recognize and model the *physical vacuum asymmetry mechanism* **that** allows this demonstrated performance of charge and dipole. In electrical power systems, that required asymmetry mechanism is the known broken symmetry of the vacuum's interaction with the source dipole created in the generator.

11.9 Energy from the Vacuum Powers Every Electrical Power Line and EM Circuit

11.9.1 What the Generator Powers and What Powers the Circuit

Shaft power input to a conventional generator allows the generator to **produce** its source dipole, nothing else. The generator does not transduce any of its input shaft mechanical energy to add EM energy to the external circuit connected to its terminals. Instead, it first transduces its mechanical shaft energy input into internal magnetic field energy.

Then it totally dissipates that magnetic energy to separate its own internal **charges**, forcing the positive charges in one direction and the negative charges in the other, making the source dipole connected to its terminals. That is all that the mechanical shaft power input to a generator does — and **that** is all that burning hydrocarbons, consuming nuclear fuel rods, **damming** rivers for power stations, putting up windmill-powered **generators**, using solar energy input to solar cells, or consuming chemical energy in a battery accomplishes.

Once made, the source dipole — via its broken symmetry in its vacuum exchange - freely receives and absorbs enormous virtual photon energy **from** the active vacuum, transduces it into observable (3-space) form, and pours out real, observable EM energy in 3-space from the generator terminals to which it is connected. As shown in Figure 1-1 of Chapter 1,

this outpouring of EM energy from the generator terminals fills all space around the external circuit {653} with a vast energy flow almost parallel to the conductors. Figure 2-4 is a lateral view so that the two flow components can be clearly seen and compared.

11.9.2 Gedanken Experiment

We advance a gedanken experiment to illustrate. Consider a perfect generator with no losses, and with two perfect conductors and a purely resistive load R_1 connected across its terminals. Call the mechanical energy input to the shaft of the generator W_{in} . Call the Poynting diverged energy flow component W_r that is intercepted by the attached circuit and powers R_1 . Call the Heaviside nondiverged energy flow component W_h that misses the circuit and is wasted. As an *energy transducer*, the total energy output W_{out} from the terminals of the generator is

$$W_{out} = W_r + W_h \quad [1]$$

However, $W_{in} = W_r$, for this theoretically perfect system. So

$$W_{out} = W_{in} + W_h \Rightarrow W_{out} > W_{in} \quad [2]$$

Further, when accounted, $W_h \gg W_{in}$, so

$$W_{out} \gg W_{in} \quad [3]$$

We conclude that all EM systems — *as energy transducers freely extracting and transducing EM energy from the active vacuum*— already exhibit $COP \gg 1.0$. However, for *useful work* in a closed current loop circuit, the $COP = 1.0$, unless additional antenna-receiver circuits or another scheme such as Bohren charge resonance is used to increase the energy collected and dissipated in the load while *not* increasing the energy used to dissipate the source dipole.

11.10 Significant Developments in Negative Resistance

True negative resistance (e.g., current moving against the voltage) also exists and is experimentally replicable. In true negative resistance, the current in a circuit moves against the voltage instead of with it, suggesting time-reversal effects in the mechanism by which EM force and charge interact.

11.10.1 Chung's Negative Resistor and Naudin's Replication

Chung {676} has reported replicable negative resistance in the interfaces between layers of carbon fibers in a composite material. By varying the

pressure used when the fibers are made, the resistance can be controlled to later be negative or positive as desired. A simpler version of Chung's negative resistor using off-the-shelf materials has been successfully replicated and tested by Naudin {677}. (See Figure 11-3). Naudin's website {677} provides measurements and full details necessary for repetition. He also includes sources of the carbon fiber materials needed for independent replication.

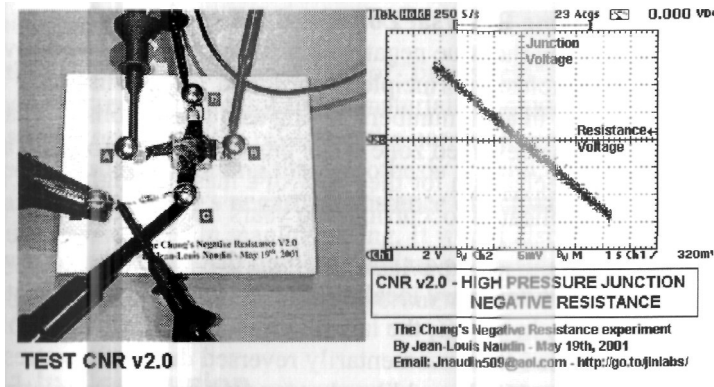


Figure 11-3 Naudin's replication of Chung's negative resistor.

11.10.2 The Point Contact Transistor

There is also evidence that the original point contact transistor — which used spring pressure on the point contact — often exhibited true negative resistance. Certainly this transistor was never adequately understood {678}, and it is not understood today, since its supersystem has never been analyzed.

11.10.3 Kron's Negative Resistor

Gabriel Kron, early pioneer in electrical systems theory, reported **developing** a negative resistor in the 1930s, on the U.S. Navy's Network Analyzer project {679} at Stanford University. He was not permitted to reveal the details of his negative resistor, but did provide strong hints in certain statements in his papers in the literature {680a, 680b}. His method for a self-organizing network depended on his "open path" {681} which he also was not permitted to reveal.

The present author worked for some years with Floyd Sweet, a Kron protege, who did produce a successful type of powerful negative resistance system {682} known as the vacuum triode amplifier, apparently based on Kron's original negative resistor. See Figures 6-5 to 6-13 in Chapter 6. As

shown in Figure 6-6, Sweet induced self-oscillation in barium ferrite magnets {683a-683c} (which are made by powder metallurgy methods using pressure applied during their manufacture) and extracted energy by induction from the resulting self-sustained magnetic field oscillations. His device was independently tested by Walter Rosenthal {684}, a senior test engineer of long experience with a major aerospace company. See Figure 6-9 and Figure 6-13.

11.10.4 Proposed Time Reversal Zones and Effects

One may take the view that true negative resistance involves time-reversal, which by the Pauli exclusion principle is permitted for bosons {685} and possibly for fermions in even numbers, acting as quasi-bosons (perhaps only possible in a time-reversed zone). The present author proposed a photon interaction mechanism for the "flow of a mass through time" in 1971, with initial publication occurring two years later {686}.

Extending this mechanism, the author proposed that *time reversal zones* (TRZs) can occur in momentary local regions in semiconducting materials or electrolytes {687}. In a TRZ, the law of attraction and repulsion of charges is hypothesized to be momentarily reversed due to time-stress or time-domain pumping {688}, and like charges may momentarily attract. In Chapter 10, we used these time-reversal zones to explain the anomalous results of the 600 or so successful cold fusion experiments worldwide. We also gave the exact new nuclear reactions for the production of anomalous deuterium, tritium, and alpha particles in many of these experiments.

When under strong stress, anomalous attraction of clusters of like charges is experimentally known, e.g. in Shoulders' {689} experiments and patented processes {690}. When the output leads of Sweet's vacuum triode amplifier device were suddenly shorted, extreme cooling occurred rather than heating. Ice condensed instantly upon the shorting contact and leads from the sudden extreme cooling of the metal in the moisture in the air, dramatically showing a converging EM energy process rather than a diverging one.

11.10.5 Effects in Optically Active Semiconducting Materials

In addition, four-wave-mixing, phase conjugation, and time-reversal effects are well known in semiconducting materials {691}, almost all of which are optically active. Optical activity and microlasing is known in semiconductor powder {692}. Further, the vacuum itself can exhibit semiconducting properties {693}.

11.I0.6 Special Functions Produced by Stress

Apparently pressure (stress) in many of these devices and experiments can play an important role in the negative resistance process. Based on harmonic sets of paired couplings of a longitudinal time-like wave and a longitudinal wave in any scalar potential {643}, the present author hypothesizes that such stress — treated as a stress scalar potential — accomplishes time-domain pumping in the optical sense, due to the presence of the coupled time-polarized longitudinal waves in the time domain.

This time pumping is a special form of "time stress". Thus in optically pumped or stressed optically active materials (including electrolytes), the time-stress creates a TRZ, reversing the normal force laws upon and between charges. Assuming this hypothesis is valid, this could account for the variation of Chung's negative resistance effect with the variation of the pressure (stress) used in manufacturing. It would also apply to the laser-created stress in semiconducting powder experiments, etc. The hypothesis should be further investigated for experimental validation or refutation.

11.11 In Conclusion

As Penrose {694} states,

"Electromagnetism is a subject that is in no way closed to stimulating new developments."

Indeed, electrodynamics is still very much an advancing subject, and in classical electrodynamics there are foundations errors and problems, a few of which we have addressed. As Bunge {695} pointed out more than three decades ago,

"...it is not usually acknowledged that electrodynamics, both classical and quantal, are in a sad state."

From a foundations viewpoint, Einstein {696} beautifully summed it up — and advanced a requirement for continually examining the foundations of electrodynamics and every other field of physics — in these words:

*".. the scientist makes use of a whole arsenal of concepts which he imbibed practically with his mother's milk; and seldom if ever is he aware of the eternally problematic character of his concepts. He uses this conceptual material, or, speaking more exactly, these conceptual tools **of thought**, as something obviously, immutably*

given; something having an objective value of truth which is hardly even, and in any case not seriously, to be doubted. ...in the interests of science it is necessary over and over again to engage in the critique of these fundamental concepts, in order that we may not unconsciously be ruled by them."

Though they have long been neglected, legitimate COP>1.0 electrical systems are good science, or they can be. They were present in the original Heaviside truncation of Maxwell's theory prior to Lorentz's symmetrical regauging. That regauging arbitrarily selected only those Maxwellian systems in equilibrium in their exchange with the active vacuum. The energy flow theory was further curtailed by Lorentz's integration trick, which discarded the huge vacuum-furnished non-intercepted Heaviside energy flow component accompanying every EM system. Every EM system already outputs for more EM energy flow than the energy that the operator inputs; thus every EM system is already a COP»1.0 system, with respect to *energy transduction*. The only way this giant negentropy of every EM system can be hidden is to ubiquitously continue that integration trick to discard the giant Heaviside energy flow component.

The present Lorentz-regauged Maxwell-Heaviside equations are not consistent with *any* bipolar EM system or circuit. The ends of any dipolarity in the universe — including any electron on Jupiter and any positron in the star Sirius — constitutes a broken symmetry in the seething vacuum flux. Actually, that is what Gabriel Kron discovered and called his "open path". Hence, that "dipole" continuously emits observable EM energy extracted from the vacuum.

Engineering use of the ubiquitous closed current loop to contain both the primary source dipole and the load — which destroys the source dipole and extraction of vacuum energy faster than the load is powered — is responsible for the successful predictions of the equilibrium EM model (which of course completely fails to explain the source charge or source dipole). That circuit is unwittingly designed to self-enforce the Lorentz symmetry condition and therefore self-enforce those predictions.

The question as to whether COP>1.0 electrical power systems are possible *and practical* must be resolved by direct experiment, and not by established models and cherished concepts that already arbitrarily exclude such systems! Such theoretical refutation by models that in fact contradict the experimentally observed COP = ∞ action of every charge in the universe, cannot be trusted at all with respect to COP>1.0 judgment. Well-

known supporting and confirming experiments already in the literature — such as the Bohren experiment yielding $COP = 18$ — have been cited, and these are replicable by any university laboratory. The Bohren-type experiment is well known and routinely performed in every nonlinear **optics** laboratory, under the guise of "negative resonance absorption of the medium".

It is indeed a critical time to re-examine the foundations of our electrical **power** science and engineering, along the lines so eloquently stated by Albert Einstein. With the impending oil crisis, we face a world economic crisis of epic proportions unless we rapidly develop and widely deploy sell-powering disequilibrium electrical power systems.

Also it is a critical time when the leaders of the scientific community — specifically the National Academy of Sciences, the National Science **Foundation**, the great national laboratories, and the universities — must at last face and correct the excruciating *faux pas* that has now been perpetuated in electrodynamic theory for more than a century. In short, the **leaders** of our scientific community must now show whether they are scientists practicing and upholding experimental basis, or are dogmatists **defending** an ancient faith. The fact that the source charge problem **continues** to be propagated in electrodynamics 45 years after the award of the Nobel Prize to Lee and Yang, is no longer excusable.

A thorough review and correction of the foundations of EM theory is **required** for the survival of this nation and much of civilization. It is also **required** for the cleanup of the increasingly polluted biosphere, survival of the threatened species of the Earth, reduction of present global warming **trends**, and the survival of this fragile and beautiful planet itself.

Annotated Glossary of Selected Terms

action at a distance: An action (effect) occurring in a local system, for which no separate local 3-space cause exists, but for which a causal correlation exists between a distant action and the local effect.

advanced electromagnetic field: An electromagnetic field that is a solution of the classical Maxwell equations, which is positioned on the future light-cone of spacetime. It may be possible to involve such a field in the tempic force that may exist between the tempic potential at the output of an overunity system and the tempic potential that exists at the input of the system, where the interaction of the tempic force with the local nonlinear vacuum drives Dirac sea hole current from output section to input section.

advanced electromagnetic potential: An electromagnetic potential that is a solution of the classical Maxwell equations, and is positioned on the future light-cone of spacetime. Presently this potential has not yet been given a physical interpretation. It may be possible to involve its effects in a specific system by our notion and use of the instantaneous tempic potential difference (the tempic force) that may exist between the tempic potential at the output of a system and the tempic potential at the input of that system if the two differ.

advanced electromagnetic wave: An electromagnetic wave that is a solution of the classical Maxwell equations, and which is positioned on the future light-cone of spacetime.

Aharonov, Yakir: Renowned Israeli quantum physicist and former student of David Bohm. Co-discoverer of the Aharonov-Bohm effect. Together with Bohm, Aharonov authored a fundamental paper in 1959 that pointed out the *primary importance of the potentials* rather than the force fields. The force fields are only made in and of the charged particle system itself, and do not exist as such in the vacuum. The force fields are thus not primary electromagnetic causes at all, but are *effects* due to the interference of potentials in a particular charged particle system.

Aharonov-Bohm effect: Quantum mechanical phenomenon theoretically pointed out in 1959 by Yakir Aharonov and David Bohm whereby interfering electromagnetic potentials can produce effects on charged particle systems, even at a distance and in the absence of the

electromagnetic force fields. A system undergoing a cyclic evolution from an initial state back to it will acquire a phase difference, which can be detected by interfering the initial and final states. Theory was extended later to Berry phase, then again to geometric phase.

In classical EM terms, a more important *energy-amplifying* principle - advanced by the present author — emerges from the AB effect. My colleagues and I have used this principle in our motionless electromagnetic generator (MEG) to provide $COP > 1.0$. Consider a source of magnetic field B , such as a permanent magnet. All the magnetic field energy B from the permanent magnet may be drawn into and confined in a local material path, as in a special nanocrystalline transformer core. Then in the space surrounding the localized magnetic field energy, the active vacuum will freely replenish — via the broken symmetry of the permanent magnet dipole in its exchange with the vacuum — the magnetic energy in that space that would otherwise have been filled with magnetic field B (curled magnetic vector potential A). However, nature replenishes the energy in space outside the B -localization region with the *curl-free* magnetic vector potential A . In this fashion a system designer may cause the active vacuum to provide more available magnetic energy from the permanent magnet than normal, with each of the two energy forms being in separate spatial regions and paths, and occurring in different forms of magnetic vector potential energy. By inputting only a little energy in the input coils of the transformer section, and controlling the rise time and decay time of the pulses, one can produce very large E -fields from the A -potential via $E = -dA/dt$. From the simultaneously perturbed confined B -field flux in the core, one also produces E -field simultaneously and — at the frequencies used — in phase with the E -fields produced outside the core. The net result is interaction of large E -fields with the output coil, producing an output power *proportional to the rate of change* of the weak input signal energy rather than its magnitude. In this fashion, additional E -field energy from the vacuum enters the output coils to power the secondary circuit and its loads. Also, the output of the entire transformer section has the voltage in phase with the current, in contradiction to the actions of all previous transformers.

AIAS: Alpha Foundation's Institute for Advanced Study, directed by Dr. Myron W. Evans, a noted scientist with more than 600 papers in the literature. The AIAS is an unusual "think tank" comprised of Fellows and Fellow Emeriti in various places in the world, who cooperate in advanced electromagnetics studies via E-mail. The Director, Dr. Myron W. Evans, is a theorist of note, as are several other Fellows. The AIAS has been forging

ahead with the production of $O(3)$ symmetry electrodynamics, particularly as an important subset of Mendel Sachs' unified field theory. Dozens of AIAS group-authored papers have been published in various leading journals such as *Foundations of Physics*, *Physica Scripta*, etc. More than 100 AIAS papers are carried on a restricted Department of Energy website for reference by DoE and AIAS scientists. The work is particularly significant in preliminary theorizing how EM energy can possibly be extracted from the active vacuum.

algebras: The various types of mathematics in which the theoretical models for physics and other sciences are embedded. Some important algebras utilized in physics are vector algebra, tensor algebra, quaternion algebra, Grassmann algebra, Pauli algebra, Clifford algebra, etc. There are many others. The complexity of the symmetry and of the topology varies significantly between these algebras. Thus, an electrodynamics model in a lower topology algebra such as vectors or tensors will not reveal or permit nearly so great a set of electrodynamic functions and operations as will electrodynamics embedded in a higher topology algebra such as quaternion algebra or Clifford algebra. See topology.

ambient vacuum: The average or typical "standard" active vacuum (i.e., active spacetime), removed spatially from any large collections of observable charge and observable mass.

ambient vacuum potential: The *average* or typical standard vacuum considered as a scalar potential because it possesses energy density as well as structure and dynamics on many levels. As a scalar potential, the vacuum potential (considered without zero-point fluctuations) decomposes into a harmonic set of "bidirectional" longitudinal EM phase conjugate wavepairs, by Whittaker's 1903 decomposition as reinterpreted by the present author in 2000. Dynamic structuring of the vacuum thus consists of dynamics impressed upon these wavepairs. Since the vacuum is observably mass-free, Whittaker's phase-conjugate half of the decomposition must be considered prior to its interaction with mass, hence in the imaginary plane **and** arising from the time domain. This consideration led to the discovery by the present author of the more fundamental 4-symmetry in EM energy flow between the time domain (imaginary plane) and real 3-space, when broken 3-symmetry is present (as with any dipolarity or with any **potential**).

Powerful support for this solution is also given by F. Mandl and G. Shaw, *Quantum Field Theory*, Wiley, 1984, Chapter 5. Mandl and Shaw argue that the longitudinal and scalar (time) polarizations of the photon are not

directly observable, but only in combination, where they manifest as the "instantaneous" Coulomb (i.e., electrostatic) potential. Our comment is that this argument, translated from particle terminology to wave terminology, directly fits our re-interpretation of Whittaker's 1903 decomposition of the scalar potential.

angular momentum: The momentum or "leverage" of the linear momentum of a moving body, with respect to an axis or reference point. Angular momentum has the same units as action; that is, it is energy multiplied by time, or momentum multiplied by length. In terms of particles, it is also known as spin.

anti-circuits: Somewhat normal-appearing electromagnetic circuits which primarily process and use antiparticles and anti-electrons rather than particles and electrons, or else process a combination of the two simultaneously. Operations of the anti-circuit must be analyzed and understood in terms of its *supersystem* interactions. The circuits process and utilize both negative energy and positive energy EM fields and potentials, hence are closely connected to unified field engineering and antigravity. One aspect enabling such circuits is the use of the supersystem's curvatures of spacetime in both negative curvature and positive curvature fashion so that an appropriate change of spacetime curvature precludes the radiation normally accompanying pair annihilation, etc. The key to the circuits is T-reversal and C-reversal operation, along with the matching use of spacetime curvatures, and also the use of the Dirac "positron" (negative energy electron) — and its fields and potentials — prior to its observation. The unobserved Dirac negative energy electron in the vacuum is an entirely different entity than is the observed Dirac positron after its interaction with charged matter, after which it has become a "lattice hole" or "positive charge on a positive mass ion". The response of normal circuit components to vacuum Dirac sea hole operations is dramatically different than for Dirac positrons, and for certain applications special versions of circuit components are required. At this writing, together with John Bedini the present author has submitted what may be the first patent application on the fundamental process for anti-circuits and their operations with antimatter and negative energy currents, fields, and potentials as well as matter and positive energy currents, fields, and potentials. Another patent application by this author is in preparation, covering the anti-gravity aspects. The details of these mechanisms are still proprietary at this writing in order to protect our intellectual property rights, but limited information is in this book.

anti-electron: A negative-energy electron, observed as a *positron*. Under time reversal, electric charge reverses in sign. Dirac did not predict the positron *per se*, but a negative energy electron that we would *observe* in **reversed** fashion. Present theorists assume the interaction of the 4-space **negative** energy electron with matter — i.e., observation — to have occurred. This transforms the negative energy, negative mass electron to a positive energy, positive mass positron traveling in the opposite direction. In so doing, antigravity from the negative energy 4-electron source charge, due to its negative energy EM fields and negative energy potentials, is **arbitrarily** transformed by the spatial reversal into positive gravity fields **rather** than the antigravity fields they were. The secret to practical antigravity is to utilize (in anti-circuits) the negative energy 4-electrons **prior** to observation, *without* transformation of (i) negative energy fields to positive energy fields, (ii) negative mass to positive mass, and (ii) reversal of the field direction. In short, simply consider the unobserved negative **energy** 4-electron as what it is, and utilize it in its unobserved vacuum state. The conventional transformation process also unwittingly discards **the** concept of anti-circuits, anti-fields, anti-potentials, and anti-currents, which discards half the rich electromagnetic circuitry that can be built and **utilized**. In the present book, we only touch lightly on this latter subject, which hopefully will be the subject of a future book after certain patents are **filed**.

antigravity: Negative gravity or reversed gravity. Use of negative curvature of spacetime to produce a force on a gravitational source (**physical** system) that is opposite to the normal force of gravity of the earth etc. on that system. Antigravity is achieved by the use of **negative-energy**, negative-mass source charges in the mass component of the **supersystem** prior to observation, while the source charges are still 4-**spatial**. This usage produces negative energy fields and negative energy **potentials** to negatively curve the local spacetime (ST), so that these *negative local ST* curvatures interact back upon the positive mass source system associated with the vacuum negative energy sources in its **supersystem**. Again, to understand the operation of an antigravity circuit or system, one must analyze it in terms of its *supersystem* interactions.

antimatter: Matter consisting of atoms that are composed of anti-electrons (**positrons**), antiprotons, and antineutrons and such. Also loosely refers to the **antiparticle** corresponding to a particle; an antiparticle may be regarded as a particle traveling backward in time, or "phase conjugated", or "time-reversed". Since time is not an observable, the observer sees the antiparticle

(*after its observation by interaction with mass*) in forward time as being reversed in direction and charge.

antiparticle: Conventionally, a counterpart to an ordinary fundamental particle, *observably* having identical mass, lifetime and spin, but with charge and magnetic moment reversed in algebraic sign. We again point out, however, that the antiparticle differs when in its unobserved 4-spatial state. Only by analyzing the particle's supersystem can the true unobserved antiparticle be understood, as well as its fields and potentials in that condition.

antiphoton: A time-reversed photon. Presently the photon is considered its own antiparticle. *Observably* it is, but in its pre-observation condition it is not. An alternate but as yet unaccepted view is that, since the unobserved photon is comprised of $(dE)(dt)$ — i.e., a piece of energy welded to a piece of time with no seam in the middle, the antiphoton may be assumed to be comprised of $(-dE)(-dt)$ with respect to the external observer.

anti-Stokes radiation: The radiation coming from an anti-Stokes emission process from an intensely scattering medium, wherein more energy flux is emitted than is input by the experimenter-operator. The excess emitted energy is furnished by other processes in the medium. For true overunity operation, the excess energy furnished by the energetic medium must be freely replenished to the medium by the active vacuum's interaction with it.

antiwave: The time-reversal (phase conjugation) of a reference wave.

A-potential: The magnetic vector potential \mathbf{A} , conventionally thought to be "defined" by the equation $\mathbf{B} = \nabla \times \mathbf{A}$. However, no equation is a definition (an identity is required). If we replace the "=" sign by "=", we have $\mathbf{B} \equiv \nabla \times \mathbf{A}$, which is actually seen to define the field \mathbf{B} as just a curled A-potential, or as the curled component of the A-potential, *after* interaction with magnetic charge. The A-potential or an additional component of it can and does also exist in uncurled fashion, and will emerge in the uncurled state in the space outside any local path (e.g., the path in the interior of a toroidal coil) that retains the B-field therein. That process of separating the curl component of the A-potential from its uncurled component is known as the Aharonov-Bohm effect (which also affects the wave function). The motionless electromagnetic generator (MEG) uses a special nanocrystalline core material in a transformer configuration, which draws in and retains the B-field from a permanent

magnet outside the core but firmly in contact with it on both ends. As a result, the vacuum freely replenishes the withdrawn magnetic energy that would otherwise have existed in the space outside the core, but the energy outside the B-field localization zone remains and appears as a separated and uncurled A-potential. In this way, the MEG is converted to an open system not in equilibrium with the vacuum, and can therefore permissibly output more EM energy in its output coils than the operator inputs into the input coils, the excess being freely furnished from the vacuum via the broken 3-symmetry of the permanent-magnet dipole and the resulting 4-symmetry EM energy flow from the vacuum's time domain into the dipole.

The MEG is actually a practical macroscopic EM power system application of (1) the well-known Aharonov-Bohm effect and (2) the effect of the separation of the curled and uncurled potentials by a long tight solenoid or by a tight toroid, but in this case by the nanocrystalline magnetic core performing that separation function. In effect, the output coils interact with double (or greater) energy than would be available in just the B-field of the core (and of the magnet). Dual interaction with both the internal core B-field flux and also the external A-potential is obtained by pulsing, so that the pulse edges produce strong E-fields in space, with the E-fields striking the output coils in a transmission-reception near-field fashion. As is well-known, $d\mathbf{A}/dt = -\mathbf{E}$, and also $\oint (d\mathbf{B}/dt) \cdot \mathbf{r} = \mathbf{E}$. two

fields produced by the perturbed internal B-flux in the core and the perturbed external uncurled A-potential outside the core are in phase. This is how the extra pulsing A-potential energy outside the core is made to interact as -E-field energy with the Drude electrons in the output coils, while the changing magnetic flux in the core through those coils also simultaneously produces a second -E which interacts with the coil's conductors in normal E-field fashion. The total E-field interacting with the output coils is proportional to the time rate of change of the input perturbation signal, not the magnitude of its energy. By adjusting the leading and trailing edges of the perturbation pulses, the magnitude of the E - field interactions with the output coil is determined as desired. Further,

the usual output B-field produced in the output coils by $d\mathbf{E}/dt$ is directly extracted into the core and held, so that a purely electrical interaction and output occurs in the output coils. This is easily shown since the output current and voltage of the output coil are in phase, within a degree or two. The MEG may be said to be the world's first purely electrical induction transformer, freely separating the magnetic interactions and bottling them up, while allowing the electrical interactions.

asymmetrical regauging: A change of either the scalar potential ϕ or the vector potential A , or both, so that a *net resulting excess force together with a net change of total system potential energy* occurs in the system. During this change, an asymmetry exists in the active vacuum's energetic exchange with the system. The result is that the potential energy of the system is freely changed by energy from the vacuum, and a free net force is also produced in the system. This new force is then free to dissipate the excess potential energy by translating electrons through a load and powering it. By contrast, the Lorenz/Lorentz *symmetrical* regauging produces two free force fields that are equal and opposite, so there is no *net* resultant translation force available to translate electrons through the external load and power it. Thus Lorentz regauging arbitrarily applied to the Maxwell-Heaviside equations selects only that resulting subset of Maxwellian systems that are in equilibrium in their interaction with the external active vacuum. The potential energy of the system is changed, but only as a "stress potential" doing internal work upon the system to form and maintain its increased stress. The extra energy also rotates the system's frame out of the laboratory frame. Lorentz thus unwittingly discarded an entire class of permissible Maxwellian systems that are not in thermodynamic equilibrium with the vacuum. The Lorentz condition is initially violated each time anyone potentializes an EM circuit, but the closed-current-loop circuit design with the same charged-particle energy carriers around the loop — including back through the back emf of the source dipole in the generator — enforces a form of Lorentz symmetrical regauging during discharge of the system's excitation energy. Further, the response of the electrons in the usual electrical circuit with copper conductors is so rapid that the asymmetrical regauging (potentialization) is almost instantly converted to symmetrical discharging by movement of the electrons as current. When one section of the otherwise closed current loop uses a dramatically heavier charge as the energy carrier (as a battery uses ion current between its plates, but uses electron current between the outside of the plates and the external circuit), it is then possible to dephase the two independent carrier currents so that the battery will be charging while simultaneously the circuit is being powered, by a negative resistor (sharply increased scalar potential or voltage) produced at the plate surface interface of the two carrier current types. This proven Bedini process is an example of a true overunity process, capable of producing a self-powering system by means of adroit switching and timing.

asymmetry: Lack of symmetry, or "broken symmetry" in a general sense. Since a specific symmetry is accompanied by a specific conservation law, the breaking of that symmetry represents the violation of that conservation

law. Particularly note that a broken symmetry at one level often (usually) **results** in a new symmetry at a higher level, necessary to maintain the asymmetry at the lower level. The resulting "levels" of symmetry are known as *hierarchies* of symmetry.

asymmetry of the dipole: Because of the proven asymmetry of opposite charges, any dipole or dipolarity is a broken 3-symmetry in its fierce exchange of EM energy with the active vacuum, because of the known **broken** symmetry of the opposite charges on its ends. Any two points in **the** universe (in or out of the circuit), that are at differing ambient **potentials**, constitutes such a broken symmetry continuously pouring out EM energy extracted from the vacuum. A dipole or dipolarity continuously **receives** and absorbs copious virtual energy from the seething virtual **photon** vacuum flux, and not all this absorbed energy is reradiated back to **the** vacuum in virtual form. Instead, some of it is coherently integrated into **observable** form and re-radiated in all directions as usable, real 3-space

observable photons and EM energy. We found that the input energy to the **dipole** is from the time domain of 4-space. Hence the dipole's broken 3-symmetry results in the appearance of a new and far more fundamental 4-symmetry in energy flow between the time-domain and 3-space. This was the **solution** to the long-vexing source charge (or source dipole) problem in classical and quantum electrodynamics. Reinterpreting the Whittaker 1903 decomposition of the scalar potential reveals the mechanism for this 4-symmetry between time-domain EM longitudinal wave energy flow into a **dipole** and 3-space EM longitudinal wave energy flow out of the dipole, **due** to the presence of the proven broken 3-symmetry of the dipole. *EM energy flow is conserved in 4-space, but not in 3-space. Further, the 4-symmetry energy flow from the source dipole (or source charge) continues as long as the source dipole (or source charge) remains intact so that the broken 3-symmetry remains intact. It is strongly indicated that this asymmetry of the dipole or dipolarity is what Gabriel Kron finally discovered as his "open path".*

back emf: The counter-electromotive force, usually between the end charges of the source dipole in the external power source for an electrical circuit (in its overall closed current loop). When the electrons in the circuit are **forced** against the emf— as when the "spent" or depotentialized charges from the ground reference of the circuit are forced back up **through** the emf of the source dipole to re-potentialize the charges — then work is done upon the source dipole to scatter its charges and destroy the **dipole**. Removing the dipole stops its receipt of vacuum energy from the time - domain (which was due to its broken 3-symmetry, now removed). It

also stops the former dipole's transduction of that energy, and its former output of 3-space energy flow along the circuit and in space around the circuit. When this flow is occurring, a small component of it strikes the surface charges in the conductors and is diverged into the circuit (by axial precession of the surface charges withdrawing the "immediate stubs" of their fields and potentials into the conductor) to power it as the Poynting energy flow component. The huge remainder of the energy flow in space surrounding the circuit simply misses the circuit and is utterly wasted. Destruction of the source dipole removes the transduction of EM energy from the vacuum. It thus stops the powering of the circuit. So additional energy must then be input to the power source to perform work on its scattered internal charges, force them apart again, and reform and restore that source dipole, in order to resume powering the circuit by energy extracted from the vacuum by the dipole. It is simple to show that such a closed loop circuit uses more of its collected energy from the vacuum to destroy its source dipole, than it uses to power its load. Hence the circuit self-enforces $COP < 1.0$.

back emf (tempic): There are actually two emfs in a circuit, not one. There is a 3-space emf and also an entirely unrecognized *tempic* emf. In either case, under proper circumstances there can be a back-emf of either one or both. See discussions under **electromotive force**, **back** and under **tempic back emf**. The tempic back emf is very important to $COP > 1.0$ circuits, where the system's output energy density in spacetime is greater than the energy density at the input section of the system. This difference in tempic stress potential provides a tempic force sweeping from system output section back through the system to its input section. The current is a current of Dirac sea holes (negative energy 4-electrons) moving in that local vacuum, from the output section back through the system to the input section. At the input section, this Dirac sea hole current reacts with incoming electrons from the external power system. It therefore "eats" incoming electrons, so that the power supply must now furnish additional electron current to (a) power the negation and "killing" of the Dirac sea hole current by filling those holes with electrons in the input section of the circuit, and (b) simultaneously furnish the additional usual current to power the system's input. The result is that the tempic back emf is nature's mechanism for decaying the excited $COP > 1.0$ energy state represented by a system in overunity functioning condition. Unless this hole current problem is overcome, this decay mechanism will destroy the net overunity, and it will prevent any attempt at close-looping the circuit for self-powering by use of clamped and governed positive energy feedback from output to input. The Bedini method can be used to transform the

detrimental Dirac hole current into ordinary electron current, providing the self-powering feedback loop needed. Or, Bearden's outrigger method of using a multi-system set of external $COP < 1.0$ receiving circuits powered by radiation (Poynting EM energy flow) from a single central power **source** (energy flow radiator) can be used. Then already-positive energy feedback from one or more of the separate outrigger $COP < 1.0$ receiver circuits can be fed back in normal fashion to power the central power unit. Note that the outrigger concept uses the bridging concept, so that an **external** $COP < 1.0$ system can be powered from a central radiating system, and the external $COP < 1.0$ system can collect and output more energy than is output in the *accounted Poynting component* of the central radiating system. The excess energy radiated comes from the radiated Heaviside component.

bare electron: The true electron without its partial shielding of virtual **positrons** that are attracted toward it from the active vacuum, and that **cluster** around the electron, partially shielding its charge as seen by an **external** observer. The bare electron has infinite energy and infinite charge, as does the shielding cluster of virtual positrons. The difference between these two infinite values of opposite charge is the finite "externally observed" value of the electron charge listed in texts and handbooks. This strange dipolarity of the source charge thus exhibits an asymmetry in its **exchange** with the active vacuum virtual photon flux. Hence this mechanism also solves the source charge problem — how the charge continuously pours out EM energy in all directions at the speed of light, **establishing** its fields and their potentials reaching out into or even across the universe, without any input of *observable* EM energy to the source

Barret, Terence W.: Noted modern electrodynamicist and consultant who works in $SU(2) \times SU(2)$ gauge symmetry extended electrodynamics, and **other** models, and was also one of the pioneers of ultrawideband radar, Barret is one of the vigorous modern electrodynamicists continuing to develop and extend the science of electrodynamics and the electrodynamics model itself.

Bedini, John: Noted audio engineer, leading overunity energy researcher, inventor of the Bedini process for creating a true negative resistor inside a battery used as primary power to a circuit, and inventor of the Bedini overunity process for killing the back mmf (magnetomotive force) in a **magnetic** motor. Bedini is also the inventor of the renowned Bedini amplifiers well known to audiophiles, the BASE process for holographic sound, and a remarkable process for cleaning the **harshness** from digital

audio disks. In addition, he discovered a mechanism for transducing into usable positive energy the detrimental Dirac Sea hole current (negative energy electron flow) backflow in an overunity system, flowing from the output section back through the system to the input section and even on out into the external power supply. The Bedini process transduces this detrimental current into normal electron current, thereby providing most or all of the required input power to the input section. Bearden then explained the technical process for Bedini's discovered transduction procedure, and Bedini and Bearden filed a patent application on this process.

Berry phase: Generalization by Berry of the Aharonov-Bohm effect, for an adiabatic situation. Later Aharonov and Anandan further removed the adiabatic condition and generalized the Berry phase to the geometric phase. See Aharonov-Bohm effect, geometric phase.

blocking: In a Fomal charge-barrier semiconductor, stopping or partially stopping the flow of current in a circuit, or between two points, by *pinning the electrons without stopping the EM energy flow*. In ordinary usage, "stopping the progress of whatever charge flow or current is being referred to.

Bohm, **David J.:** World-renowned physicist and originator of the hidden variable theory and interpretation of quantum mechanics. See David Bohm, "A Suggested Interpretation of the Quantum Theory in Terms of 'Hidden' Variables, I and II," *Physical Review*, 85(2), Jan. 15, 1952, p. 166-179 (Part I); 180-193 (Part II). Together with his student Aharonov, Bohm co-authored a fundamental paper on the Aharonov-Bohm effect wherein interfering electromagnetic potentials can produce effects on charged particle systems, even at a distance and in the absence of the electromagnetic force fields. From Bohm's hidden variable theory, the quantum potential has been highly weaponized by five nations, and these eerie weapons operating instantaneously at a distance through multiply connected spacetime are presently the dominant strategic weapons on earth.

Bohm's hidden-variable theory (HVT) of quantum mechanics: A major interpretation of quantum mechanics, formulated by David Bohm and published in *Physical Review* in 1952. Bohm's theory makes all the correct predictions and also eliminates many problems in quantum mechanics, such as the "measurement problem" and the — now recognized — problem of the missing chaos (i.e., the missing "hidden chaotic order."). Bohm's theory implies that physical reality — or much of it — can in fact be deterministically engineered. A key concept is the use of a *quantum*

potential, which is multiply connected. Clandestine superweapons using **Bohm's** quantum potential (QP) have been developed and deployed by several nations. Present mutual assured destruction "standoff between these nations is based on surviving counters to QP weapons rather than surviving nuclear weapons.

Bohren, Craig F.: Distinguished Professor of Meteorology, Pennsylvania State University, noted for work in scattering theory. In an experiment **detailed** in C. F. Bohren, "How can a particle absorb more than the light incident on it?" *American Journal of Physics*, 51(4), Apr. 1983, p. 323-327 Bohren shows that in nonlinear conditions a resonant particle may absorb and output 18 times as much energy as is impinging upon it from the usual **field** definitions based on a static intercepting charge. The additional **energy** is "absorbed from the vacuum"; actually, it is absorbed from the nondiverged Heaviside energy flow component accompanying the accounted Poynting input component, but arbitrarily discarded by Lorentz. The resonant particle sweeps out a geometrical interception area (reaction cross section) greater than that of the same charge in a fixed static condition. Hence it intercepts part of the always-available Heaviside "dark energy" flow surrounding the Poynting energy flow component of every field/charge interaction.

Bohren experiment: Revealing experiment by Craig F. Bohren, replicated by Paul and Fischer, which shows that a given charge when in particle resonance absorbs more energy from a field or potential than the same charge does when in "static" position. This experiment is a direct experimental demonstration of the existence of Heaviside's nondiverged energy flow component around every field/charge interaction. See discussion under Bohren, Craig F. The Bohren experiment can be replicated by any university nonlinear optics laboratory and outputs 18 times as much energy as is input by normal calculations (neglecting the Heaviside nondiverged EM energy flow component of the input).

boson: A particle having integral spin, which obeys Bose-Einstein **statistics** but not the Pauli exclusion principle. Bosons include the photon, alpha-particle, and any nucleus of even mass number.

bridge: A component or process which passes EM energy between two **isolated** circuits, but does not pass dq/dt between them, and which breaks the normal rigidly field-locked power dissipations in the two circuits. Space itself would appear to be one such bridge for EM energy flow.

bridging **function**: The function of passing EM energy flow between two isolated circuits, but not passing dq/dt between them, while simultaneously

breaking any normal rigidly field-locked power dissipations in the two circuits. Use of the uncurled A-potential where $\nabla \times \mathbf{A} = \mathbf{0}$ is one available method of bridging otherwise isolated circuits, particularly in the outrigger embodiment of the motionless electromagnetic generator and other COP>1.0 systems.

broken symmetry: Fundamentally, a condition in which two parts of some configuration or shape, on opposite sides of some divisor or condition or boundary, are not similar but differ. In vacuum energy physics, we are very interested in the fact that — because of the broken symmetry of opposite charges — any charge (with its associated clustering virtual charges of opposite sign) and any dipole or dipolarity represents an asymmetry in its fierce energy exchange with the vacuum. This implies that something virtual becomes observable; i.e., part of the virtual EM energy continuously absorbed from the vacuum by the charge or by the dipole is changed into observable form and re-emitted as real, observable EM energy. The remainder is re-radiated as virtual EM energy. The charge's transduction of absorbed virtual photon energy and its re-emission as observable photon energy was proposed by the present author in 2000 as the solution to the long-vexing problem of the source charge and its associated fields and potentials (and their energy) reaching across the universe.

bypass resistor: In electrical theory, a resistor to pass or conduct current around (in parallel to) some other component. If another effect such as use of the overpotential, pumped phase-conjugate reflection, quantum well, quantum tunneling, negative energy, or charge blocking is added, the bypass resistor's function becomes extremely complicated. The bypass resistor may be complex, e.g., or it may be a true negative resistor in some cases.

carrier wave: A fundamental wave that is modulated by another wave or other waves, and hence "carries" the other modulating waveform(s). By stripping off the carrier in a demodulator, the carried waveform(s) emerges.

Casimir effect: The attraction of two conducting parallel plates in space, placed very close together, due to their influence on the active vacuum and on the vacuum's interaction with the plates. A part of the vacuum spectrum between the plates is "cut off and blocked or shielded, so that the vacuum potential between the plates is less than the vacuum potential outside them. The resulting potential gradient (force) on each plate from outside pushes the plates together. The Casimir effect unequivocally proves that it is

possible to directly engineer the vacuum so as to produce forces and energy and physical effects in material systems. While it is a "small" white crow, it only takes one white crow to prove that not all crows are black. It is sufficient to conclusively prove that EM energy can be extracted from the vacuum. From there to practical EM power systems, fed by vacuum energy, is simply a product of modifying the prevailing electrodynamics and electrical engineering to incorporate the supersystem components and interactions, and then to gradually discover and develop the necessary technology. In this book we attempt to point the way by using the supersystem and providing some of the major necessary principles and **concepts**.

Casimir, Hendrik Brugt Bernhard (1909-2000): Noted scientist who in **1948** correctly predicted that two parallel conducting plates, placed very near each other in a vacuum, would experience an attractive force due to **their** influence on the electromagnetic vacuum.

causality: The relationship between "cause" and "effect", or the interaction of 4-space cause upon a previous 3-space observation (effect), to produce a new 3-space observation (change in the previous observable or **production** of an exact 3-space replica). The basic notion in a causal system is that the system's response to an input signal is dependent only **upon** past input values, not upon future input values. In a multiply connected space, the causality principle is dramatically changed and requires very careful accounting.

chaos: Indissipative dynamical systems, the dynamical evolution or ordering of the system that is aperiodic and highly dependent upon initial **conditions** of the system. The trajectories of the system move on a *strange attractor*, which is a fractal subspace of the phase space. The mathematical equations describing chaotic behavior are very nonlinear and so complex that at the present time they cannot be computed or predicted. Control of chaotic oscillations thus is ongoing in its scientific development, with the most advanced control work having been done by Russian scientists, but now openly available.

charge: *Charge* is the ongoing circulation of EM energy flow between the time and 3-space domains, as "seen" by the observer in 3-space. *Negative charge* is (i) the ongoing absorption, by a mass particle, of EM energy input **from** the time domain (from *ict*), (ii) transduction of the absorbed energy into 3-space EM energy, and (iii) re-emission of the EM energy in all directions in 3-space. *Positive charge* is (i) the ongoing absorption, by a mass **particle, of** EM energy input from 3-space, (ii) transduction of the

absorbed energy into the time domain, and (iii) re-emission of the EM energy in the time domain. Alternately, the positive charge can be considered as (i) the ongoing absorption, by a mass particle, of EM negative energy input from the time domain (from *ict*), (ii) transduction of the absorbed negative energy into 3-space, and (iii) re-emission of the EM negative energy in 3-space. A similar inversion can be utilized to represent negative charge. Time reversal of EM energy can be seen to result from the combined broken symmetries of EM energy flow (in 4-space) between time and 3-space, of two opposite charges and thus of dipolarity itself. See paragraph 3.1 of Chapter 3.

charge, electrical (q): In the sense of q being charged mass, where the mass m_q of charge q is associated with the phenomenon defined as charge (see above definition). In our view, an electrical charge q associated with a charged particle or mass may be defined as $q \equiv m_q \phi_q$, to first order. This fits the common use of "the charge" as an expression for a charged mass, and explains why a gathering of charges produces a potential ϕ reaching out from the "source gathering of charge q ". The actual "charge" action associated with the mass is due totally to ϕ_q , and to the broken symmetry of the ϕ_q dipolarity in the vacuum flux exchange with m_q . The charge q can be further broken down into a set of composite dipoles if the gathering of a screen of virtual charges of opposite sign in the vacuum, surrounding the mass of the "bare charge" inside the gathering, is considered. At first order, ϕ_q can be expressed (from *a particle view*) as a change in the local vacuum virtual photon flux (VPF), due to the VPF exchange between vacuum and m_q . *In a classical approach*, the vacuum may be considered as a giant scalar potential comprised of bidirectional EM wave flows according to Whittaker's 1903 decomposition, except we must re-interpret the phase conjugate half-set of Whittaker's decomposition as incoming from the time domain or complex plane. The charge then may be considered to diverge so much energy flow from the time domain into 3-space "around" the mass, resulting in ϕ_q as the steadily diverged energy surrounding the mass m_q . The ϕ_q component is actually the massless electrical charge and massless of itself. This approach would then yield a definition of massless charge itself, which at present is undefined in physics, as pointed out by Feynman and others.

In the expression $q \equiv m_q \phi_q$, the ϕ_q represents a change to the local vacuum potential ϕ_{vac} . Both ϕ_q and ϕ_{vac} decompose into Whittaker phase conjugate longitudinal EM wavepairs. As can be seen, by altering or engineering these constituent wavepairs, a particular ϕ_q or particular local vacuum potential ϕ_{vac} can be given a deterministic internal structure and dynamics.

Thus the interaction of a given electron or group of electrons may be made **quite** different from the interaction of another electron or group of "apparently identical" electrons. Such structuring dynamics are met with in the internal structuring of water, e.g., where the fierce activity of H-bond making and breaking can be treated as a special ϕ_H and its "internal structure and dynamics" can be engineered. A leading scientist pursuing that type of effect is Jacques Benveniste, in France. Predictably, the **orthodox** establishment has severely castigated these experiments, defending conventional models as absolute while completely ignoring the experimental results that refute those conventional models as being incomplete.

charge carriers: Anything — usually fundamental particles, ions, etc. — which consists of or contains charges and can be potentialized and move.

charge, magnetic: In the sense of charged mass, a magnetic charge is what is commonly called a "magnetic pole". The mass m of the magnetic charge is associated with the exchange of EM energy between the time domain and the 3-space domain. Essentially, the energy exchange action **known** as "charge" in the massless sense is the magnetic scalar potential, or monopole, when decomposed as per Whittaker and as reinterpreted by the **present** author, and as pointed out in quantum field theory by Mandl and Shaw. Note that our personal view discriminates between *massless charge* and *charged mass*. Massless charge is an ongoing action and process, involving energy transduction from one form (time energy or 3-space energy) to another (3-space energy or time energy). A charged mass is a **mass** associated with such action. Unfortunately, in the prevailing usage the word "charge" is just loosely used for both senses without discrimination. Hence one must carefully differentiate between the use of "charge" for "charged mass", and its use for an "ongoing process".

charge-parity-time (CPT) theorem: C is *charge conjugation*, which changes the quantum number of every particle into its antiparticle. P is the reflection operation known as *parity*, which turns an object into its mirror image and rotates it 180 degrees about an axis perpendicular to the mirror. T is *time reversal*. Any violation of time-reversal symmetry is always accompanied by a violation of CP symmetry (by violating either C or P symmetry) and vice versa.

Electrodynamics and the strong interaction preserve CP symmetry to great accuracy. Weak interactions do not conserve CP symmetry. T symmetry violation has been shown at CERN, the European particle physics laboratory in Geneva, Switzerland.

charge trapping (also "pinning"): Holding charges "pinned" or "trapped" at a site or in a location, by a barrier or force, so that they do not flow as $i = dq/dt$. A clustering of the pinned charges at the pinning site often occurs.

charge-barrier: A process or component or function — particularly in a semiconductor such as the Fogal semiconductor — that blocks the movement of charges q as current dq/dt .

classical electromagnetic theory: The classical theory of electrodynamics, in its modern form begun by Maxwell with his seminal-paper orally presented in 1864 and published in 1865. Today many variations have been made, particularly with respect to the basic group symmetry of the theoretical equations.

Clifford algebra: A special higher topology algebra founded by Clifford, which includes as subsets many other algebras of lower topology.

closed system: In the present approach, a system that in theory does not communicate with its environment, and does not exchange energy or matter between system and environment. Notice that this directly conflicts with the notion in thermodynamics (both classical and disequilibrium) that a closed system is closed only to mass exchange across its boundary, but open to energy exchange across it. General relativity has falsified that notion since 1915. Any system undergoing a change of energy also undergoes a change of mass, since mass is a special form of energy.

An ideal model in which dynamically and energetically the system is considered to be "isolated" as if nothing else existed. In short, the system is considered as if it were in some "magic box" and nothing outside the box can ever enter the box or affect the system inside the box, and nothing in the system can ever leave the box or affect anything outside the box. No electromagnetic system is closed. In short, we have corrected the thermodynamics "closed system" with open energy transfer, to a true closed system with neither energy nor mass transferring. That corresponds to the present thermodynamics notion of the "isolated system".

One performs a non sequitur when proclaiming treatment of any EM system as a "closed system", and of course modern physics substantiates this. The broken symmetry of the opposite charges on the ends of a dipole — and of an observable charge together with its clustered virtual charges of opposite sign — has been proven since 1957. The absence of any closed system is particularly true in electrical power systems. Here one is indeed allowed to input energy into the system to excite or potentialize it. That of

course assumes that the system was "opened" long enough to take on excess energy (which also changed its mass)! Then as the system operates, losses and dissipations occur, in which case energy is considered to "escape" from the system permanently. In other words, the system was also continually "opened" so that energy could escape. In any EM system, every charge and dipole is already an open system, with free exchange of energy between 3-space and the time domain via that charge. In particle physics, every charge and dipole is a broken symmetry in its virtual particle flux exchange with the active vacuum.

The ancient thermodynamics definition of a "closed system" as one that exchanged heat but not mass, was formulated before thermodynamicists even knew that heat was a form of EM energy, or even knew what energy was. Hence we have changed that definition, since it is a non sequitur in view of modern physics.

There is really no such thing as a truly closed system in the universe, since every system is embedded in the active vacuum and is an open system in an energy exchange with the vacuum. Further, any change of energy in the system curves the local spacetime, which in turn interacts back upon the system. If that energetic exchange of the system with its "active vacuum and active curved spacetime environment" is symmetrical, then the system is in equilibrium with respect to its environmental exchange. In that case, for a limited number of purposes the system may be treated as if it were a closed system. In classical electrodynamics, Lorentz regauging of the Maxwell-Heaviside equations further reduced them to describe only Maxwellian systems in equilibrium with the active environment including the active vacuum. Consequently, any *net* interaction between the external vacuum (or the active local curved spacetime) and the system was excluded from the CED model. Obviously a *broken equilibrium* (i.e., broken symmetry) in that actual physical interaction is also not included in the CED model. Nor is it included in the classical (equilibrium) thermodynamics model with its archaic second law.

coefficient of performance (COP): Ratio of the usable energy output of a system divided by that portion of the total energy input that is input by the the operator's or experimenter. The COP is thus a measure of "return for using the operator's or experimenter's input energy" to produce — or direct the production of — useful work by the system". There are other ways to calculate the COP ratio; e.g., the average output power divided by the average operator input power. Contrast COP to the *efficiency* of a system, which is the ratio of the total usable output energy divided by the *total input energy from all sources*, including by the external active

environment as well as by the operator. The efficiency of a system means how efficiently it produces useful output from its *total* input. The COP is the performance the system renders for the *operator's* input. Note that even a highly inefficient system — say, with efficiency $\xi = 0.25$ — may nonetheless have a $\text{COP} > 1.0$, if the operator himself inputs less energy than the system outputs and the environment inputs all the rest of the output energy as well as all the energy in the system losses. As an example, a common home heat pump may have an efficiency of 40%, but a $\text{COP} = 4.0$. A windmill may have an efficiency of 20%, but a $\text{COP} = \infty$.

Also, for many systems one may evaluate their coefficient of performance for (1) the performance of the system as an energy transducer only, i.e., the ratio of energy the system outputs (whether used or not) divided by the energy the operator inputs; or (2) the performance of the system as a work producer, which is the useful work accomplished by the system divided by the operator's energy input. As an *energy transducer*, every generator and every battery has a $\text{COP} \gg 1.0$, when both the Poynting diverged energy flow output and the Heaviside nondiverged energy flow output are accounted. Yet for useful work, the same system may have $\text{COP} < 1.0$, because all the Heaviside nondiverged energy flow component is wasted, and some of the Poynting diverged energy flow component is wasted also.

Analyzed as an energy transducer only, every dipolar power unit — such as a generator or battery — outputs enormously more energy flow rate from its terminals than the mechanical energy rate input to the shaft of the generator, and than the chemical energy dissipated in the battery. So as an energy transducer, every dipolar power source is already a system exhibiting $\text{COP} \gg 1.0$, prior to Lorentz' integration trick to discard the enormous Heaviside nondiverged energy flow output component.

cold fusion: An ad hoc term applied to the transmutations at low spatial energy (but high time-energy) achieved in electrolyte experiments, particularly when using specially prepared palladium electrodes after their loading with positive H^+ or D^+ ions, and particularly when deuterium is present in the electrolyte and the loading is by D^+ ions. The *total* energy of the photon is greater the lower the photon's frequency and therefore the lower the spatial energy of the photon. Hence the cold fusion interactions actually use much higher *total* energy nuclear reactions than does present high (spatial) energy physics. Since "high energy" physics erroneously eliminates consideration of time-energy, the present high energy physics community is unjustifiably hostile to the very notion of cold fusion. The fact that little experiments on the lab bench use far higher total energy than the community's proud large accelerators is a bitter pill many high energy

physicists cannot *tolerate*, let alone view with scientific objectivity. So **again** there is a classic confrontation between science from scientific results and "science as known in the prevailing dogma".

composite dipole: Dipole formed as one part of an isolated, observable "charged particle", consisting of a differential element of that observable charge on one end and a momentary clustering virtual charge of opposite sign. This is one way of dealing with the modern "infinitely strong dual **dipoles**" view of the charge, where the bare charge in the middle is infinite as is the clustering virtual particle charge surrounding that bare charge and **partially** shielding it. The difference between these two infinite charges is **finite**, and is routinely calculated to show that it is the standard value of the charge as seen by an external observer.

C ooper pair: In superconductivity theory, a dynamic, weakly bound **pairing** of electrons in a superconducting material below its critical temperature. In this pair, if the energy state with wave number σ and spin $1/2$ is occupied by an electron, then so is the state with wave number $-\sigma$ and spin $-1/2$. The Bardeen, Cooper, Schrieffer (BCS) theory uses this concept to provide a detailed microscopic theory of superconductivity.

COP (Coefficient of Performance): See coefficient of performance.

cosmological feedback principle: A self-regenerating cosmological **feedback** cycle ascribed by Puthoff as the source of the vacuum EM zero-point energy (ZPE). One may assume the existence of EM zero-point energy by fiat as part of the boundary conditions of the universe, or conceive of its generation by the quantum-fluctuation motion of charged particles that constitute matter. Puthoff calculated the latter possibility, **assuming** that the ZPE spectrum (field distribution) drives particle motion, **and** that the particle motion in turn generates the ZPE spectrum. This provides a self-regenerating cosmological feedback cycle, which in fact is consistent with the general relativity assumption that curvature of spacetime affects mass energy, and mass energy changes affect the **curvature** of spacetime. It would be interesting to see if Puthoff's concept can be made compatible with the broken symmetry of a dipolarity and Kron's open path concept.

curl concept of fields: The concept of a field as the curl of a vector **potential** (the vector potential may not be known). Any field so conceived has a divergence of zero *a priori*. One must be careful, however, because electrodynamics calculates only the field's reaction cross section with an *assumed* fixed unit point static charge at a point in space, leaving the field itself undefined. In short, the calculation of "the field" is actually a

representation of the local point intensity of the field's interaction with unit point static charge. It is not the magnitude of the entire field (or potential) itself, *a priori*, but only of its reaction at a point with such a charge. In short, the field's reaction cross section with static charge is often misinterpreted as the magnitude of the field; at best it is an indication of the field intensity to static charge at a point.

curl-free magnetic vector potential: A field-free magnetic vector potential A without curl (swirl), hence lacing the B -field with which an A -potential is usually associated. For simplicity, one may visualize the curl-free A -potential as massless magnetic charge (and energy) in linear motion. Toroids and long solenoids have the characteristic of confining the B -field (curled potential) and holding it inside. However, drawing energy from any potential whose source charge or source dipole is not destroyed simply results in the full value (sum of the A -potential and B -field components) of the potential being replenished from the active vacuum, via the 4-symmetry energy flow mechanism in the presence of the broken 3-symmetry of the dipole. Hence one may easily increase the available potential energy density at will. This is a special form of gauge freedom allowing one to freely alter the potential energy of any electromagnetic system at will. Contrary to the dictates of EM textbooks, gauge freedom rigorously allows the direct and *free* amplification of potential energy of the EM system *at will*; the excess energy being freely furnished from the active vacuum processes. This principle incorporated in gauge field theory, has been known for decades and not previously used in the design, production, and use of $COP > 1.0$ electrical power systems, prior to the invention of the motionless electromagnetic generator (MEG).

curved spacetime: A four-dimensional geometry (spacetime or ST) is used in general relativity, where the ST curvature is determined by the distribution of spatial energy such as mass-energy. In the general relativity view there is no such thing as an "empty" space "filled" with some energy substance. Instead, there is a combined space and time as a single entity, *spacetime*, which is itself energetic and is the very geometry we use in our mathematics. Any change in the local energy density of that spacetime constitutes a *curvature* of spacetime. In the new, more extended approach, any change in the spatial energy density or time-energy density of spacetime, or a combination of changes in both, constitutes a curvature of spacetime. In 4-space modeling, time is treated as a special, highly condensed form of EM energy. Specifically time may be regarded as ordinary 3-spatial EM energy compressed by a factor of c^2 and existing in

the time domain rather than in 3-space. Time-energy therefore has essentially the same energy density as mass.

dark energy (negative): (Dirac holes, Dirac hole potentials, Dirac hole currents): A strange form of vacuum energy that creates repulsive gravity, causing the expansion of the universe to speed up (as observed and not otherwise explained by conventional theory). As a strong candidate for the dark energy, the present author has proposed a vacuum negative energy and negative energy currents in a negatively curved spacetime region partially containing excess Dirac sea holes devoid of electrons, along with normal filled Dirac sea holes. These special "Dirac negative action quanta" then form *negative action* (negative angular momentum, or — for simplicity — negative energy) potentials, currents, and fields. This type of vacuum condition containing some empty Dirac sea holes is referred to as a Dirac *-polarized vacuum*. However, it is not just simple static

polarization, but possesses rich dynamics. Such dynamic Dirac sea hole regions occur in the vacuum in curved spacetime regions with tempic potential gradients and strong 3-spatial energy gradients, and thus time force existing across the region. The holes occur since the energetic fluctuations of the local vacuum energy can separate a Dirac hole from its occupying electron. These may then recombine, or in sufficient local spacetime curvature can remain apart. The more violent the region, the more severe are local spacetime curvatures in that region, and the greater the fraction of empty Dirac holes that is maintained on the average, in their continual forming and recombining. In those regions, a tempic potential is higher at the higher center magnitude of the spatial energy density. Hence there tempic forces from "inside to outside", providing a "tempic broom" effect to sweep outward the excess Dirac sea holes separated from their electrons in the curved spacetime. The end result is the presence of increasingly unoccupied Dirac sea holes toward the outside of violent regions of spacetime, until the effect is overcome by the decreasing spacetime curvature. These empty Dirac holes in regions and currents are a special form of vacuum negative energy, negative energy fields, and negative energy potentials, creating negative gravity (repulsive gravity) upon ordinary mass exposed to them. So the more distant violent astronomical regions have greater amounts of repulsive gravity being produced by their local Dirac-polarized vacua and negative energy fields and potentials. The result of this effect is that, at sufficient distance from us, the increasingly earlier, more violent events and resulting greater curved spacetime regions have created sufficient Dirac-polarized vacua to overcome the normal gravitational attraction between galaxies, etc. Even farther out, the increase in Dirac-polarized vacua overrides the normal

attractive gravity between galaxies, etc. and produces net repulsive gravity. In turn this results in acceleration of the observed distant expansion of the universe. Dirac-polarized vacuum and its special dynamics can be accommodated in Sachs' unified field theory, which unites physics from quarks to the cosmos. See also **Dirac sea holes**.

On the laboratory bench, Dirac hole currents and effects are met with in a circuit or system producing $COP > 1.0$, or very sharp 3-spatial gradients such as in violent electrical discharges. The effects become non-negligible at about $COP = 2.0$ and sometimes less. The tempic force back across the, system from output to input is sweeping the Dirac holes through the system. This can play havoc with attempts to close-loop the circuit for self-operation. In semiconductor components, strange effects are met due to their use of donor and acceptor materials, and temporary or permanent failure of semiconductors can result. The simple way to visualize this is that, in the system's supersystem, the spacetime component is curved and the vacuum component is highly nonlinear. All three components — overunity system, local nonlinear and polarized vacuum, and local curved spacetime — are interacting vigorously with each other. An operating overunity system represents an excited state of that local region of vacuum and curved spacetime, hidden in the euphemism "polarized" which is inadequate to describe the dynamics. With the dynamics, one may visualize that the Dirac sea hole currents are swept back through the system, seeking to recombine with electrons to eliminate the "polarization" and its dynamics, thus decaying the excited state back to equilibrium and destroying the overunity condition. In a robust system whose internal parts do not appreciably interact with these Dirac hold dynamics, the dynamics will reach the input section and extend back into or toward the primary power supply. In the input section, the feeder line, and in the power source itself, this results in "eating electrons". The Dirac sea effects thus act as a separate load imposed within and around the system input section or even back in the feeder line to the external power supply, in addition to the system load itself in the system output section. Simply put, the power supply must now furnish extra electrons to "power" the Dirac sea hole recombinations first, and additional electrons to power the system in its "normal" fashion. The result is to "draw additional power" from the source, where "drawing power" now includes the additional "eating of electrons" within the power supply itself, the feeder line, and the input section of the system.

Bedini and Bearden have filed a patent application on processes to convert the detrimental Dirac sea hole current reaching the system's input section.

transforming it into ordinary electron current. Magnetic Energy Ltd. has developed two other processes that handle the Dirac sea hole current problem, allowing close-looping for self-powering operation. One of these processes converts negative energy into positive energy and the other avoids the negative energy problem. The first one allows this otherwise devastating special form of "negative feedback" or "degenerative feedback" to be converted into "positive feedback" or "regenerative feedback", allowing the system to be close-looped successfully for self-powering. Bearden has proposed yet a different approach using an "anti-circuit" method, but at this writing the method is still proprietary until intellectual property rights are secured.

dark energy (positive): Our term for the vast Heaviside nondiverged energy flow components surrounding every field/charge and potential/charge reaction but unaccounted in present electromagnetic theory after being arbitrarily discarded by Lorentz circa the 1890s. Present theory only accounts for that small amount of energy flow (the Poynting component) diverted locally around the interacting charge. All the rest of the energy flow comprising the field or potential, and missing the intercepting point charge, was discarded arbitrarily by Lorentz and is still discarded today, using Lorentz's integration trick. In honor of Heaviside, who **did** recognize the gravitational implications of his dark energy flow component, the present author has nominated this vast, unaccounted "dark energy" component as being responsible for the extra gravity holding the spiral arms of the spiral galaxies together. See **spiral** galaxy.

So one must recognize that the term "dark energy" is indefinite, since there are two kinds: (a) dark positive energy, and (b) dark negative energy. Dark positive energy consists of "normal" energy as often connected with particles, collected upon them and affecting their momenta, etc. It has dynamics and effects consistent with that kind of energy. Dark negative energy is a condition of the vacuum itself. It represents a sort of "empty container and empty container dynamics" (negative energy dynamics) in the vacuum itself, which "eats positive energy", so to speak. In **philosophical** terms, dark positive energy represents unaccounted actions and effects from unaccounted "extra presence of real substance and things and actions". Dark negative energy represents unaccounted actions and effects from "extra absence of real substance and things and actions beyond zero". Dark negative energy exhibits precisely opposite effects to the **effects** produced by dark positive energy. E.g., dark energy creates the excess gravity that is holding the arms of the spiral galaxies together. Negative energy resulting from spacetime curvature conditions in highly

energetic astronomical phenomena produces the *antigravity* that is responsible for the acceleration of the expansion of the universe. We have nominated the negative energy Dirac sea hole phenomena as the cause of the antigravity that accelerates the expanding universe. Interestingly, these negative energy phenomena present in sharp discharge (strong gradient) phenomena appear to be responsible for the fact that such phenomena are known to violate present thermodynamics, and are being studied under the aegis of "extended thermodynamics". See discussion of areas violating thermodynamics in the last chapter of Kondepudi and Prigogine, *Modern Thermodynamics: From Heat Engines to Dissipative Structures*, Wiley, New York, 1998, reprinted with corrections in 1999. A reference is D. Jou, *Extended Irreversible Thermodynamics*, Springer-Verlag, New York, 1996.

degenerate semiconductor: A semiconductor whose conductivity approaches that of a metal.

demodulation: From a carrier containing a modulated signal, recovering the signal that was used to modulate it.

deterministic pattern or "template": The exact arrangement, by plan and deterministic action, of a group of entities. The deterministic actions and their "controlling forces" are simply called "dynamics", "structuring", etc. An example might be deterministic field structuring and actions of photons in a "herd" or "group". Or of a set of spacetime curvatures, into a dynamic structure called a *spacetime curvature engine* — or *engine* for short, so long as the meaning is clear. Or by hidden order in the virtual photons in the vacuum flux, or a deterministic set of changes to that vacuum flux (the vacuum flux that is called the "vacuum potential." We have called this *internal EM dynamics* function — of deterministically patterning or templating the virtual flux (particle view) of the potential, or of deterministically patterning or templating the longitudinal and time-polarized EM wave decomposition (wave view) of the potential - *dimensioning* the potential. See **dimensioning**. We refer to the deterministic structure and its structural dynamics as the "engine template".

dielectric: Literally, "against electric (current)", originally coined to mean "opposes the flow or conduction of electric fluid". In today's language, a dielectric is a non-conducting material used to oppose or prevent the flow of electric charges. Even empty vacuum exhibits some dielectric resistance. "Dielectric" is also used to refer to a nonconducting material (often between the metal plates of a capacitor or elsewhere) that can (i)

sustain a change in potential across a distance (i.e., an E-field), and (ii) serve as an insulator. Space itself is a dielectric, or at least is said to exhibit certain dielectric qualities.

dimension: A certain primary geometrical physical attribute, such as length, used to describe the separational relationships of physical phenomena. Actually, "dimension" just means "fundamental quantity of separation" and "geometry" in the most general sense. Dimensions thus become a sort of set of fundamental variables describing the *extensivity* of system and the dynamics of that extensivity. The number of dimensions taken in advanced physics usually represents a somewhat arbitrary choice for good modeling fit. In modern Kaluza-Klein theory, for example, it becomes necessary to accept some 10 or 11 dimensions in the usual particle physics case. Sometimes more than 20, or even an infinite number, of dimensions may be used. General relativity (GR) has incorporated the interaction of the abstract geometry (spacetime) with mass, so that *geometry is a real, active, dynamic entity*. Until Sachs' extension of Einstein's work into a unified field theory and Evans' incorporation of O(3) electrodynamics as an important subset of Sachs' unified theory, GR has largely remained an nonexperimental discipline, at least in the laboratory. With the new Sachs-Evans approach and with recovery of (a) the Heaviside dark energy flow component (b) overunity EM systems arbitrarily discarded by Lorentz symmetrical regauging, and (c) modeling of the complete supersystem including system, vacuum, and spacetime in mutual interaction, GR suddenly becomes substantially engineerable by novel electromagnetic means, both in the laboratory and in operating devices. We are thus entering a great new age of electrogravitation and a new physics. Research in antigravity lifters, COP > 1.0 electrical power systems, medical therapy utilizing engines and anti-engines, and cold fusion are the elements of the new science that are struggling to be born and funded.

dimensioning: Coined term meaning "forming an exact pattern or template of structures", particularly of nested curvatures of spacetime, where the pattern/template may also be dynamic, to include patterning and dynamics in the time-energy domain as well as the 3-space energy domain. It involves the internal structuring of the "dimensioned" entity. The term "dimensioning" makes sense in unified field theory, but is awkward in normal EM theory, which erroneously assumes that EM energy propagates in an uncurved spacetime. The mere presence of a change in local spatial energy, created by the wave energy itself when present in that local region, curves the local spacetime. Note that the background potential may be

changed in a steady state level as well, which means that the frame of the system and its field dynamics has been rotated away from the laboratory frame. A time-polarized EM wave, e.g., changes the time-energy density and also curves local spacetime very powerfully. Hence the EM wave rigorously travels in curved spacetime, and in fact identically is a propagating, oscillating curvature of spacetime. What is missing from present physics is all accounting of the extraordinary Heaviside nondiverged energy flow component accompanying the accounted Poynting diverged energy flow component. Thus present physics *does not properly account for* the gravitational aspects of "electrodynamic field and potential energy in space".

Dimensioning also implies a deliberate form or structure (with dynamics) created in the virtual photon flux of the vacuum, in the virtual photon flux comprising a scalar potential, or in the infolded longitudinal-wave EM inside all EM potentials, fields, and waves. It implies an associated set of spacetime curvatures and their dynamics. The latter are referred to as "engines", "vacuum engines", "spacetime curvature engines", etc.

Dimensioning the potentials or signals or carrier waves of conventional electrodynamics involves adding hidden *vacuum engines* to them. The term *dimensioning* is descriptive and was chosen because adding such templates is equivalent to increasing the EM topology by adding mathematical dimensions. Since an EM wave or field or vector potential can be decomposed into two scalar potentials, then "dimensioning" one or both of the scalar potentials can "infol" the desired hidden structures or patterns (vacuum engines) inside an EM carrier wave, EM field, or vector potential created by the interference of the two dimensioned base potentials. This is referred to as *dimensioning* those EM field and wave entities. Internally structuring the two scalar potentials via arrays of longitudinal EM wave emitters and applying the necessary dynamics (modulations), is the primary manner to directly engineer dimensioning. When dimensioning is present, two EM waves that appear identical as seen on the oscilloscope may have dramatically differing internal structures (dimensioning). Hence they may produce drastically differing effects when they interact with the same or similar objects. *The only way in which the action of a vacuum engine can be resisted is to create and simultaneously introduce the exact antiengine for it — a special sort of forcible symmetrical regauging, so to speak.* Once the action has been completed in the receiving object and it has been physically changed, the only way it usually can be undone is to form a precise antiengine for that action, amplify the antiengine, and let the antiengine act upon the object for a

sufficient time to "time-reverse it back to its previous physical state and condition". The concept has great utility in electromagnetic healing, not discussed in this book. We point out that the decades-long induction of diseases, health changes, etc. in U.S. personnel in the U.S. Embassy in Moscow occurred in forcefield-free regions. In short, the changes occurred in regions where the potentials were stable and unchanging, and so their **engines** were stable and constantly applied to the exposed personnel. The Soviets were simply radiating a high level target, the U.S. Ambassador and his **staff**, to guarantee high-level U.S. attention. By U.S. reaction to the **deliberate** electromagnetic "engine" induction of disease and health **changes** (three Ambassadors sickened and later died), the Soviets could **positively** ascertain whether we knew of the "infolding" or "dimensioning" technology, and whether we had developed defenses.

dipole: In the simplest case, two separated charges of usually equal magnitude and of opposite sign. More generally, a localized positive charge or charge distribution, and a localized negative charge or charge distribution, such that the net charge summation is zero, while the positive and **negative** charge distributions do not precisely superpose point to point but only on the average. We point out, however, that in regular physics electrical *charge* has no proper definition. As is well known in particle physics, due to the opposite charges on its end a dipole is a broken **symmetry** in the virtual photon flux of the vacuum. By definition of broken symmetry, this means that *some* of the virtual energy flux continuously **absorbed** from the seething vacuum by the charges of the dipole is not re-radiated as *virtual* energy. Instead, it is integrated *coherently* and re-radiated in 3-space as real emitted EM energy, establishing the fields and **potentials** associated with that source charge or source dipole. The dipole is **therefore** the most fundamental true "negative resistor" since it freely and continuously receives EM energy in unusable form, transduces it into usable form, and re-emits it in usable EM form.

It follows that any positive charge in the universe and any negative charge in the universe form a dipole and a broken symmetry in the vacuum flux. Hence every such dipolarity in the universe already extracts energy from the vacuum and puts it out in 3-space, or absorbs energy from 3-space and returns it to the vacuum. Kron called this an "open path" electrically, well

before broken symmetry was formally discovered and experimentally proved in 1957. Kron was also able to use the open path in and around special electromagnetic circuits to cause the circuits to become true negative resistors, freely powering the network analyzer at Stanford University even in the 1930s.

In classical EM theory, the problem of how every charge and dipole can continuously emit EM energy to form all the associated fields and potentials and their energy has been an unsolved problem — sometimes called the most difficult problem in electrodynamics, both classical and quantal. For the solution and a discussion, see the present author's paper "Giant Negentropy from the Common Dipole," *Journal of New Energy*, 5(1), Summer 2000, p. 11-23. Symmetry represents a conservation law, and broken symmetry represents violation of that conservation law. Because of the broken 3-symmetry of the dipole, the EM energy flow is not conserved in three dimensions — in this case, violation of conservation of 3-space EM energy flow is not conserved. Neither is the time EM energy flow conserved in the 4th dimension. Instead, EM energy flow is conserved in 4-dimensions, between the inflow in the time-domain and the outflow in 3-space in all directions, or vice versa. The hidden inflow of EM energy to the dipole (and to a charge) is actually from the complex plane (time domain). Thus all EM energy in 3-space is actually received by the source charge or source dipole from the time-domain, and returned to the time domain. What we call "propagation of EM energy through 3-space" is actually the spreading of this 4-circulation to successive 3-space points. The importance of the internal structuring of time-flow and of longitudinal EM waves in the time domain (dimensioning in the time-domain) is apparent, since it produces very powerful engines that can act upon matter in any fashion desired. Indeed, the Russians have developed clandestine robot engine systems comprised of sets of spacetime curvatures and their dynamics (which are just sets of longitudinal EM waves and their dynamics). Any function of a weapon system — sensing, weapons (using scalar interferometry), communications, propagation, etc. — can be incorporated. The capabilities of such systems, such as travel through continuously emitted EM signal beams from satellites, communications stations, power lines, etc., is eerie. Such a system can reside in any convenient EM potential or field as a "dimensioning" of the potential or field. Such robot engine systems have been clandestinely tested, but discussion of them is beyond the scope of this book. Suffice it to say that these systems are ushering in a dramatic revolution in future warfare, and the present research in physical nanobots is already decades behind.

Very powerful support for the author's solution of the source-charge problem is given by F. Mandl and G. Shaw, *Quantum Field Theory*, Wiley, 1984, Revised edition 1993, under the heading "Covariant Quantization of the Photon Propagator" in Chapter 5. In their deeper coverage of the photon polarizations, Mandl and Shaw point out that the longitudinal and

scalar polarizations are not directly observable, but only in combination, where they manifest as the "instantaneous" Coulomb (i.e., electrostatic) potential.

Translated from particle terminology to wave terminology, Mandl's and Shaw's argument directly fits my re-interpretation of Whittaker's 1903 decomposition of the scalar potential.

Dirac, Paul A. M.: Noted English physicist, 1902-1984, who shared the Nobel Prize for developing wave mechanics and predicting the existence of the positron. He also originated the notion of "holes" or negative energy **states** in the vacuum, where the holes are ordinarily filled with electrons.

The "vacuum replete with these Dirac structures" (all filled with electrons) is referred to as the *Dirac Sea*. If some of the holes are empty, then that is **the** Dirac sea of a curved spacetime. We strongly stress that a Dirac sea **hole** (negative energy electron with negative charge, negative energy EM fields and potentials, and with negative mass-energy) prior to observation (prior to its reaction with mass) is a quite different entity from the positron (after reaction with mass, so that the positron has positive mass-energy, **positive** charge, positive energy EM fields and potentials, and has been reversed in its 3-space propagation direction). Specifically, the Dirac sea **hole** produces negative energy fields and potentials, whose powerful Heaviside nondiverged components enable to perform practical antigravity. The (observed) positron produces gravity, not antigravity, and also positive energy fields and potentials.

Dirac sea: A concept and description (modeling) of the vacuum as containing — amongst other things — a "sea" of an infinite set of negative energy **slates** ("holes") for electrons, almost all of which are usually filled with electrons in the absence of any spacetime curvature of significance. In Dirac electron theory, the relativistic wave equation for the electron has four components, which correspond to two spin orientations and two energy conditions: positive and negative. Ordinary electrons are in the positive energy condition. So then the vacuum must also possess a "sea" of negative electron energy conditions. These negative conditions are called "holes" and are ordinarily filled or mostly filled with electrons which have fallen into these negative energy states. The Dirac sea is this vacuum sea of negative energy electrons (and a perhaps a few empty holes). In forward time, if energy is added to a negative energy electron, electrons can be **lifted** from this sea, since the added energy creates a local curvature of spacetime. If spacetime is locally curved, additional holes may be created so that, when the holes meet normal positive energy electrons, the electrons fall in and disappear, creating the appearance of an "electrical

energy sink." This can happen so that the local ST curvature merely relaxes back to an uncurved spacetime, therefore avoiding radiation from "pair annihilation". If the curvature is in the opposite direction (i.e., if positive energy is added to the vacuum), electrons may be lifted from the Dirac sea by the resulting spacetime curvature energy, thus producing a flow of electrons "right out of the nonlinear vacuum" and generated by the spacetime curvature, and creating the appearance of an "electrical energy source" from the vacuum itself. In that case the energetic holes left behind also remain, and are affected by all EM fields etc. These holes thus form negative energy currents, fields, potentials, waves, and other electromagnetic entities such as negative energy charging and discharging (excitation and de-excitation).

In an overunity EM system, there is a higher energy density in the output section than in the input section. This includes time-energy density. So a higher tempic potential exists at the output than at the input. A gradient in the tempic potential thus exists, which constitutes a tempic force from the output section back through the system to its input section, and even on back through the conductors to the external power source, and even back into the distant external power source itself. Thus the power source has to furnish additional electron current. It must "power the holes", so to speak, by furnishing the electrons that are "eaten" by the Dirac hole current to eliminate it, which represents a novel kind of load in the input section of the system. So the power supply must furnish more power, so as to furnish the normal power to power the system, and the extra power to "power the elimination of the Dirac sea hole current as a back-reflected load". This is nature's way of decaying the excited state represented by $COP > 1.0$, and restoring equilibrium and $COP < 1.0$. By the Bedini process, the otherwise detrimental Dirac sea hole current reaching the input section is transformed into ordinary electron current, thus serving as input power to the system. By adjusting the system and optimizing it, this strange kind of "positive power input from converted Dirac hole current negative power feedback" can be adjusted to equal the input power required by the system. At that point the external power system can be disconnected, and the unit continues in close-looped and self-powering operation, including powering its load as well. Gabriel Kron succinctly described this condition and adjusting for it. Such a system allows energy to be continuously extracted from the vacuum, and a load to be powered continuously, with all the energy to run the extracting system being freely received from the active vacuum.

Dirac sea hole: A negative energy state for an electron, in the Dirac theory (in the Dirac sea). Literally the hole (negative energy state) when not occupied by the electron. In flat spacetime, almost all Dirac sea holes are filled with electrons. A small fraction on the average are not filled due to the local fluctuations of the vacuum energy continually lifting electrons from their holes and then having them recombine, usually so quickly that no radiation occurs in the observable state. The situation in the virtual state can be described by Feynman diagrams. This received view can be falsified in a curved spacetime. There the holes can exist and flow as currents, as validly as positive energy electrons can flow as currents, without the incessant "filling" activity of the vacuum itself. In addition, in such a hole-stabilizing curved spacetime region, the hole can "eat" or recombine with a real electron, so that the electron vanishes but without radiation. If we wish to join the two views, then we take Feynman's and Wheeler's view that the field does not exist in vacuum as such, but only the potential for it exists — in short, only the engine exists. The engine can then be said to be an ordering (chaotic self-ordering) condition present on

the statistical random variation of the fluctuations of the vacuum. With longitudinal EM wave technology, this "order in the midst of disorder" — this templating and engine technology — can be directly engineered.

Dirac sea hole current (positron current): Just as a current of positive energy electrons can be generated, a current of negative energy Dirac sea holes can also be generated if the local spacetime is properly curved. Mathematically these are usually considered to be "positron currents", except they have no positive mass, because a hole will "eat" an electron. In an overunity electrical power system, the tempic potential is greater at the output of the system than is the tempic potential at the input section. There thus exists a "tempic force" or "tempic broom" sweeping Dirac sea hole current (positron current) out of the input section of the system into the external power supply. Simple instruments will record this current as if it were electron current being furnished from the external power supply to the system. Also, the Dirac sea positron current will "charge" the battery with Dirac sea holes (mathematical positrons), which in the conventional sense discharges the battery. A battery may become highly charged with Dirac sea holes. If so, then when placed on a normal battery charger, the electrons in the charging current will be "eaten" for an extended period by falling into the Dirac sea holes, and the battery will not acquire any charge until they are filled — whereupon the battery will suddenly begin charging up normally again.

We also point out that the vacuum, containing the Dirac sea, actually is not "massless" at all, but has zero resultant mass on the average, as a result of the simultaneously presence of positive and negative mass in average equal abundance. Any curvature of spacetime must violate this "net sum zero" mass, hence produces inertia in all masses. Note that a negative mass can also exhibit a negative inertia; i.e., it accelerates and enhances the action of any force acting upon it, instead of opposing it. In short, negative mass exhibits negative inertia. We suggest that this effect is probably involved in the more violent explosive phenomena of astrophysics.

disequilibrium: Broken equilibrium, which in turn involves breaking appropriate conservation laws unless compensated.

displacement current: The apparent continuation of a conduction current through a region of space without a conductor, e.g., between the plates of a capacitor. Rather than being the motion of charges in a conductor, the displacement current is related to the rate of change of an E-field, and thus to the rate of change of the strain of the dielectric.

dissipative structure: In open systems far from thermodynamic equilibrium, a region of self-ordered behavior of a special kind in matter, characterized by symmetry-breaking, multiple choices, and correlations of macroscopic range. By correlations we mean statistically reproducible relations between distant parts of the system. Formation of a dissipative structure represents the birth of complexity in that region by self-organization. Usually a dissipative structure emerges only after the driving constraints reach a critical value. As the embryonic "engine" technology advances, however, the direct engineering and control of dissipative structures will become commonplace and routine.

distortion correction theorem: "If a scalar wave $E_1(r)$ propagates from left to right through an arbitrary but lossless dielectric medium, and if we generate in some region of space [say near $z = 0$] its phase conjugate replica $E_2(r)$, then E_2 will propagate backward from right to left through the dielectric medium, remaining everywhere the phase conjugate of E_1 ." Quoted from Amnon Yariv, *Optical Electronics*, 3rd Edn., Holt, Rinehart and Winston, New York, 1985, p. 500-501.

What is missing from the distortion correction theorem is hidden in the phrase "*if we generate in some region of space ... its phase conjugate replica.* ". Since electrodynamicists and optical physicists have been unaware that all EM energy at any point in space comes from the time domain to that point, then —*prior to detection by interaction with charge* — the actual phase conjugate wave exists in the imaginary plane (in the

time domain) and *not* in 3-space. The continuous interaction of that imaginary plane wave with charges, to actually produce the force-field wave in space, is *assumed* in the standard nonlinear optics. In short, one is looking at the "effect" wave, not the "cause" wave. However, since time is not an observable even in theory, it is this "effect" wave in 3-space that will indeed be measured by our instruments, because they must interact the imaginary or phase conjugate field with charge in order to detect or observe it (measure it).

The proof of this is experimentally already known but not recognized. If one reflects an EM wave off a normal mirror, the mirror must absorb the incoming wave, which transfers the wave momentum to the mirror to repel it, then the mirror must re-emit it, which adds that much more momentum to the recoil. So the mirror recoils with twice the momentum of the reflected wave. That produces a wave going in the other direction. If the incoming wave is continuous, one then has "paired" waves going in **opposite** directions). However, if an incoming wave strikes a phase conjugate mirror (PCM) material and is phase conjugated, a wave going in the opposite direction also emerges, but it synchronizes point by point with every spatial point occupied by the incoming wave. Also, *the phase conjugate mirror does not recoil at all*. This is well known in phase conjugate optics. It clearly shows that the origin of the "detected" phase conjugate wave is quite different from that of a normal reflected wave.

Indeed, by our reinterpretation of Whittaker's 1903 biwave decomposition of the scalar potential, at every point along the detected phase conjugate wave, the energy enters that point from the time domain, and not from some sort of reflection from the PCM. The energy also returns to the time domain from that point. Its presence at the point produces a separation of virtual point charges, or the well-known polarization of the vacuum. So the

flow of energy is from the time domain to the negative charge of the point dipole, thence to the positive charge of the dipole or others immediately surrounding it, thence back to the time domain. That is the operation in a "time-forward" sense to the external observer. In a "time-reversed" situation, the 4-circulation appears in the opposite direction. We propose that this fundamental 4-circulation is responsible for and constitutes spin itself. The direction of flow determines the 'polarity of the charge' we observe. In this view, the point dipolarity in the virtual state with its ongoing 4-circulation can be taken as the very definition of energy itself.

Druge, Paul: Important German physicist, 1863-1906, who formulated the theory of the free electron gas inside conductors, using it to formulate a theory of metallic resistance.

Drude electron gas: The electrons that have broken loose from their orbital bonds in atoms in a conductor, and are thus free to "wander around" and "migrate" — or flow as current when exposed to an emf. Also called just the "electron gas". Note that, in the metal lattice of the conductors, each position vacated by a Drude electron is a "hole" or positively charged little region. Not only do electron currents exist as net negative charge migration in conductors and materials, but also hole currents exist as net positive charge migration from atom to atom, or a sort of "ionization migration flow". Electrons are continually recombining with these "ion holes", however, to reduce the hole current. These considerations are particularly significant in semiconductor materials.

duality principle: In quantum mechanics, the principle that photons and other particles propagate like waves and interact like particles, so that their description as only waves or only particles is inadequate.

Edison, Thomas Alva: Noted American inventor, 1847-1900, whose staggering portfolio of inventions included the storage battery, electric light bulb, phonograph, motion pictures, carbon microphone, and many others. Edison actually ran multiple "patenting research" laboratories as discovery and patent generating facilities. Not only was he an inventor himself, but he also employed a very good staff of researchers for invention and discovery.

E-field (electric field): The electric field intensity E ; that field on an electric charge (charged mass) which produces an electrical force resulting in a linear motion of the charge. In reality, this electric field *as usually defined* does not and cannot exist in empty space devoid of charge, but only in and on charged matter, since mass is a component of force by $F \equiv \partial/\partial t(mv)$. More specifically, the E-field is the local intensity of the field at a point, in its interaction with a unit point static charge fixed at the point. Even more specifically, it is the output of an observation/detection operation, which is a d/dt operator imposed on the 4-space causal field interaction with the 3-space charge, resulting in a frozen 3-space "slice" or snapshot of the deviation of energy *from* the field, forced to flow around that intercepting charge, at that single instant. In short, the E-field as a force field is an *effect* and not a *cause*.

The greatest error in all electrodynamics is to then assign this same *frozen effect force field intensity snapshot* — or an implicitly assumed iterative sequence of such snapshots — as the dynamic and nonfrozen *causative field itself* in 4-space, prior to the field's interaction with charged matter. This is the substitution of effect for cause, a grave non sequitur.

When EM theory was founded, the founders believed there was no single **point** in the entire universe where mass was absent; instead, a thin material "luminiferous ether" was considered to fill all space. Time was considered immutable, and there was no concept of a dynamic *spacetime*. Hence at each point in such a material ether, the reaction with charged matter (etheric matter) was thought to universally exist. Hence the field was indeed a very material entity, in their concept!

With the destruction of the material ether notion in the 1880s, not a single Maxwell-Heaviside equation was changed to eliminate its implicit assumption of the material ether. Hence this enormous error of confusing the *effect* field with the *causal* field (prior to observation-detection-interaction) is ubiquitous in electrodynamics and therefore in physics itself. The two fields (causal and effect) do not even have the same dimensionality; one is dynamic in 4-space while one is frozen in a 3-space snapshot. This has led to the false notion that an EM force field wave "movesthrough" 3-space, which does not happen at all. What really happens is that, if we assume a continual iterative d/dt observation operator, we have a continual series of such frozen 3-space snapshots, like the frames of a motion picture film. But none of those snapshots have any inherent motion at all. For a statement of the falsity of the conventional illustration of the "EM wave in space as an orthogonal pair of oscillating E and H fields in a transverse plane", see Robert H. Romer, "Heat is not a noun." *American Journal of Physics*, 69(2), Feb. 2001, p. 109. In endnote 24. **p** 109, AJP editor Romer takes to task "...that dreadful diagram purporting to show the electric and magnetic fields of a plane wave, as a function of position (and/or time?) that besmirch the pages of almost every introductory book. ...it is a horrible diagram. 'Misleading' would be too kind a word; 'wrong' is more accurate. " "...perhaps then, for historical interest, [we should] find out how that diagram came to contaminate our literature in the first place. " Also see charge.

E-field, **motional**: In classical EM theory, the electric field produced by moving a conductor in a magnetic field. Often called *motional inductance* of the field. In the conventional theory, motional inductance is deemed to be identical to the inductance caused by a time rate of change of the magnetic field, experienced by the moving conductor. Or vice versa, experienced by a stationary conductor in a moving magnetic field.

E-field, static: In conventional theory, the electric field in the space surrounding a static charged particle, induced by the presence and action of the charged particle. There is no notion as to the *causative mechanism* for this static field of and from a charge, which implicitly is assumed to

just continuously create and pour out EM energy in all directions, thus grossly violating energy conservation. Consideration of this anomaly leads to what has been called the most pressing problem in both quantal and classical electrodynamics: the question of the formation of the fields and potentials associated with the "source charge". Either the charge totally destroys the conservation of energy law itself, or there must be a *virtual* (nonobservable) energy input to the charge, since instruments establish that no observable EM energy is input to it.

For a solution to this problem, see the present author's "Giant Negentropy from the Common Dipole," *Journal of New Energy*, 5(1), Summer 2000, p. 11-23. We later found our solution to be consistent with quantum field theory and with a slight reinterpretation of Whittaker's 1903 decomposition of the scalar potential.

Ehrenhaft, Felix: Scientist who performed numerous experiments believed to demonstrate fractional charges. We point out that classical electrodynamics assumes a local flat spacetime, a notion long falsified by general relativity, since 1915. In a local curvature of spacetime, the dynamics of the charge (modern view as the finite difference between two local infinite charges forming a dipolarity) can change the observed value of the net finite charge. So finite fractional charges, or even supercharges, are quite possible.

Einstein, Albert: German (Jewish) physicist, 1879-1955, who emigrated to the U.S. and formed special and general relativity theory, discovered and formed the theory of Brownian motion, recommended the development of the atomic bomb to President Roosevelt, and profoundly affected the course of science and the modern world,

Einstein, Podolsky, and Rosen (EPR) paradox: Thought experiment in 1935 for measuring two correlated photons separated and at distant locations, protesting that quantum mechanics requires that the particles communicate instantly, which is a "spooky action-at-a distance" (Einstein's phrase). The experiment eventually was performed and it works, just as required by quantum mechanics. The paradox inspired the development of hidden-variable theories.

Einstein's general theory of relativity: Mathematical theory of gravitation in which the gravitational force is mathematically described by a curvature in spacetime. In other words, the geometry and its dynamics have become physical agents, doing away with the old notion of the agent being something separate that is occupying inert spacetime. It is important to note that, in general relativity, mass-energy acts on spacetime to curve

it, and the curvature of spacetime acts back on mass-energy to translate or change it. What seems missing from GR — at least in its practice — is the reaction of time-energy upon the geometry to curve it, and that corresponding reaction of the spacetime curvature back upon time and time-energy to change it.

Further, we consider that an exact pattern (template) of curvatures of spacetime and their dynamics exists and is back-acting upon every mass system and its dynamics. This is the *engine* concept. The most general way to engineer matter is not by brute force translation forces, but by forming spacetime engines. Once formed, these engines act upon the interior of any mass placed in the engine region, to eliminate the deltas existing in that mass's resident engine and the impressed engine. *The forces arise from the local spacetime itself, as curvatures in that local spacetime, so the action is from "inside" to "outside" an object, starting and continuing from every point in the object.* The curvatures of spacetime itself furnish the energy for the continuing actions upon the interior of the mass, once we have paid to form the engine. The mass can be acted upon at any level, from its gluons and quarks to its nuclei, to its atoms, its lattice forces and binding energy, etc. Significantly, the Sachs unified field theory applies to physical reality from beneath the quarks and gluons to the entire universe itself, and folds in quantum mechanics, electrodynamics, and general relativity into a single unified field theory that is (in theory) engineerable by higher symmetry electrodynamics means such as Evans' O(3) electrodynamics.

Einstein's postulates: (1) All the laws of physics are equally valid in all inertial frames of reference, (2) the speed of light is the same to every inertial observer, and (3) the observable local effects of a gravitational field are indistinguishable from those arising from acceleration of the frame of reference.

The first is called the special relativity principle, the second is called the law of light propagation, and the third is called the equivalence principle. It is now known that postulates (1) and (2) are not independent of each other. Note that the third postulate implies that any local force is due to a "gravitational field" (acceleration of the frame of reference). It also implies that gravitational force has a mechanism, since quantum mechanics assigns a differential operator, operating upon a potential, to create every force. By extended inference, it can be seen that the third postulate also implies that there should exist a method to turn any type of force (field) into gravitational force (field).

Note that postulate 1 may be violated if two frames remain inertial but each local spacetime contains different hidden engines. So the laws of interaction physics may indeed vary for the same object placed in first one of the frames and then in the second. Engines are ongoing general relativity actions, even in inertial frames. The action may not be translation of the bulk object, but extensive changes to the interior of the object and its interior dynamics at any and all levels.

The Russian physicist Sakharov has strongly postulated that gravitation is not even a fundamental field of physics, of the kind used by Maxwell in his electrodynamics. Instead, in this view G-field is always comprised of, and made from, other fields and interactions upon them. This would seem to follow straightaway since change of any kind of energy in spacetime curves that spacetime, therefore producing a gravitational change. So such has always been implicit in general relativity; it just took Sakharov to formally propose it. See A. D. Sakharov, "Vacuum Quantum Fluctuations in Curved Space and the Theory of Gravitation," *Soviet Physics Doklady*, 12(11), 1968, p. 1040-1041 [English translation.] Sakharov's article (in Russian) in *Dokl. Akad. Nauk SSSR*, Vol. 177, 1967, p. 70-71.

Einstein's postulates (second postulate extended): Let us do a little "tinkering" with Einstein's postulates. For the first one, we point out that in the new approach using dimensioning and subspaces, the notion of an inertial frame now has acquired additional complexity! The "gross translation" effects — which tends to be what physics ultimately focuses upon today — can remain the same, and yet vacuum engines can be buried up inside the inertial frame to act upon a mass in non-translating ways. Everything translation-wise can remain the same, but now matter can be transmuted and transformed, etc., still right there in an inertial frame. So when the infolded electrodynamics inside all fields, potentials, and waves are utilized, the notion of "inertial frame" has acquired a higher topology, so that one inertial frame may differ very substantially from another inertial frame, even if the two are not in translation motion with respect to each other. This of course moves one from special relativity into full general relativity, and even there into a slight extension. Special relativity can remain special relativity on the surface, and yet general relativity effects occur "within" the objects postulated to exist in this inertial frame. The "inertial frame" concept in the postulates is now just a sort of special "equilibrium case" of a higher topology "inertial frame" notion. Further, general relativity is extended from the notion of "just translation" to the notion of "internal engines and internal dynamics also". These engines can

be created in mass, in fields and potentials and waves, and in the vacuum itself.

The second postulate now stands as a "special case" of a far more general second postulate. The conventional second postulate actually defines (and limits) "light" to bulk changes in the entire vacuum potential magnitude. It only applies to light signals which are "bulk upheaval" disturbances of the vacuum potential (spacetime), so to speak. The limitation to light speed is an envelope wave speed restriction. Specifically it need not apply to the "inner EM/GR realm" of longitudinal EM waves infolded inside the

vacuum potential, other potentials, signal carriers, etc. Superluminal communication is now included in this "hidden variable" or longitudinal EM wave communication. The Fogal semiconductor is capable of infolding and unfolding EM signals, including producing the internal

longitudinal EM waves, and during their infolded state these signals are permitted to move at superluminal velocity. This has been experimentally demonstrated by Fogal.

So the second postulate needs to be restated to include the present **statement** as a special case. Notice that the concepts "light" and "speed of light" have now taken on much richer, extended meanings, since there is "outfolded" light and "infolded" light, so to speak. Light now is not just the "external perturbation wave" in the ambient vacuum potential medium (in **flat spacetime**). Instead, it can also be an "internal perturbation longitudinal wave" inside a "net flat spacetime" which does not show on the "surface" at all. Indeed, it may move in the time dimension or in 3-space. It now includes the transmission of an extraordinary "vacuum engine" as well as the usual transmission of just an ordinary signal. The ultimate expression of this extension has unfortunately been the development of such "engines" as infolded robot systems for use in warfare.

These infolded vacuum engines can be visualized as very special sets of longitudinal EM waves and their dynamics, consistent with the Whittaker decomposition. Whittaker's $U(1)$ symmetry electrodynamics decomposition— particularly when enriched in the higher symmetry $O(3)$ electrodynamics — applies to the ambient vacuum as a potential (it is a potential since it has energy density). So the "subspace" inside spacetime, so to speak, is just a set of LWs and their dynamics, and that subspace itself is engineerable, just as is the "bulk curvature of spacetime" itself. Further, we may now consider that space itself is just a vast superhighway for such superluminal LWs and their dynamics. Mass is mostly empty space with only an occasional particle here and there and with fields,

potentials, and waves in between. Hence huge masses such as the ocean and earth are actually superhighways for the direct passage of longitudinal EM waves, "engines", special robots, etc. The degree of "transparency" is a function of the degree of cleanness of the LWs — where by "clean" we mean "absence of transverse EM wave residues".

The third postulate has also been dramatically extended and requires revision. As presently stated, antigravity effects do not appear to be included in present physics heretofore. The "gravitational effects and external accelerated effects" notion in conventional physics are still founded purely on *ordinary bulk translation*. Now they need not be. For example, the system can appear to be an ordinary system, as judged by normal "external light" observation. Yet its internal vacuum engines can cause local violation of most so-called "laws of nature." The reason a "law of nature" can be violated is that one is now able to violate the premises upon which it is postulated, and which are required to hold if the law is to hold. Or another way to look at it: any conservation law is the result of a symmetry. Breaking that symmetry allows violation of that specific conservation law. All external symmetries can be broken internally, even if the overall symmetry still applies externally!

The infolded EM inside the "conventional" EM fields, waves, and potentials — and inside the vacuum potential and spacetime itself — dramatically changes the present theories of electromagnetism, quantum mechanics, and general relativity. Further, for the first time the Sachs unified field theory allows an *engineering* approach that simultaneously crosses, includes, and extends all three disciplines in the required manner. The approach can be placed into good engineering models based on the Sachs work, particularly using the $O(3)$ electrodynamics subset spearheaded by Evans, and the models can be tested and verified or falsified. See **frame, reference;** and **superluminal communication.**

electric field: (See also discussion under **E-field**). The *conventional* definition is this: "1. a region in space in which a stationary electric charge experiences a force due to its charge. 2. the electric force per unit test charge." Quoted from *Dictionary of Science and Technology*, p. 720. That definition is flawed. Consider the "spatial aspects" of part 1. If an electric field is defined as a force per unit charge (per Part 2), it is not a region in massless space but is an effect of something existing in massless spacetime and interacting with the charged 3-spatial mass. The electric field *prior to interaction and observation of the interaction* is indeed related to a region in "spacetime", because it is identically a curved spacetime region. In the Sachs approach, general relativity and electrodynamics have become one

and the same. So prior to interaction, the *field as it independently exists prior to interaction with charge* has become a curved spacetime region, and the field-in-space is *purely* a spacetime curvature. Again, there is no such thing as a massless force. It is the hoary old mechanics notion of a separate force acting upon a separate mass that is a total non sequitur. The interaction of the massless field in space with a mass to produce a force, of *which that mass is actually a component*, is a separate consideration from the field as it exists in space prior to interaction. The result of this entity's **interaction** with charged mass has nothing to do with *what an electric field* is but with *what it does to charged mass*. Further, the force evidenced on a charged particle is not due to its charge; the particle has that charge always, whether or not there is a net force evidenced on it!

Part 2 is a little better. The only problem is, it totally disagrees with the notion of the field as an entity existing in spacetime prior to interaction **with** charged mass. In other words, here it's a "force on a charge", which is an effect (force consisting partially of the charge) occurring after the interaction. Again, the conventional definition states only what the field *does or accomplishes*, not what it *is*. Hopefully the reader can now begin

to see what terrible difficulties await anyone who seriously attempts *foundations definitions*. Feynman sums it up admirably in one of his famous statements: "*Everything we know is only some kind of approximation, therefore, things must be learned only to be unlearned again or, more likely, corrected.*" An additional difficulty is that the very **notion** of a separate massless force — independent of the mass on which it operates - is fictitious, yet continues to be widely used. Recalling that any true definition is an identity and not an equation, let us start with the definition of $\mathbf{F} = d(\mathbf{mv})/dt$. As can be seen, force is a system

comprised of (i) a mass component and (ii) a nonmass component. The force is not something separate from the mass, at all! Further, force is not **even** unitary. It's a system comprised of two coupled components; the mass and a coupled (interacting) gradient in a potential flux. *Note that v involves motion through, and interaction with, the virtual flux comprising the vacuum potential. Note that dv/dt involves a gradient in that flux interaction with the mass.* Unfortunately mechanics is still using the medieval concept of a "separate force acting upon a separate mass." That is wrong, unless we change the fundamental definition of force itself. See, e.g. **Robert** Bruce Lindsay and Henry Margenau, *Foundations of Physics*, Dover Publications, New York, 1963, p. 283, where the authors emphasize that a "field of force" at any point is actually defined only for the case when a unit mass is present at that point. The reason can be seen: mass is a necessary component of force, and without mass present there cannot be a

force present. For that reason, the force field in matter is a quite different beast from that "same" force field in empty spacetime. The first is a 3-spatial snapshot of an ongoing 4-spatial interaction, while the second is just a curved region of that "empty" spacetime without any ongoing reaction necessarily.

electric dipole: See **dipole**.

electrodynamicist: A specialist in electrodynamics — the physics of the relationships between electric, magnetic, and mechanical phenomena — and especially a specialist in electrodynamics *theory*. Essentially all electrodynamicists are versed in U(1) electrodynamics, and a much smaller number are versed in more advanced (higher group symmetry) electrodynamics such as O(3) symmetry electrodynamics, unified field theory electrodynamics, non-Abelian electrodynamics, etc. The electrodynamics field is actually a very vast field indeed, touching everything in physics, chemistry, etc. When one needs a particular electrodynamics problem solved, it often calls for a special category of electrodynamicist and not just an electrodynamicist in general. One must therefore sometimes examine the background of the electrodynamicist making a statement or a pronouncement; electrodynamicists after all do have differing views and differing disciplines within the field. And something may be perfectly true and acceptable in O(3) electrodynamics, yet not even exist in U(1) electrodynamics. As an example, the Aharonov-Bohm effect exists in O(3), but not in U(1). U(1) assumes a flat local spacetime (falsified by general relativity almost a century ago) and an inert vacuum (strongly falsified by modern particle physics and quantum mechanics), while O(3) is perfectly content to include and model curved spacetime and active vacuum also.

electromotive force (EMF): A difference of potential created by sources of electrical energy — i.e., by separated charges (dipoles) — which can be utilized to drive electrical currents through external circuits. As a difference of potential, that constitutes a gradient and hence a force. Also, open circuit voltage, or the limit of the potential difference between the source's terminals as the current in the external circuit approaches zero.

This term is poorly named and also quite confused in the standard theory and usage. First, emf is supposedly not *a force* at all. It is a difference in potential; hence it is measured in volts. It is very difficult to imagine a "difference in potential" at a single point unless one is dealing with a multiply connected space. So if the difference in potential is between two adjacent points, then that constitutes a force between the two points. Also,

emf is not considered an E-field, since that is a field of force. Yet it is in fact a $\nabla\phi$, restricted to the direction between the two measurement points, and $-\nabla\phi$ is considered to be an E-field in the EM theory! As can be seen, **one** will not find a truly logical definition of potential or emf in the present texts and science literature.

For this reason the standard theorists say that the term emf is sometimes used as equivalent to a difference in potential, but that strictly speaking it **should** be applied only to a source of electrical energy. The problem is that **most** conventional theorists are unaware that a potential *identically is* a bidirectional flow of energy in 3-space, but a 3-space flow where *the energy enters from the time-domain (complex plane) and is caught in 3-space by interaction with charge, in a frozen snapshot (observation). The energy actually enters each 3-space point in the 4-space potential, from the time domain.* It moves across a dipole in space (present due to the quantum mechanical polarization of the vacuum), to the opposite charge, thus returning from the immediate region of that second 3-space point (or points) back to the time domain. Since conventional theorists are unaware that a potential is a hidden negentropic energy flow circulation process involving broken 3-symmetry, broken t-symmetry, and a special 4-symmetry between t and 3-space, the theorists have been unable to consider the potential in general as a direct source of energy flow. Yet they are forced to consider a potential difference across the terminals of a source as "somehow a flow of energy, that generates forces upon the electrons to propel them through the circuit as current flow."

In the new viewpoint, a resolution is achieved of these incongruities by more accurately defining the E-field with respect to the potential as $\mathbf{E} = -[\nabla\phi \bullet \mathbf{q}]/|q|$. It is noted that $-\left[\frac{dA}{dt}\right] \bullet \mathbf{q}/|q|$ also produces an E-field, so **that the full** definition of the E-field **is** $-\left[(\nabla\phi + \frac{dA}{dt}) \bullet \mathbf{q}\right]/|q|$. Note that dividing q by $|q|$ does not remove the q unit from the corresponding dimensionalequation, since q is dimensionless. However, one volt represents one joule (of excess energy) diverged from the potential, per coulomb of interacting charge. *The energy density flow in an electric circuit is in the voltage, in the emf, and it is not in the current per se.* The electron current (drift current) carries the excess energy that is being dissipated as work in the circuit, but in a nominal circuit the drift current only moves a few inches per hour. Half the energy collected in the potentialized circuit is dissipated in the external circuit and external losses, and half is dissipated in forcing spent electrons in the ground return line back up **through** the back-emf of the source, performing work inside the source to dissipate its separation of charges. Left alone, any dipole will

furnish emf indefinitely, freely receiving the energy from the time domain (complex plane) and outputting it in 3-space via the reinterpreted Whittaker 1903 decomposition, in a circulation where at each point in it the energy enters from the time domain and thence returns back to the time domain. The free flow of EM energy will continue unabated from the undestroyed dipole, regardless of how many external loads and losses are powered (how much energy is collected and dissipated from the ongoing flows representing the potential). *So electrical circuits should be developed which allow few or no electrons to be forced back up through the source dipole to dissipate its separation of charges and destroy the dipole.*

electromotive force, back (back emf): Back emf is a loose term for the *counter-electromotive force*.

When the source is powering a circuit or circuit element, the term "back emf" is used to refer to the forcing of current (electrons) back up through the source against its emf, thereby performing work inside the source to *dissipate* its separation of charges (its dipolarity). When a potential source of electrical energy — such as a capacitor, an inductor, or a rotating machine — is receiving energy from a source and converting it to *dissipative* power and work, that "powered" device is said to develop a *counter-emf*. A source has a built-in emf *a priori*, and this emf is holding its charges separated so that it is dipolar. When electron current is forced backwards through the source against its emf, work is performed against the internal resistance of the source to dissipate its separation of charges, thereby *dissipating* the source dipole. If electron current is not allowed to flow back up through the source against its back emf and through its built-in counter-emf, no dissipation of the source dipole occurs, even though energy density (not *electron current* dq/dt but *energy flow* dq/dt) is flowing from the source and can be collected in *collectors* in the external circuit to store the energy as a created local energy source. This collected energy can then be shuttled to a separate load circuit and released, to provide a "heat pump" cycling operation and overunity coefficient of performance.

Nikola Tesla in fact knew how to shuttle energy at will in a circuit in such fashion, as Barrett's quaternion analysis of Tesla's actual patented circuits has revealed. [See T.W. Barrett, "Tesla's Nonlinear Oscillator-Shuttle-Circuit (OSC) Theory," *Annales de la Fondation Louis de Broglie*, 16(1), 1991, p. 23-41.] Note that a rigorous analysis of those same circuits, using tensors or vectors (lower topology algebras), will not show the effect. One

needs a higher-topology algebra such as quaternions or Clifford algebra, or **the** significant properties of such circuits will be entirely missed.

When the original source dipole is not dissipated because electron current is **not** passed back up through its back-emf to scatter the charges, the **original** source dipole will continue to furnish emf indefinitely because of **the** proven asymmetry of its opposite charges in the seething vacuum energy flux.

The terms emf and counter-emf are normally applied only to recognized sources of electricity. Emf is computed as the algebraic sum of the **potential** differences acting in a circuit attached to a source. Back-emf (counter-emf) is computed as the potential difference internally through the source, between its terminals. The back-emf is thought to be necessary in producing *a powered device or component in the circuit*. Actually, *its main application (the ubiquitous closed current loop where all the external circuit current is passed back through the back-emf of the source dipole) is to prevent COP > 1.0 electrical power systems from being developed and utilized, and for every electrical circuit to self-enforce Lorentz symmetrical regauging during its de-excitation phase*.

electron: A stable elementary particle in all atoms, and having — in "forward time" — a negative charge of 1.602×10^{-19} coulombs, a spin $1/2$, and a mass of 9.11×10^{-31} kilograms. If time is reversed, the charge (but not the mass) of the electron is reversed and it becomes a positron. Note this is an equivalent *observed* 3-positron, in a material lattice after interaction with charged matter, and not the mathematical equivalent represented by Dirac sea holes in the 4-vacuum prior to interaction with mass.

The "electron" may also exist as a negative energy, negative charge, negative mass-energy 4-state (Dirac hole) in the vacuum itself. In that state, the negative energy 4-electron is the source of negative energy fields and negative energy potentials. When the associated nondiverged and unaccounted Heaviside energy flow component is also accounted, the Dirac sea hole negative energy 4-electron can be manipulated in "anti-circuits" to directly engineer local antigravity, quite strongly and practically.

electron gas: A system of electrons with only weak interactions, so that the electrons may be regarded as moving independently. In many ways, such a collection of electrons can be treated as a gas. See Drude Electron gas.

electrostatic scalar potential: A *static* (stationary, in the sense that a perfect waterfall would appear stationary) ordering in the virtual photon flux of vacuum. The notion of "static" in the term "electrostatic" is misleading and should be replaced by "stationary" since the underlying active vacuum medium is always in violent motion, and there is nothing truly "static" in the universe. But an *equilibrium* or *stationary* condition can exist as an external envelope condition, even with continuous violent motion internally, so that a stationary entity or form persists. An example is a perfect whirlpool in a river.

The electrostatic scalar potential decomposes into a harmonic set of bidirectional phase conjugate longitudinal EM wavepairs, as shown by E. T. Whittaker in 1903. Hence the electrostatic scalar potential is an overall curvature of spacetime with internal longitudinal EM order and dynamics.

ELF: Extremely low frequency. Used to describe EM fields whose frequencies lie in the range from just above 0 Hz (direct current) to 300 Hz. This includes power line frequencies (60 Hz in U.S. and 50 Hz in Europe) and frequencies used by certain U.S. military ELF communication systems such as for submerged submarines.

EMF: Acronym for electromotive force. See discussion under electromotive force.

EM field: Electromagnetic field. In its loose usage, it refers in a very broad way to any field, force, or energy associated with electromagnetic interactions, charges and currents. Thus "EM field" includes electrostatic fields, magnetostatic fields, electromagnetic fields (including radiation and induction), vector-potential and scalar-potential fields, Hertz potentials, Fitzgerald potentials, Whittaker potentials, Debye potentials, etc.

In its precise usage, "EM field" conventionally refers to an EM "force" field, such as the E-field, D-field, B-field, and H-field. In classical electromagnetics (CEM), as a holdover from the old assumption of a material ether, the force fields are considered (erroneously) to exist in mass-free space, and they are also considered to be the primary causes of electromagnetic phenomena. This is a non sequitur, and it involves substituting the effect for the cause.

In the new viewpoint, *the force* fields do not exist in vacuum, but only in and on and of the charged particles themselves, where mass is present to form one component of the force. The force fields are therefore effects and not primary causes. The primary causes of all electromagnetic phenomena is taken to be the potentials; however, the hidden

Stoney/Whittaker/Ziolkowski internal structures of gradient-free scalar potentials may interfere to cause potential gradients in and on charged particle systems. [In O(3) and other higher group symmetry electrodynamics, this internal structuring and dynamics is far richer.] This therefore includes distance-free scalar potential interferometry and action at a distance, as well as vacuum engines.

The new view uses Sachs' unified field theory, and considers that the EM field in the vacuum, or an EM potential in the vacuum, involves and identically is curvature of spacetime. It follows that the internal EM structures of "ordinary" EM are also spacetime curvatures, where the specific pattern of these ST curvatures constitutes a very special kind of spacetime engine that acts upon any local mass in a specific manner determined by the individual pattern of curvatures. Thus the new view is a unified field theory where GR has become EM and EM has become GR, and where higher symmetry EM — such as O(3) group symmetry EM — can involve or produce gravitational, temporal, and inertial effects as well.

EM force field in the vacuum (a false concept : The erroneous notion that there exist forces in the vacuum, so that the set of forces at a set of spatial points forms a force field. Presently classical electrodynamicists accept the same E-field in vacuum as exists upon a charged mass when the vacuum E-field interacts with that charge, but it is asserted that the force is zero. This is easily falsified by defining force \mathbf{F} as $\mathbf{F} \equiv \partial \mathbf{p} / \partial t = \partial / \partial t (m \mathbf{v})$.

By expanding the term on the right, one sees that both terms in the expansion include mass. Mass is thus a *component* of force. If mass is absent, there is no force present, thus no force field present. The field in

space and the "same" field in mass differ precisely by a mass term in their fundamental units. The field in massless space may be taken as a curvature of spacetime. Zero field in space means a flat spacetime; a nonzero field in space represents a curvature of spacetime. A nonzero field in mass means a curvature of spacetime (a 4-space entity) interacting with mass (a previous 3-space observation) to produce a force consisting of that field and mass interaction. There is no separate force acting on a separate mass, and mechanics has been wrong in assuming so for hundreds of years. Instead, there is a force produced by the interaction of a massless 4-field

(spacetime curvature) entity with 3-spatial mass. It is that *interacting and ongoing entity or process* that is a force field. Speaking of such a force field in space, is speaking of the force field that would exist in that space if every point had a unit point static charge and charged mass. As Feynman and Wheeler pointed out, no force field as such exists in space, but only

the potential for a force field exists there, in case some charged mass is brought in to interact and have the forces developed upon its charges.

EM generatrix: Whatever generates electromagnetics, particularly the fields. Since all EM energy comes from the time domain and returns to it, time is the ultimate EM generatrix. The circulation of EM energy from the time domain to 3-space and back, or vice versa, is a function performed by the broken symmetry of every charge, considered as two infinite dipolarities with a finite difference that is the observed charge listed in texts and handbooks.

energetics: Energy as the primary thing in the universe. Rankine's term later raised to the forefront by Ostwald. Modern Russian term for advanced higher group symmetry electromagnetics, where the electrodynamics is a subset of an engineerable unified field theory. In the U.S., a model approaching the Russian model is given by Evans's O(3) electrodynamics as a special subset of the electrodynamics used by Sachs in his epochal unified field theory. Thus there is a growing, engineerable unified field theory (energetics theory) in the U.S., being provided by Evans, Sachs, and others. A solid basis for energetics can be realized from the giant 4-space negentropy EM energy circulation involved with every charge, so that all "EM energy in space" and time itself comes from that circulation.

energy: Usually erroneously "defined" as the "capacity to do work". This is a total misdefinition since it would define energy as the ability to change its own form. The closest to a legitimate definition of energy appears to be: *energy is the invariance of that which is varying* (Lindsay). However, note that this definition violates Aristotelian logic (but does not violate five-law logic developed in this book). Another try at it might be: *"Energy is any deterministic or coherent structuring, either dynamic or stationary, existing in the virtual particle flux of vacuum."* While that sounds good, it still involves the nonchanging aspect of the changing flux — much like considering a whirlpool in a river as being a "static" thing. So it is still "the invariance of that which is varying", which is an identity of opposites. We conclude that 4- or 5-law logic is necessary in order to define energy, since the defining logic must encompass the identity of opposites. Feynman simply stated: *"It is important to realize that in physics today, we have no knowledge of what energy is."* [Richard P. Feynman, Robert B. Leighton, and Matthew Sands, *The Feynman Lectures on Physics*, Addison-Wesley, Reading, MA, Vol. 1, 1964, p. 4-2.]. In Aristotelian logic, there is no acceptable definition of energy. In 5-law logic, the second definition holds since opposites can indeed be identical. Now to more practical aspects:

For our purposes, there are three major types of energy in 4-space: (i) 3-spatial energy, which includes energy in one, two, or three of the spatial dimensions, (ii) mass-energy, which is 3-spatial energy compressed by the factor c^2 but still in 3-space, and (iii) time-energy, which is 3-spatial energy compressed by the factor c^2 but now placed in the time domain.

Note that time-energy has the same density as mass-energy, and hence the same spacetime-curvature effect and gravitational capability.

The major implication of the new view is that the conservation of energy law is extended: Now it is the total of the 3-spatial energy, mass-energy, and time-energy that must be conserved. Transduction between time-energy and either of the other two forms, or both, will violate the conventional conservation of the sum of the 3-spatial energy and the mass-energy; every charge and every dipole is an example. Use of time-polarized and longitudinally polarized photons and EM waves particularly may involve the extended conservation law, e.g., as utilized in cold fusion and its time reversal zones, and as involved in the outpouring of observable EM energy from every charge in the universe, with no observable energy input.

energy collection/collecting: In electromagnetics, placement of an interceptor/collector — e.g., a charged particle — into an impinging EM energy flow, so that some of the flow is diverted around the intercepting particle. We may say that the flow of energy has been "reordered" into a stream diverged around the intercepting charge. The diverged part of the total energy flow is what is calculated as the Poynting energy flow component, and is what is referred to as the "collected" energy or the "potential" of the charge.

However, neither charge nor potential are acceptably defined in conventional electrodynamics, but they can be defined in the new approach. We are now able to see something more fundamental. By the giant negentropy mechanism, the charge is involved in both the time-energy stream and the vacuum flux set of virtual particle spatial-energy streams. "Charge" is not just related to the mass of the particle, but is the entire ongoing set of the dynamics as well as the mass (the "nondynamics", so to speak). When a charge is placed in a field, that field is a change to the local dynamics, which is a change to the charge itself. Both the dynamics and the mass (the "nondynamics" constituting the charge are altered. So one does not have the "field acting on a separate charge", but instead we have the charge with its previous set of dynamics transformed into the altered charge with a new set of dynamics and a new mass. Similarly when a charge is placed in a potential. Charge is also not a 3-

spatial situation and process, but a 4-spatial situation and process. If the internal structuring is also important, it becomes an n -spatial situation where $n > 4$ and even where $n \gg 4$. To deal with sophisticated engines, $n \gg 4$ is necessary in the modeling utilized.

energy dissipation: Refers to the scattering or disordering of energy; at fundamental basis, it refers to the changing of an altered charge (see energy collection/collecting) back to an unaltered charge. In other words, it is a special decay process whereby an "excited charge" (so to speak) decays back to its "normal state" by releasing dynamics (energy) back to the vacuum. The energy itself is not destroyed, but its "collecting pattern" or "flow pattern" as coupled to the charge is disrupted and altered or destroyed. There is also the connotation that *the dissipated energy is lost as far as any re-use of it by the system*. We point out that only collected/collecting energy can be scattered; it is the collecting *process* (the entire alteration of the normal charge dynamics) that is "destroyed" - or more exactly, *transformed* — not the energy itself.

energy, electromagnetic: From a vacuum and quantum mechanical viewpoint: a deterministic or coherent structuring, either dynamic or static, existing in the virtual-photon or charged-particle flux of vacuum. Since a photon may also be considered a positron-electron pair (if we multiply each by time so that they are qt rather than q in fundamental unit form), the flux of photons in the polarized vacuum necessarily also includes the flux of charged virtual electrons and positrons. From a spacetime viewpoint: a curvature of spacetime, or set of such curvatures. If a deterministic set of spacetime curvatures (a template) is involved, then an engine is involved and the energy is said to be "dimensioned" (internally structured).

energy flow: Generally considered as the passage of energy, in any form, in one direction or generally in one direction in a given 3-space. To first order, our definitions of energy treat energy flow in a given space as (1) a directional change (propagation) of the vacuum energy and its form, or (2) as a directional propagation of a curvature of spacetime or a set of curvatures of spacetime. *The terms "energy flow" and "flow of energy through space" are not precisely defined in physics! They are not going to be defined, at least not in ordinary Aristotelian logic terms, since energy itself is not precisely defined, and one of the best struggles with the concept of energy concludes that it involves invariance in the midst of change, which is a violation of the third law of Aristotelian logic and therefore of the other two as well.*

Indeed, the "EM wave flowing through 3-space" does not exist (see previous comments quoted from Romer). What does exist is an ongoing 4-space process, assumed to be continually and iteratively interacting with a unit point charge to "detect" or "observe" it as an iterative series of frozen 3-space snapshots, in memory-recalled serial order much like the frames of a motion picture film. Nonetheless, we must keep our sense of humor and proceed as if we knew exactly what we were speaking of when we use the **concepts** "energy", "energy flow", and "energy propagation through 3-space". If one dwells on the problem without humor, one is led to

Hawking's grim but perceptive statement: *"All we ever know is our models, but never the reality that may or may not exist behind the models and casts its shadow upon us who are embedded inside it. We imagine and intuit, then point the finger and wait to see which suspect for truth turns and runs. Our models may get closer and closer, but we will never reach direct perception of reality's thing-in-itself"* Ultimately we do not know physical reality itself, but our mental modeling of it, as best we can "fit" our modeling through comparison with our sensory and perceptive sensations.

energy flux: The passage of energy flow, in any form, through a unit area, and in any given direction (usually all directions). This includes both passage in a single direction, or passage in multiple directions at once. See flux. Sometimes taken as that component of the net flux through a unit area at right angle to the area.

energy, free: In our usage, free energy is what is obtained from any environment or entity which freely emits, furnishes, or makes available energy which either can be collected and used as furnished, or can be transduced into usable form and collected and used to power loads and do useful work. The word "free" does not apply to *costs*, but rather to the source of the energy. Since energy can neither be created nor destroyed, energy is always available free for the taking (collecting and using) if we

but learn how. *We never pay for energy per se, but for the manipulation and processing of the energy.* The notion of extracting and using free EM energy from the vacuum involves five key concepts: (1) the local vacuum/spacetime itself is filled with EM energy of generally unusable form (2) some sort of organizing principle is utilized in one part of the circuit or system to cohere the vacuum energy and transduce it into usable EM form (every charge already individually does that; we just have to learn to do it in a larger ensemble), (3) a gating mechanism is utilized to divert the vacuum energy now in usable EM form from the active vacuum to the external circuits or load parts of a device, (4) the coherent gated

extra energy available in the external circuits or load parts is intercepted by those circuits or load parts, couples to them, and potentializes them with extra EM energy, so that the energy is collected by the system and regauges the system asymmetrically, and (5) the external circuits or load parts then scatter or dissipate the coupled extra energy to produce useful work (physical changes in the load), without destroying the organizing and gating mechanism that is extracting and furnishing usable EM energy from the vacuum.

energy source: A function or entity which furnishes energy by either gating it from one energy reservoir to our system or locality, or by transducing available unusable energy into usable form and then emitting the usable energy. Technically speaking, since energy cannot be created or destroyed, there is really no such thing as a *creative* "energy source", though the term "source" seems to imply such. So-called "energy sources" actually gate and/or transduce energy, changing it from one form to another, from one direction to another, etc. All EM energy in the universe comes from the time domain into 3-space vacuum, onto charge, and back to the time-domain, in a giant ongoing negentropy 4-circulation as freely provided by the "source charges".

engine: Deterministic pattern of structures, with their concomitant dynamics, in the flux of the vacuum. Also, deterministic patterning of curved spacetime curvatures and their dynamics that comprise an overall larger spacetime curvature, or internally comprising an *overall* "uncurved" spacetime.

engineering, entropic: Engineering or designing systems and processes in equilibrium with their external active environment, and whose operation "spills" or wastes all the energy input to them, and which do not freely recover and use the dissipated or wasted energy. Entropic systems — which are the products of entropic engineering — thus have $COP < 1.0$ and function in forward-time, and classical equilibrium thermodynamics with its infamous second law rigorously applies because the system is designed to self-enforce the equilibrium condition, often called by other names such as Lorentz symmetrical regauging.

engineering, negentropic: Engineering or designing open systems and processes far from equilibrium in their exchange with their active environment, whose operation freely "receives" excess energy from the environment, so that they permissibly output more energy than the operator inputs, the excess being received from the external environment. As an example, simply making a common dipole or assembling a charge

initiates a giant negentropy operation that persists indefinitely (as long as the dipole or charge persists).

entropy: Thermodynamics state term representing a measure of an equilibrium system's capacity to undergo spontaneous change. In short, a quantity that measures the availability of a system's energy for conversion to work. The entropy of an open system not in equilibrium with its active environment cannot even be computed, because the state cannot be computed.

Entropy is given by $dS = dQ/T$, where dS is an infinitesimal change in entropy for a system absorbing an infinitesimal quantity of heat dQ at absolute temperature T . In statistical mechanics, entropy is a measure of the disorder in a system and is given by $S = k \ln P + C$, where S is the value of entropy (disorder) for a system in a given state, P is the probability of that state's occurrence, k is a fixed constant, and C is an arbitrary constant. Intuitively, the concept of entropy corresponds to the concept of disorder. We specifically call attention to the fact that the "S" used in representing entropy is not at all the S used for Poynting energy flow in electrodynamics.

entropy, negative (negentropy): In a sense, the reversal of disorder, or reversal of entropy. Another way of defining negentropy even more rigorously — for electrodynamics — is to define it in spacetime as a *broken 3-symmetry in EM energy flow with concomitant relaxation to a more primary 4-symmetry between time-energy flow and 3-spatial EM energy flow, where time-energy flow is transduced into 3-spatial EM energy flow and then back to time-energy by the entity — such as a common dipole — causing the broken 3-symmetry.*

equilibrium: *In physics*, the state of a system in which opposing forces balance each other — i.e., sum to a vector zero. However, the *vector* zero summation does not represent "total absence" of everything, and the forces and their energy remain even though comprising a net vector zero system. Even a pure number zero may also be taken as a set of nonzero numbers; e.g., (+5 -3 -2). So even zero need not be total absence, but can be a "balanced set of presences". Or zero can be regarded as an overall equilibrium condition comprised of a set of disequilibria conditions.

Indeed, a vector zero summation system of nonzero forces comprises a stress potential, and it contains stress-energy doing work upon the stressed system. *In mechanics*, a system of particles — where the net force acting upon each constituent particle is zero — is said to be in equilibrium. *In chemistry*, the state of a solution where the forward and reverse reactions

are equal and balance each other, so that the chemical reactants and products maintain the same amounts. Again, the notion of equilibrium involves the "stationary" notion (similar to a perfect whirlpool in a perfect river) of the overall invariance of some set of ongoing dynamic changes.

ether: An extremely fine material substance originally theorized to exist in space in lieu of sheer emptiness. The problem is considering space as emptiness in the first place, which it is not. Instead, space (more rigorously, spacetime) is a plenum and highly active (as in the general relativity view a half-century after Maxwell's seminal paper). So there is no need to "fill empty space" with something, because in the modern view there is no such thing as empty space.

Evans, Myron W.: Noted chemical physicist, primary developer of $O(3)$ symmetry electrodynamics, and Director of the Alpha Foundation's Institute for Advanced Study (AIAS). Papers produced by the AIAS are critical to understanding extraction of EM energy from the active vacuum, engineering of vacuum engines, and development of a revolutionary new healing method by time-reversing diseased or damaged cells back to a previous healthy state.

excess collected energy: Collection by an interceptor/collector of a greater fraction of EM energy flow impinging upon it and also surrounding it, than is normal. See **Bohren experiment**.

exciton: A bound electron-hole pair in a semiconductor. Excitons are temporary formations and they decay by recombining, but they have a specific half-life before recombining during which they migrate through the semiconductor crystal. When the hole and electron recombine, then — if the curvature of spacetime relaxes to a flat spacetime, which is not overtly stated in classical EM theory — the recombination releases energy in the form of a *photon*, or sometimes in the form of several *phonons*. **Note** that the "hole" is an "absence of an electron" from a position in a lattice usually containing an electron, so that it exhibits a net positive "change in the charge field" at that point. Specifically, this "lattice electron charge hole" is not a Dirac Sea hole in the vacuum, which is an entirely different matter. On the other hand, if the hole and electron recombine and the curvature of spacetime does not relax to a flat spacetime *because of other curvature-sustaining involvements*, then no "pair annihilation" radiation is emitted. It is the relaxation of the curved spacetime (when hole and electron are separated) back to a flat spacetime that causes photon or phonon emission.

exothermic: Literally, "giving off heat", or emitting scattered EM energy. Producing time-forward EM energy from a "source" by reducing the ordering(internal energy) of the source.

Faraday, Michael: Noted English physicist and chemist, 1791-1867, who **discovered** field theory and electromagnetic induction. Faraday also invented the dynamo and formulated his laws of electrolysis. His work directly inspired Maxwell, who vowed to study no other electromagnetics theory **until** he had captured Faraday's work in a mathematical theory.

Fermion: A fundamental particle which has spin angular momentum of $(n+1/2)h$, and which obeys Fermi-Dirac statistics. Examples are baryons and leptons, which are subject to the Pauli exclusion principle.

Feynman, Richard P.: Noted physicist, Nobelist, and co-developer of quantum electrodynamics. Feynman is particularly noted for his refreshing three volumes of physics: see Richard P. Feynman, Robert B. Leighton and Matthew Sands, *The Feynman Lectures on Physics*, Addison-Wesley, New York, 1963. The book is particularly noteworthy in that it gives the student some insight into foundations problems in physics. E.g., in Vol. I on p. 2-4, **Feynman** defines the electric field not in terms of force per unit charge per se, but in terms of its *potentiality* for producing a force only when a charge is present for the force to be developed upon.

fiber fuse: Effect in optical fibers or fiber optic cable, whose core contains germanium, whereby heating the cable at one spot with a small flame will launch a focused traveling heat energy effect which melts a small hole in the **core** about every centimeter, and marches down the cable at about a meter **per** second to the end of the cable, destroying the optical transmission capability and ruining the cable. Oddly, by igniting the fiber fuse **from** the other end of the damaged cable, a *reverse* fiber fuse effect will **often** march back down the cable in similar fashion except that it fills in the **melted** holes in the core, restoring the transmission capability of the cable. If the energy required to melt all the holes (or fill them again) is taken **into** account, the amount of energy required to launch the fiber fuse is much less. This phenomenon does not appear to have an adequate technical explanation at present.

field: In mathematics, a set with two binary operations. In

electromagnetics in more common mathematical terms, it is a region consisting of magnitudes and/or vector directions assigned to some active entity (e.g., spacetime itself) at each point in the region.

In physics, "a region of space marked by a physical property, as gravitational or electromagnetic force or fluid pressure, having a determinable value at every point in the region." [Thanks to *Webster's II New Riverside University Dictionary*.] Note the very special use of calculation of magnitude: one does not calculate the magnitude of the field itself, which fills an entire region. Instead, one calculates the magnitude of the *reaction* of that field with some interceptor/reactor at a given point — i.e., the *effect* of that field upon some mass entity. That is at best a measure of the *local intensity* of the field, not the magnitude of the entire field per se. For that reason, often we speak of calculating the field intensity, which is far more accurate than saying that we are "calculating the magnitude of the field". So we do not really calculate the "magnitude of the field," and in fact such a calculation does not occur in any textbook. Instead, we calculate the *reaction cross section* — in the case of electrodynamics, for an assumed unit point static charge — of the field at a point in the region or space occupied by the field. *We actually calculate what is deviated or diverged from the field, around an assumed interceptor, not the field itself.* This means that we calculate the result or *effect* of a detecting/observing action, and a frozen 3-space snapshot of that ongoing interaction, since all observation is 3-spatial. To then state that this same field exists in space prior to the interaction, and is what causes the interaction, is a gross non sequitur and confuses the effect with its own cause. This ubiquitous non sequitur widely permeates electrodynamics and mechanics, and it is one of the greatest scientific logical errors in history.

field, scalar: In the standard view, a field, to any point of which is assigned a magnitude only. However, "magnitude" of the EM field in the standard usage refers only to the amount of energy deviated (diverged) around a fixed intercepting unit point charge, per the conventional "detection by reaction" model. Again, note the serious logical errors in the conventional usage. One cannot define the field in terms of what is diverged from it! At best one has defined the "intensity" of the field's interaction with a given standard interactant (charge). So in electrodynamics the term "scalar field" would be better replaced with "scalar field intensity", at least for many applications.

field, vector: In the conventional view, a field, to any point of which is assigned both a magnitude and a direction. Again, the standard view also implements that assumed reaction with a detecting unit point static charge, and the "magnitude" used is just the difference between the amount of energy piled on the "front" of the interacting unit point static charge and the amount of energy pile on the "rear" of the interacting unit point charge.

The "direction" is from the center of the "high energy" pileup to the center of the "low energy " pileup around this fixed intercepting unit point charge. Again, note the serious logical errors. One cannot define the field in terms of what is diverged from it and the direction of the difference in "energy pressure." At best one has defined the "intensity" of the field's interaction with a given interactant (charge), and the "direction" established by the difference between the frontal and rear energy pileups on the interacting charge. The term would be better replaced with "vector field intensity".

flat (uncurved) spacetime: In our view, a vacuum/spacetime whose virtual particle flux intensity — and therefore its local energy density — does not change as a function of spatial position or averaged time. That is, in our view a flat spacetime is also identically a quantum mechanical vacuum whose virtual particle flux and energy density are constant in magnitude and internal constitution with respect to spatial position and in averaged time. Note that in this extended view, a flat spacetime (vacuum potential) can still contain vacuum engines, and thus still be *dimensioned*. In that case, contrary to normal physics, the flat spacetime itself will still interact with an embedded object and *change* it internally, even though it does not *translate* it externally. To perform transmutation of elements, e.g., one is interested in just such engines and not in spatially translating the element being treated. This dimensioning or activation of the local flat spacetime can result in an otherwise unexpected, seeming violation of one or more laws of nature in the dimensioned region, and easily results in violation of conventional physics which does not take into account engines and dimensioning of a flat spacetime. Note also that this allows a differentiation between the actions of two inertial frames, if the frames are differently dimensioned. As we stated, this is a deliberate extension of orthodox physics. See also dimensioning, and Einstein's second postulate — extension of.

fluctuation theorem: Theorem advanced by Denis J. Evans et al. at the Australian National University in 1993 that appreciable and measurable violations of the second law of thermodynamics occurs for small systems over short time scales. See D. J. Evans, E. g. D. Cohen, and G. P. Morriss, *Phys. Rev. Lett.* Vol. 71, 2401 (1993). In 2002 Evans and his colleagues experimentally demonstrated the proof of this theorem in rigorous fashion. See G. M. Wang, E. M. Sevick, Emil Mittag, Debra J. Searles, and Denis J. Evans, "Experimental Demonstration of Violations of the Second Law of Thermodynamics for Small Systems and Short Time Scales," *Phys. Rev. Lett.* 89(5), 29 July 2002, 050601. The proof also directly proves the

occurrence in electrolytes and fluids of time-reversal zones (TRZs) where the dynamics runs backwards for a short time. This validates Bearden's proposal of the TRZ and its consequent reversal of the Coulomb barrier to a Coulomb attractor as the mechanism producing attraction of like charges into quasi-nuclei, which then can decay by quark flipping (if necessary) as the TRZ decays and reverses back to normal. This provides a mechanism for transmutation of elements in these TRZs as a result of the fluctuation theorem and its proof by Evans et al.

flux: The amount of some quantity (such as energy, particles, volume of fluid, etc.) flowing across a given area (usually a unit area perpendicular to the flow) per unit of time. The term flux density is now more commonly used. Loosely, "flux" refers to the perpendicular flow through an area, while "flux density" refers to the magnitude or intensity (rate) of the flux. In some cases such as a flux of particles of different velocities, the number of particles may be multiplied by the average velocity to give an average flux density that is weighted.

flux density: The amount of some quantity (such as energy, particles, volume of fluid, etc.) flowing across a given area (usually a unit area perpendicular to the flow) per unit of time.

Fogal semiconductor: A special semiconductor invented by Bill (William) Fogal which, in its operational regime, utilizes an integrated semiconductor, very special tantalum capacitor, and feedback resistor to accomplish charge blocking (blocking of electron current flow dq/dt) while passing displacement current $d\phi/dt$.

The Fogal semiconductor can also accomplish amplified phase conjugation of signals as well as infolding (translation of input transverse EM waves to output longitudinal EM waves) and unfolding (translation of received input longitudinal EM waves to output transverse EM waves). Used in communication systems, it opens the use of the unlimited "infolded" electromagnetics bandwidth. Since it may communicate using longitudinal EM waves, it is also usable for superluminal or a specialized "tunneling" communication through the "interior" of normal EM waves, potentials, and fields. For example, it can easily transmit color TV signals through the "interior" of a common DC potential. See William J. Fogal, "High Gain, Low distortion, Faster Switching Transistor," U.S. Patent No. 5,196,809, Mar. 23, 1993; - - "High Gain, Low Distortion, Faster Switching Transistor," U.S. Patent No. 5,430,413, July 4, 1995, a continuation of his earlier patent.

Fogal, William: Researcher and inventor of the Fogal semiconductor (two patents so far), as well as a superluminal infolding-outfolding communication system and other remarkable longitudinal EM wave processes. The Fogal semiconductor allows the use of the internal longitudinal wave electrodynamics comprising all ordinary EM fields, waves, and potentials, and thus will usher in a revolutionary new communications science and extended electrodynamics technology. See also discussion under Einstein's second postulate extended.

force: In mechanics, identically the time derivative of momentum, or $\mathbf{F} = \partial/\partial t(m\mathbf{v})$. One must realize that it is not the mass in motion, but the single undivided quantity "mass-motion" or "mass-velocity" (momentum) that is changed. Present EM theory erroneously takes force fields to exist in empty, massless vacuum but with zero force! However, the mechanical definition is an identity, not an equality. The observable mass in vacuum is zero, so substituting $m = 0$ gives $\partial/\partial t(0 \cdot \mathbf{v}) = 0$. This appears to be the conventional reasoning. However, $\mathbf{F}/q = 0/q = 0$ also. So if mass is zero, the field \mathbf{E} used in "force field definition" disappears. All that says is that the field in mass-free space and the field in mass are totally different entities,

Since force can be induced into and of the mass-motion target at a distance, in the new approach there is a more fundamental mechanism that produces force itself, and that is a curvature of spacetime, in agreement with general relativity. Distant curvatures of spacetime to produce forces on exposed charged mass systems may also be engineered by longitudinal EM wave interferometry, which does constitute "action at a distance." The fields arise in the local spacetime in the distant interference zone, thus arising from within and around any physical mass object located in that zone. Hence it produces an "inside-to-outside" type of action that is presently unknown in orthodox physics. The produced fields can start inside the nucleons of the atoms and move outward, and work directly upon the quarks and gluons first. This opens a great number of entirely new nuclear reactions presently not developed in particle physics.

force field: An 3-space *effect* that exists as a local vacuum virtual particle flux **interaction** upon and with a hypothetical unit point mass or unit point charge assumed at every point in 3-space. The effect (force field) results from a *causal* force-free 4-field (a curvature of spacetime) interacting with an observed hypothetical unit point mass or unit point charge assumed at every point in space. Hence the invocation of observation invokes a d/dt **operator** (the interacting charged mass) upon the causal field, providing a

frozen 3-snapshot of the ongoing 4-interaction. An iterative series of such 3-observations is said to constitute a "3-space force field" as if it existed in time, which it does not. It is seen (iteratively observed) as a series of such frozen snapshots, which mentally we conceive as "existing in time" instead of the "recurring at points in time" that it really is. We unconsciously invoke that substitution of iterative effect as being continuity in space and time, when we use terms such as "propagation through space".

force-free propagation: Propagation of force-free disturbances in the vacuum flux; i.e., propagation of curvatures of spacetime or sets of such curvatures, together with any associated dynamics.

foundations of mathematics: The concepts, operations, assumptions, postulates, logic, definitions, and axioms of algebra systems.

foundations of physics: The postulates, assumptions, concepts, and definitions upon which a scientific physics model rests. Included are also the postulates, concepts, assumptions, definitions, axioms, logic, and operations of the mathematics in which the scientific model is expressed, as well as the postulates, concepts, assumptions, definitions, and operations of the physics entities and functions assigned to the mathematical symbols. Thus "scientific truth" — even mathematical truth; see Morris Kline's *Mathematics: The Loss of Certainty* — is actually a *qualified* truth. What is true in one model (one set of postulates, assumptions, concepts, and definitions, including those in the algebra) may not be always true when one or more of the postulates, assumptions, concepts, and definitions is/are changed, and/or when the topology of the mathematics in which the model is expressed is changed, etc.

four-space (4-space): The "normal" spacetime used in physics, consisting of three spatial dimensions and one time dimension. Minkowski spacetime.

fourth law of logic: The law that a thing and its opposite become identical on the boundary, i.e., in multiple simultaneous observations. *Identity* is merely the loss of observational or perceptual distinction; when formerly "two" objects are simultaneously observed by a single observer, and two slides have been shown at once in the slide projector. It does not matter at that point what each was individually observed to be before when it was singly observed. Now there is no observable distinction or difference. We previously showed that the fourth law is implicitly assumed in the three laws of Aristotelian logic anyway, and published a simple proof of the fourth law. Without the fourth law, Aristotelian logic "eats itself." As a simple example, the Aristotelian third law eliminates the center vertical line division of a simple Venn diagram between A and not-A, because the

divisionline itself is happy to belong to both A and not-A simultaneously. So Aristotelian logic destroys the very Venn diagrams used to "prove" or "demonstrate" its logical propositions. What results in the four law logic is that either (1) the three laws apply explicitly and the fourth law applies implicitly, or (2) the fourth law applies explicitly and the three laws apply implicitly. This *application rule* — i.e., *either (1) or (2)* — itself can be taken as a fifth law of logic, thus extending and completing Aristotelian logic which is presently incomplete. The fourth law is also the law of the **paradox**: i.e., when something is true but violates one or more of the Aristotelian laws, it is a case where the fourth law applies explicitly and the three laws apply implicitly. Wave-particle duality is such a fourth law case.

four-wave mixing: A nonlinear multiwave mixing effect when four waves mix (interact) in a highly nonlinear situation so that wave-to-wave interaction occurs.

fractional charge: A hypothetical particle having a charge less than the electron's charge. Often called a quark, where its charge is $1/3$ or $2/3$ the charge of the electron. A few years ago, Stanford University researchers found what was believed to be evidence of free quarks, but that later was doubted. There is also now the fractional Hall effect. In the 1920's Ehrenhaft reported the discovery and production of fractional charges of all sizes, and his experiments have been replicated by Mikhailov, with papers by Mikhailov and Barrett.

In the new approach, when time-energy is utilized, quarks can be freed or nearly freed rather easily in matter inside "time-reversal zones", since the energy emerges from the local curved spacetime and propagates from within **the** nucleus outward and the gluon forces are substantially reversed.

Note also that time is multiply connected, and energy can enter an object anywhere within it or even everywhere within it, since each and every differential piece of the object exists in every single increment of time. It would appear that, as the new approach develops, free quarks will become a normal event rather than one intensely sought but terribly difficult to come by experimentally. We flatly predict that, in a sufficiently good time-reversal zone, free quarks can be produced because of the enormous energy density (in the time component) being utilized.

frame, Lorentz: A frame of reference that is not accelerated with respect to the laboratory observer. In this case, the frame may be rotated (moving at a constant velocity) but it is not rotating (the frame is not accelerated with respect to the observer, and spacetime is not curved). In this case

special relativity applies, as do the conservation laws. We do add a caution that full general relativity still applies to the interior structure and dynamics (the engine) comprising the flat spacetime. Two *overall* flat spacetimes may produce very different interactions inside matter, if their internal engines are materially different and dimensioned.

frame, reference: A spatial, organized, measured lattice placed in "emptiness" (space, spacetime). Normally refers to a 3-dimensional, spatial frame (simplest case) or to a 4-dimensional spacetime. All objects and points in the "universe" or spatial frame are considered to simultaneously coexist at separate, measured points in the frame. Differs from the vacuum in that, rigorously, vacuum has no existing definite lengths and no existing definite time intervals, as these appear only after measurement or detection, and are relative to the observer and to the interactions ongoing as well as in the detection process itself. The "laboratory frame" is the static reference frame of the observer or measurement. A separate reference frame may be assumed to exist for any fixed or moving object, or centered on any point in another frame. When a type of frame is assumed, the entire class of *translation type* physical interactions that can occur has been restricted to an assumed set or type. In other words, given the frame, the *conventional* physics of translation has been assumed. One of the greatest restrictions of an assumed "frame" is to rule out the consideration (existence) of other higher dimensions, hence of dimensioned engines.

In the new unified field theory approach, the other higher dimensions are always available and cannot be ruled out in general, but only in some special case. Every curvature of spacetime, and any internal additional curvatures comprising that primary curvature, *adds one or more new dimensions*. In our view, a spacetime may be "flat" in overall envelope curvature, but consist of internally structured deterministic curvatures or "engines". In this view, normal inertial frames, e.g., may still contain engines, which will not affect the normal *bulk translation* rules, but may affect any or all of the nontranslation mechanisms, including the very laws of nature in many cases. Engines have not been developed and used in conventional open physics, but were weaponized clandestinely by the former Soviet Union. See **Einstein's second postulate extended**.

free energy: Excess energy freely received from its external active environment by an open system that is far from thermodynamic equilibrium in its exchange with that environment. There is a separate thermodynamics for such open disequilibrium systems. (See **thermodynamics of open systems**. See also Appendix A for a more

detailed discussion of the thermodynamics aspects). Such a system is permitted to exhibit five "magic" functions: it is permitted to (1) self-order, (2) self-oscillate or self-rotate, (3) output more energy than the operator himself inputs (the excess energy being freely received from the active environment), (4) power itself and its load simultaneously (all the energy being freely received from the active environment), and (5) exhibit negentropy. Every charge and dipole in the universe already performs all five of those functions.

free energy system: Any open system not in thermodynamic equilibrium, which freely receives excess energy from an external environmental source, **and** collects and utilizes this free excess energy to freely power external loads, so that a permissible system $COP > 1.0$ is achieved, as allowed by the nonlinear thermodynamics of open systems in disequilibrium with their environment. (See **thermodynamics** of open systems.). A free energy system may also be "self-powering" if "close-looped" with governed positive energy feedback from output section to input section, meeting the Kron self-powering condition. Operation of free energy systems can only be properly modeled and understood in terms of their *supersystem* interactions.

Implicit in the notion of free electromagnetic energy systems are six key concepts: (1) the local vacuum/spacetime is known to be filled with hidden (i.e., virtual) energy in violent motion, i.e., the local vacuum/spacetime is a violent virtual energy flux and therefore a scalar potential, (2) a broken symmetry - i.e., some sort of organizing and gating mechanism, such as the common dipole — in this hidden (virtual) energy flux of the vacuum is utilized as a source, to cohere the virtual energy and divert it as energy

$S = f(\mathbf{E} \times \mathbf{H})$ from the broken symmetry initiation point onto the external circuits or load parts of a device, (3) the coherent gated extra virtual energy flow available in the external circuits or load parts couples to (interacts with) the mobile charges in those circuits or load parts, so that gradients developed in the interacting virtual flux form force fields on and of the particle masses, driving the mobile charges along the circuit and through current-impeding circuit components such as loads, (4) in the interaction of the driven charges with the driving virtual energy flux, their spin and erratic motions integrate a tiny "coupling fraction" of the driving virtual energy into observable (i.e., macroscopic field) energy, thus creating the **E**-fields and **B**-fields, (5) the current-impeding external components or load parts scatter or dissipate the coherence of the driven charges and thereby dissipate the collected energy or change the form of the **collected field** energy, thereby producing useful work, and (6) little or

none of the excess collected energy in the circuit is split off and dissipated in the gate (asymmetry component serving as the S-flow source) to destroy the gate and thereby destroy its asymmetry in the vacuum flux, which is what is extracting and producing the free energy flow.

gate: A component or function that extracts some part of a flux or flow, compacting it into a stream, and "sending it out" in organized, useful energy flow form. The fundamental gate for all EM energy in 3-space is the dipole or dipolarity — the "isolated charge" is actually a dipolarity, when the virtual charges of opposite sign clustering around it in the active polarized vacuum are considered. The source of the 3-space EM energy continuously emitted by any charge or dipole is an equal inflow of EM energy from the complex plane (from the time domain). Thus EM energy flow is locally conserved in four dimensions as a 4-circulation, but not in 3-space. EM energy flow in 3-space is conserved over all space, since there are essentially equal amounts of positive and negative charge in the universe and in the virtual charge of the vacuum.

gauge: In electromagnetism, usually considered a possible choice for (change of) electric scalar potential and magnetic vector potentials, in such a manner that there is no *net* change of force fields so that the change satisfies Maxwell's equations. There are indeed two changes of force fields, but the two are selected so that the two new force fields are equal and opposite, constituting a stress potential and continuously performing internal work on the system to create and maintain the excess system stress. The equal and opposite force fields, however, cannot translate electrons through loads to freely power them. We prefer to consider any change of potential — even a single potential changed, or both changed so that a net force field does result — as a "regauging", for it is an implied primary assumption *within the normal use of the term "regauging."* If only one potential is changed, a net force field results in the system and we call that "asymmetrical regauging". If both potentials are changed, but in such a way that a net force field still results, that is also an asymmetrical regauging. When both potentials are changed precisely in such highly selected manner that the two force fields created are equal and opposite, the force fields sum to a *translation* vector zero, and that is symmetrical regauging or *Lorentz regauging*. However, the energy of the two fields remains, having been transposed to a stress potential. Each of the two "balanced" equal and opposite force fields is continuously performing work in the system, but all that is created is additional system stress. Hence symmetrical regauging is obtained only by altering the stress and stress energy of the system, with two disequilibria in energy flow between

the **external** environment and the system. This in fact constitutes both a curvature of the local spacetime and an alteration of the local active vacuum. It is a rotation of the frame of the regauged system out of the **laboratory** frame. In effect, the net EM field energy of the two new fields created by symmetrical regauging is transformed into a change in the local spacetime curvature, a change in the local vacuum, increased stress in the system, and rotation of the system's frame away from the lab frame. We focus upon the energy aspects, since in a system any change of potential - whether symmetrical or asymmetrical — is a change of the internal energy of the system, and therefore of its excitation. In a system, conventional "symmetrical force fields" regauging results in a *nonusable continous* energy change in the system (actually two of these changes), and a change in the internal stress of the system. In short, it is a special case of **adding** a *stress potential* to the system, which we consider a special form of *asymmetrical regauging of the supersystem* consisting of (i) the system and its dynamics, (ii) the local active vacuum and its dynamics, and (iii) local spacetime curvature and its dynamics.

gauge freedom: The axiom in gauge theory that one can freely change the gauge (**and** therefore the potentials and the potential energy) of an EM system, so long as the net new forces resulting from the change will sum to a zero **vector** resultant so that the system remains "symmetrical" in its **force-field** functioning with respect to the system prior to the change of potentials. Electrodynamacists do not seem to have recognized that the freedom to change the potential of a system at will, is *a priori* the freedom to make a purely negentropic change to increase the system's potential energy, or a purely entropic change to decrease the system's potential energy. Gauge and gauge freedom are actually formal restrictions of an even more important asymmetrical regauging principle: *a potential in a system can be freely changed at any time, thus freely changing the potential energy of the system freely and at will*. The additional symmetry assumption is an arbitrary added requirement not imposed by nature.

Further, it appears that physicists have not recognized that a longitudinal EM wave is an oscillating gauge varying in its magnitude. Said in reverse, *oscillating the Lorentz regauging condition for a circuit makes that circuit a generator and emitter of longitudinal EM waves*. This also provides a clue for detection of longitudinal EM waves, similar to what occurs in a Fogoal semiconductor used for that purpose. A longitudinal EM wave detector must detect a variation in the symmetrical regauging condition, which is a stress change detection.

gauge symmetry: Abstract mathematical symmetry of a field, that relates to the freedom to regauge (change the value of) potentials, without affecting the *net resultant* values of the field quantities. This is a special case of the higher principle that any potential (and thus the potential energy of a system) can be changed freely and at will. However, changing the gauge of an EM system in that sense changes the potential energy of the system but *only in stress potential fashion*. In other words, it does nontranslating work on the system, which is called "internal work." The lack of a net resulting force in the system, created by the regauging symmetry, prevents use of this excess free energy to translate system charges and power an external load. All the excess free energy that could otherwise be used to power loads freely, is instead "locked up" to only perform internal work on the system to increase and maintain system stress.

gauge theory: A field theory using a field that has one or more gauge symmetries. The restriction to symmetry is a carry-over of the old erroneous notion that potentials are just convenient mathematical figments, and that fields are the primary causes of all EM phenomena. For the overunity researcher, broken gauge symmetry at a given level (usually in 3-space EM energy flow) is the feature that must avidly be sought in experimental systems if one would use asymmetrical regauging to allow free powering of loads. Hence one is primarily interested in a wide variety of *broken symmetry effects* and phenomenology. Particularly, unless the automatic self-enforcing of symmetrical gauge transformation during excitation discharge of the closed current loop system is violated, no EM system can produce $COP > 1.0$. Further, local spacetime curvature between local input and local output is always involved in an overunity EM power system. The tempic (time) potential of the output end of an overunity system differs from the tempic potential of the input end, so that the gradient (the tempic force) is directed from output to input — exactly the reversal of the case for a $COP < 1.0$ power system.

Thus in both $COP < 1.0$ systems and $COP > 1.0$ systems, a local spacetime curvature is involved when the system is in operation. In $COP < 1.0$ systems, the tempic force sweeps along from input to output and on into space beyond, where the violent interactions of vacuum absorb the associated Dirac sea hole current immediately. In $COP > 1.0$ systems, the tempic force sweeps along through the local vacuum from the output section back through the system and into the input section, and thence on back through the external conductors to the external power source. This reversed Dirac sea hole current may "eat electrons" in the normal currents

internal to the system, and in the input section and back towards the external power supply it will "eat input electrons in the input current."

Thus the Dirac sea hole current in the $COP > 1.0$ system "eats input power" and serves as a curious new kind of electrical "load" or "internal loss" in the **input** section of the system. The reversed Dirac sea hole current is nature's way of decaying the local curvature of spacetime back to a flat spacetime, and decaying the $COP > 1.0$ excited system disequilibrium state back **to an** equilibrium state. In any overunity electrical power system, this

Dirac sea hole current must be taken into account and either transduced into useful power, minimized, or eliminated. An extension to gauge field theory is needed in which the tempic force, the tempic potentials and their gradients, and the supersystem are all modeled and taken into account. It appears that the Sachs unified field theory is capable of handling that **requirement**, which also can be accommodated by $O(3)$ electrodynamics to provide engineering of the resulting unified field theory.

gauge transformation (in electromagnetics): Conventionally taken to be the **addition** of the gradient of some function of space and time to the

magnetic vector potential—and simultaneously the addition of the negative of the partial derivative of the same function with respect to time, divided by the speed of light, to the electric scalar potential. The resulting **symmetrical** change assumes that the stress energy of the system is changed **freely**, but by design it deliberately prevents any stress difference in the system to produce a net force that could expend the free change of energy by doing work in an external load. Changing the stress energy alone is a curvature of spacetime and a purely gravitational change. It is also a **rotation** of the frame of the system away from the laboratory frame. See discussion under gauge theory.

general theory of relativity: Einstein's theory of gravity in which the gravitational force is represented by a curvature in spacetime, and in which spacetime is an active entity. We may look at all forces as being due to curvatures of spacetime interacting with mass.

geometric phase: A phase difference acquired by the state function of a quantum system that undergoes a cyclic evolution from an initial state and back. This phase difference can be detected by interfering the final and initial **states**. The modern generalization of the Aharonov-Bohm effect and the Berry phase.

giant negentropy (of the dipole): The continuous receipt from the time domain of **spacetime** (the vacuum), by one charge of any dipolarity (including a single charge's fundamental dipolarity), of enormous

longitudinal EM wave energy flow in condensed time energy form, transduction of that absorbed energy from the complex plane into real 3-space, and continuous emission of that enormous energy flow in all directions in 3-space, thence receipt of that 3-space energy by the other charge of the dipole or other adjacent dipoles, retransduction of the energy back into time-energy, and re-emission of that energy back into the time domain. This 4-circulation giant negentropy process is evoked and continues automatically and indefinitely after a little energy has been expended to separate the charges and make the source dipole. The EM waves in the input from the time domain and the output in 3-space are perfectly ordered and correlated, which is a giant ordering of the vacuum/spacetime and is thus a giant negentropy. In conventional circuits, the source dipole in the generator or battery, once made, performs this function. Only a minuscule fraction (some 10^{-13} in a nominal case) of the energy pouring out of the generator's or battery's terminals strikes the surface charges of the attached external circuit and is diverged into the conductors as the Poynting component that powers the Drude electrons and the circuit. All the rest of the energy flow (the Heaviside nondiverged component) outside the circuit is just wasted by conventional circuits.

gluon: A particle that carries the forces between quarks. In quantum chromodynamics, the gluon plays a role analogous to the photon in quantum electrodynamics.

graviton: In the quantum theory of gravitation, the graviton is the quantum of the gravitational field. It is massless, with spin 2. In the new theory we may take the graviton as a coupled scalar and longitudinal photon pair.

gravity: The phenomenon characterized by the physical attraction between any two material bodies of positive mass, specifically due to the trapped positive energy in the masses. If one particle is of negative mass and energy, the normal gravitational attraction between the two particles is reversed so that they repel, which produces antigravity. The fundamental mechanism of gravity can be found once one realizes that Maxwell omitted the incoming EM wave interaction with the nucleus, and not with just the electron shells. When he wrote his theory, the electron, atom, neutron, proton, and neutron had not been discovered yet. The lateral precession movement of the spinning Drude electrons — which are restrained *longitudinally* to a very small drift velocity in detecting wires (antennas) — later came to be considered proof of Maxwell's transverse EM wave in the vacuum. The detected electron precession wave is oscillating laterally, hence proves the longitudinal EM wave interaction. Elsewhere we have

pointed out that the EM wave in space is longitudinal EM wave accompanied by a corresponding time-polarized (scalar) EM wave, and it also follows from Whittaker's 1903 paper as reinterpreted by the present author in our Giant Negentropy paper.

gross particle translation: Refers to translating the entire particle — and its internal structures and dynamics — in space, rather than internally structuring the particle's potential (massless charge). Note that, if the internal structuring (engines) of the particle is changed during translation (e.g., by passing through a region of the flat spacetime having an altered internal engine structure), the particle may have an anomalous interaction with another particle or process having a different internal structure or "dimensioning." The mass-energy comprising the particle's nucleus, electron shells, etc. can be dimensioned. Mass so dimensioned or conditioned then may act differently in chemical reactions, effects on living systems, etc. than normal "inert" mass that has no specific deterministic dimensioning.

group: A mathematical structure that is a complete set of transformations on a mathematical entity that leaves the entity unchanged.

group, higher symmetry: In a given theoretical area, a particular theory can be expressed in various group transformations. When the group transformation (group symmetry) utilized is more complex than the "standard" group symmetry usually employed, it is referred to as a *higher* group symmetry. The mathematics of the model is then said to be a higher group symmetry mathematics. Since the groups have names such as $U(1)$, $SU(2)$, $O(3)$, etc., the transformations of the mathematics are often referred to by **those** names. Hence characterizing phrases are used such as $U(1)$ symmetry electrodynamics, $SU(2)$ symmetry electrodynamics, $O(3)$ symmetry electrodynamics, etc.

group, Lie: A group whose transformations act continuously. An example of a Lie group is given by rotations in ordinary space.

group theory: The general mathematics of symmetry transformations; i.e., the **theory** of all transformations that leave the transformed entity or entities unchanged.

gyroelectrons: Spinning electrons considered as gyroscopes during the portion of their spin in 3-space, so that when longitudinally perturbed they can and will laterally precess. Considering (in a gross first order model) the conduction electrons in the Drude gas in a conductor as little gyros, because they are (i) spinning on an axis, (ii) severely restrained in their

ability to move forward longitudinally down the conductor as current, and (iii) much more free to precess laterally in the conductor. Thus when the gyroelectrons in the receiving wire antenna, perturbed by an incoming longitudinal EM wave in the vacuum, are longitudinally perturbed, they precess laterally so that our instruments (which detect electron wiggles, not the incoming vacuum EM wave) do detect "transverse waves." However, they are detecting the transverse gyroelectron precession waves, not the waves in the vacuum. They are detecting the *effect* of the interaction of the incoming waves with the gyroelectrons, not the *cause*.

harmonic series: A set of frequencies or oscillations consisting of integer multiples of a fundamental frequency.

Heaviside, Oliver: Noted English self-taught physicist and brilliant electrodynamicist, 1850-1925. who played a role in discarding Maxwell's quaternions, and also played a role in forming vector mathematics and formulating the vector reduction of Maxwell's theory from 20 quaternion equations in some 20 unknowns to the present 4 vector equations. Heaviside's curtailment of Maxwell's theory still contained both (i) systems in equilibrium with their active environment and (ii) systems in disequilibrium with it. To separate variables and enable closed solutions, *Lorentz* further curtailed the Maxwell-Heaviside equations by symmetrically regauging them, thereby *arbitrarily* discarding all disequilibrium Maxwellian systems and retaining only those in equilibrium with their active environment. This regauging unwittingly and erroneously discarded all that class of Maxwellian systems permitted to exhibit $COP > 1.0$. The first such curtailment of the Maxwell equations was by Ludwig Valentin Lorenz in 1867, but H. A. Lorentz (who did a similar symmetrical regauging nearly decades later) was later given the credit.

Heaviside also discovered the enormous *nondiverged* energy flow surrounding every circuit, far greater in magnitude than the feeble Poynting *diverged* component that actually enters the circuit. But he was at a loss to explain what the source of such a startling flow of energy could be. Lorentz understood the Heaviside component, but also could not understand its source. Hence he reasoned that it "had no physical significance" since it did not power the circuit. Lorentz then introduced the trick of integrating the entire energy flow vector around a closed surface surrounding any volume element of interest. This neatly discards the vexing giant Heaviside *nondiverged* energy flow component, and retains only the *diverged* Poynting component that actually enters the circuit. The latter is of course the energy that will later be *emitted* from the circuit, which is what we will measure when we "measure the circuit."

Electrodynamacists are still using this method of dropping the Heaviside energy flow from any further accounting consideration. Hence they do not develop systems which intentionally increase their energy collection from this readily available energy flow around every circuit. The Bohren experiment conclusively proves the physical existence of the Heaviside nondiverged component, even though it is no longer accounted.

In his last years Heaviside realized the gravitational importance of his extra energy flow component, and worked out an electrogravity theory based on it. He did not live to publish it, but his papers on it were found some time after his death, beneath the floorboards of his little garret apartment. A learned society then published the papers.

Heaviside energy flow component: The enormous *nonintercepted* and *nondiverged* energy flow component pouring out of the terminals of every battery or generator, or charge or dipole, and missing the external circuit (or external intercepting charges) entirely so that it does not contribute to the intercepted (Poynting) flow component that powers the circuit. Also, the enormous energy in the EM field, potential, or wave that misses the interaction of the field, potential, or wave with the assumed unit point static electric charge, and thus is not intercepted and collected (and accounted!) in the unit point static charge assumption. In honor of Heaviside, the present author has nominated this "dark Heaviside energy" component as the missing source of excess gravity known to be holding the arms of the spiral galaxies in place. In the interactions of Dirac hole current with a unit point charge (to determine the negative energy fields and potentials in a $COP > 1.0$ EM system), there is also a missing component of the negative energy flow that is comparable to the Heaviside component for positive energy flow. These flows of surplus negative energy from $COP > 1.0$ astronomical interactions—with the associated negative energy fields and negative energy potentials produced by the **negative-energy** Dirac holes in these negative energy flows—is hypothesized by the present author as producing the antigravity that generates the observed acceleration of the expanding universe.

Hertz, Heinrich: Noted German physicist, 1857-1894, who together with Heaviside and others transformed Maxwell's theory from quaternion algebra to vector algebra, and who also experimentally produced Hertzian (EM) waves, thus confirming Maxwell's theory. These experiments by Hertz first detected EM energy propagating as described by Maxwell's equations, thus providing the experimental impetus that allowed Maxwell's theory to predominate. The oscillation or "cycle" is named after Hertz, by

specifying X number of oscillations or cycles per second as a frequency of X Hertz. One type of potential is also named after him.

hidden bidirectional EM waves: Those bidirectional EM wavepairs that comprise the scalar potential are indeed "hidden" with respect to our normal "electron translation" (i.e., electron wiggle) detectors and instruments. Nonetheless, properly functioning devices such as Fogal's semiconductor allow the utilization, transmission, and reception of the vast longitudinal EM wave dynamics that are infolded inside all conventional EM fields, waves, and potentials, including the giant potential comprising the ambient vacuum (spacetime). Use of this infolded electrodynamics is akin to using "subspace" or higher dimensions, depending upon how one chooses to model it mathematically. It is also a direct method of using a unified field theory.

hidden variable theory: A class of quantum mechanical theories which considers that the quantum state of a physical system is not a complete specification after all. The "hidden variables" are those additional components necessary to provide the "complete state" of the system. By utilizing the infolded longitudinal EM wave electrodynamics, one is in fact using a macroscopic hidden variable theory. This becomes a subset of Evans' $O(3)$ electrodynamics, which in turn is an important subset of Sachs' unified field theory. Sachs' theory encompasses and subsumes electrodynamics, general relativity, quantum mechanics, etc., so the use of this macroscopic hidden variable theory through special functions provided by components such as Fogal semiconductors is a powerful and directly engineerable extension of conventional hidden variable theory. The physics of this new, engineerable, unified field theory area is also called *energetics*.

hole, lattice: Vacancy, in an otherwise filled energy band position. Sometimes called *negative ion vacancy*. In a semiconductor, an electron may be lifted to the conduction band by thermal energy, which produces a hole-electron pair (an exciton). Also, one of the sites in the crystal lattice can be occupied by an acceptor impurity atom, so that the electron is accepted there, leaving a hole showing excess positive charge. This is a lattice hole, and the propagation of such holes being formed is called electron hole current, or hole current for short. We point out that the *lattice hole* exists only after interaction of the Dirac sea vacuum hole with matter. i.e., only after observation. In that case, the 3-positron (hole) has positive mass and positive energy, produces positive energy fields and potentials, produces gravity rather than antigravity, and is "seen" to be going in the opposite direction to the Dirac sea hole. Prior to observation, the hole is a

Dirac 4-hole in vacuum, having negative energy and therefore negative mass equivalence, negative charge, and without a direction reversal. This 4-hole is a source of negative energy fields and negative energy potentials in the surrounding space, and thus of antigravity back-interaction (upon the physical system connected with the active vacuum component of its supersystem) due to the negative curvature of the local spacetime.

hole, Dirac sea: In the presence of fields (i.e., in the presence of curved spacetime), some of the negative energy states in the Dirac sea are not filled with electrons. In that case there are some empty 4-holes in the Dirac sea, in local spacetime itself. The Dirac hole is a negative energy state in the vacuum itself. It too *seemingly* has a positive charge, as seen by the external observer after interaction with matter. Holes are also mathematically equivalent to positrons, in case observation has been evoked, so long as the lack of positive mass is not a consideration. Note that our view differs from the received view, but is based on experimental evidence which can only be gained from COP $\gg 1.0$ EM system experiments. We know of no such COP $\gg 1.0$ EM system experiments involved in the received view.

hole current: (1) In a semiconductor: Usually, the part of the current in a semiconductor that is composed of migration of lattice holes.

Mathematically, within certain constraints this may be considered a positron current. The hole migration is usually slower than the electron migration producing electron current. (2) In the vacuum itself. In the *Dirac sea*, in the presence of fields the Dirac 4-holes flow in the opposite direction to the local electron current, providing a Dirac sea hole current or positron current. [See discussion under hole.] An electrical power system in disequilibrium with its vacuum interchange and having COP > 1.0 , will have a **greater tempic potential** at its output section than at its input section. Thus it will have a tempic force or tempic broom, sweeping holes from local instabilities to form a hole current (may be both a Dirac sea hole current and a lattice hole current) flowing from the output section of the system back through the system into the input section, and on out of the input section into the primary power source. *Hole current transduction may be used to convert this detrimental hole current energy transport into usable electron current energy transport, or anti-circuit techniques and mechanisms can be used.*

hole current transduction: Hole current in a COP > 1.0 open system, where the system is in disequilibrium with the vacuum *a priori*, is usually detrimental to the system and may destroy the overunity condition. A hole current from the input section of the system, fed back into the primary

power supply, requires that extra electron current be furnished since some of the electrons in that furnished current will recombine with the oppositely moving Dirac vacuum holes and disappear to fill those holes. Hole current into a battery in "normal" fashion discharges the battery rather than charges it (although reversing the battery terminal connections allows charging in normal fashion using the hole current). Thus a battery can be discharged "far below zero", so to speak, by charging it with excess holes in the "normal connection." A capacitor may be charged with hole current, in which case the dielectric will undergo compressive strain into the positron-charged plate. However, when the capacitor is subsequently discharged, the dielectric will expand and recover, with its electron charges pushing electrons out of the negative side plate and into the external circuit. Hence a capacitor can be *charged* with positron (hole) current, and then can be adroitly switched so as to *discharge* electron current. In theory so can a battery because of its capacitance. This is a transduction of entropy to negentropy, a process for which a patent application has been filed by Bedini and Bearden. Gauge freedom already permits that operation, since gauging in electromagnetic systems is freely changing the local potential energy of the system, and is either negentropic (increasing the system's energy) or entropic (decreasing the system's potential energy).

hole injection: In an n-type semiconductor, holes can be emitted by applying a metallic point to the semiconductor's surface. We suspect (but have not proved) that sharp gradient pulses may also induce some of these holes as Dirac sea 4-holes and Dirac sea hole current rather than positron and lattice holes current. In that case, a mix of positive energy and negative energy (and gravity and antigravity) would be produced.

hole trap: An impurity in a semiconductor that can trap a "hole" by releasing electrons to the conduction or valence band.

hyperspace: Refers to a space of more than four dimensions, and specifically to those spatial dimensions outside the normal three. The term is used for both a space of n dimensions, where $n > 4$, or for one dimension in such a space, beyond the normal four.

identity of opposites: On the boundary between A and not- A , A and not- A are identical (i.e., no difference can be discriminated). If all of a thing is collected, one reaches the boundary of that thing and it turns into its own opposite. The philosopher's problem of the "accursed necessity for the identity of opposites" cannot be solved in Aristotelian 3-law logic, since that logic is incomplete. It is readily solved, and part of, a more extended

logic such as 5-law logic. The result is that "identity" is not an absolute entity, but is a decision by the observer reached by application of a comparison algorithm to separate observations made at differing times. An example is provided by a colorblind observer who sees as identical two marbles which, to an observer with color vision, are seen as red and black and therefore not identical. Aristotelian logic omits the action by the observer, the times of the multiple observations (only a single thing at a time is observed or perceived, *apriori*), and the decision algorithm used by the observer to decide whether two observations are identical or not identical.

inertial frame: A frame of reference in which force-free bodies move along straight lines, and the postulates of special relativity are valid. In the new **approach**, this notion is extended. Even in an inertial frame, force-free **bodies** may move along straight lines, the postulates of special relativity may remain valid, and yet the EM hidden variables may induce other **changes** in the usual laws of nature due to the action of hidden vacuum engines infolded in the *dimensioned* local flat spacetime (vacuum **potential**). See Einstein's second postulate extended.

infolded real vector components: Simply take a set of real force vectors that altogether sum to a vector zero resultant. This "vector zero system" is a zero vector with respect to forced *translation* of a particle or mass. It is not an absence of the vectors at all, but is the presence of specifically hidden and "infolded" real vectors that do not initiate bulk translation of the **affected** object or system, but perform *internal* work upon the system. Such vector systems are stressing systems of a special kind, where the internal components of the stress are not random but deterministic. Hence they are electrodynamic *engines*, in the new approach. To a somewhat arrogant mathematical scientist who once objected that zero vector resultant systems had no effect, I humorously challenged him to put it to experimental test. I suggested he stand between two elephants pushing against him in opposite directions, while I would stand between two fleas doing the same to me, and we would compare notes. He apparently was not amused at the suggestion.

infolding: With reference to signals, infolding means "placing the signal **or modulation** or change upon one or more of the internal bidirectional wave **pairs** comprising the scalar potential. Since all EM potentials ultimately represent changes to the ambient vacuum potential, one has conditioned or altered the vacuum itself when infolding is utilized, infolding of EM signals, vectors, and directions produces *engines*. By Whittaker's decomposition of the potential and Bearden's reinterpretation,

these vacuum engines can be designed to affect matter — including atomic nuclei, nucleons, etc. — in any manner desired.

information content of the field: Russian euphemism for the deliberate structuring of the hidden longitudinal EM waves and their dynamics, that comprise any EM potential, field, or wave, so that the potential, field, or wave is *dimensioned* and contains active *engines*. This area was extensively weaponized under KGB (now changed in name) control rather than the regular Russian armed forces, and a disinformation campaign was waged to convince Western analysts that the term refers to simple spectral analysis. It doesn't. Instead, it refers to infolding and unfolding, and the use of longitudinal EM waves, dimensioning, and engines. The overall science is called "energetics" by those weapon scientists.

interferometer: An instrument or system in which a wave is split into two waves or beams, which after traveling over different paths are subsequently reunited and interfere. The use of longitudinal EM waves (LWs) allows ready penetration of mass by the LWs traveling through the interior Whittaker composition of a mass's internal EM fields, waves, and potentials. Longitudinal EM wave interferometers should prove useful in probing the interior of planets, the sun, etc. They pass easily through the earth, so that interferometry can be obtained at targets on the opposite side of the earth, or inside the earth. These are the weapons that then Secretary of Defense Cohen referred to in 1997 as being used to engineer the weather, initiate volcanoes into eruption, or initiate earthquakes.

Josephson effect: Flow of Cooper pairs (superconducting electron pairs) across a thin dielectric separating two superconducting electrons, in the absence of a voltage drop. E.g., the pair of electrons can "tunnel" through a thin insulating barrier.

joule: A measure of energy; one watt for one second in electrical terms. In physics the unit of work or energy in the MKS system, being the amount of work done by one newton acting through a distance of one meter, equal to 10,000,000 ergs.

Kirchhoff's current law: At any time, the sum of the instantaneous currents flowing into a node or point in a circuit equals the sum of the instantaneous currents flowing out of that node or point. This does not have to be true if (1) relativistic effects are appreciable, or (2) electron production and annihilation processes — such as Dirac sea hole current, lattice hole current and recombinations are occurring and non negligible, (3) the Kron open path is being used, or (4) localized time reversal zones (TRZs) are utilized. Another way of stating where the law need not hold is

when there are nonlinear interactions between the three components of the superset (the physical system and its dynamics, the active vacuum and its dynamics, and spacetime and its curvature dynamics.).

Kirchhoff's voltage law: At any time, the sum of all voltage rises in a closed loop circuit equals the sum of all drops in that closed loop circuit. The law assumes a flat spacetime. This does not have to be true if relativistic effects are appreciable, if true negative resistor effects are present, if Kron open paths are utilized, and if time-reversal effects are present. It also need not be true in anti-circuit techniques, or when they are involved in a particular portion of an otherwise normal circuit.

Lamb, Willis Eugene Jr.: American physicist and Nobelist who discovered the hyperfine structure of the hydrogen spectrum, and first measured the interaction of the vacuum energy that generates a change in the energy levels of the hydrogen atom, according to Dirac's theory and quantumelectrodynamics.

Lamb shift: A very small correction to the first excited state of the hydrogen atom due to interaction of the vacuum. Willis Lamb experimentally confirmed this prediction of quantum electrodynamics to high accuracy. The local energy density of the little Lamb shift is greater than the surface energy density of the sun. However, in matter there are such a vast number of similar small interactions generating very powerful fields randomly, that the sum total of all these changes sums to a vector zero for most summation distances of interest.

lamellar current: Thin layers of current; thin sheets of current.

laser: A device that generates light in which all the photons are exactly in step and produce a coherent beam. Originally the word "laser" was an acronym that stood for "light amplification by stimulated emission of radiation."

law of physics: A restriction placed upon the physical mechanisms that can occur under certain broad assumptions as to the background situation and environment. Because of the assumptions made, an expressed law of physics is not absolute, but relative to the assumed conditions. Any "law of physics" can be violated if the conditions contained in its assumptions are violated. It is important that a scientist be aware that physics is comprised of models and the "laws of physics" are very general and wide-ranging models based on very specific assumptions. Further, by Godel's theorem and the theory of models, no model is perfect anyway, and none will ever be. When one assumes that physical laws are not based on any

assumptions but are universal and absolute truths, one has immediately moved to dogma and not science.

Lawandy patents: Patents covering and related to a form of anti-Stokes emission (excess emission of energy) in strongly scattering, optically active media such as TiO_2 particles in suspension. This is a new form of lasing, without the requirement for population inversion.

Letokhov, V. S.: Russian pioneer in excess emission phenomena from stimulated media.

Letokhov effect: The excess emission (excess emission of energy) phenomena in strongly scattering, optically active media, usually referred to as "negative absorption of the medium." See particularly V. S. Letokhov, "Laser Maxwell's Demon," *Contemporary Physics*, 36(4), 1995, p. 235-243.

localized: Confined to a small region of a large system rather than being extended through the system or at a distance.

localized virtual photon flux of vacuum: Refers first to a local region of the vacuum, and then to the flux density of virtual photons in that local region. If that flux is deterministically structured, then the local region also contains an *engine* that will act internally upon masses and mass systems in that region. The local region also contains hidden variables.

longitudinal component: In EM fields, the longitudinal component of the fields along the direction of travel, as opposed to the transverse components at right angles to the direction of travel.

longitudinal E-field: Any electrical field in 3-space may be described using two components, a transverse component and a longitudinal component. Of course one or the other may be a vector zero. In 4-space, there is a time component also, as an additional "transverse" component.

longitudinal gradient: Compression wave gradients (differences) in density or pressure, considered in a direction from their origin along the direction of primary movement in the medium. Contrast to transverse waves, which act perpendicular to their direction of propagation. In electrodynamics, longitudinal EM waves in 3-space are said to be "longitudinally polarized." Longitudinal EM waves in the time-domain are said to be "time polarized." The latter are also referred to as "scalar waves" since they have no polarization vector component in 3-space and thus are "scalar" with respect to 3-space. This is a misnomer, however, since these "scalar waves" are perfectly good time-polarized EM longitudinal vector

waves. For the first time, the giant negentropy process allows one to make and use time-polarized EM waves, since they automatically accompany all longitudinally polarized EM waves and it is straightforward to make longitudinal EM waves in 3-space (just oscillate the Lorentz gauge condition).

longitudinal interior wave: An infolded longitudinal gradient that oscillates in magnitude along the line of travel "inside the vacuum potential or a normal potential." In conventional theory, the electric portion of the EM wave is a transverse field oscillation, and the longitudinal component is essentially zero. In the new "infolded" wave approach, there is no overall transverse gradient in the vacuum potential, but there are such longitudinal waves. This is rather like a "pressure wave" transmitted underwater, without causing a surface wave involving physical upheaval and fall-off of the water. The speed of the longitudinal EM wave is not limited to c , the speed of transverse EM wave light in the ambient vacuum..

longitudinal wave: A "pressure" type of wave, similar to sound, in which the vibrations are along the direction of travel of the wave. Hence, a wave composed of alternating densifications and rarefactions, where we focus upon the longitudinal component of the changes. One can think of it as a sort of "accordion" wave, rhythmically shrinking and stretching along the line of motion as it travels. Note that rhythmically and symmetrically varying the two potentials involved in regauging creates longitudinal EM waves. So one pseudonym for longitudinal EM waves is "gauge oscillation" waves. Matter is mostly empty space filled with EM potentials, fields, and waves—all of which are bundles of longitudinal EM waves and their functional dynamics. Hence matter (such as the ocean and the earth) is a vast superhighway for the passage of longitudinal EM waves. Note that the longitudinal wave represents an oscillating energy density in space and/or time (scalar waves), and hence is an oscillating curvature of spacetime. All forces of nature are generated by curvatures of spacetime. Hence all forces of nature can be generated by the correct generation of longitudinal EM waves and their impressed dynamics. Further, this means that all the physical *causal* functions of the exhibited **effects generated** in a material system can be captured in longitudinal EM wavesets. A longitudinal wave functional system deliberately having such causal functions of a physical functioning system is known as a causal **system robot** (CASR). Such robots are far beyond the presently developing nanobots, and have been developed rather extensively by at least one nation. Such robots can easily pass through the "interior" of any normal

EM signal or wave or potential or field, which again is nothing but a giant superhighway for longitudinal EM waves. In theory one can communicate with a CASR via longitudinal EM waves if communications functions are built in to the CASR. In the future, one would expect that planetary exploration, underground and undersea exploration, exploration of the interiors of the sun, moon, and planets, could be enabled by the further development of specialized CASRs.

Lorentz, Hendrik Antoon: Renowned Dutch physicist and Nobelist. 1853-1928, who developed the Lorentz transformations and Fitzgerald-Lorentz contraction. Lorentz shared the Nobel Prize for discovering the Zeeman effect. He is also responsible for symmetrically regauging Maxwell's equations (some time after Lorentz did it in 1867), and for introducing an integration trick that neatly disposes of the vexing huge Heaviside nondiverged energy flow component accompanying every field/charge and potential/charge interaction.

Lorentz invariance principle: An inertial frame is independent of the velocity of the frame relative to any other inertial frame. This is not necessarily true with respect to engines inside inertial frame objects, since the engines involve acceleration dynamics.

Lorentz regauging: Changing the two potentials in the Maxwell-Heaviside equations in potential form so that the resulting equations have the variables separated, and there is no net force introduced by the two new forces, which are deliberately chosen so as to be equal and opposite and thus sum to zero. An unfortunate effect is that this discards all Maxwellian systems far from equilibrium in their vacuum exchange, hence discards all permissible Maxwellian $COP > 1.0$ systems. Electrodynamacists have not recognized that Lorentz regauging represents the addition of stress potential energy and continuous internal work and stress to a regauged system. It also represents a rotation of the frame of that system out of the laboratory frame by some angle. Further, oscillating the Lorentz regauging condition produces longitudinal EM wave generation and emission.

Lorentz symmetry: The symmetrical regauging by Lorentz of Maxwell's equations.

Lorentz, Ludwig Valentin: Scientist who first changed Maxwell's equations — two years after their publication in 1865 — by (effectively) symmetrically regauging them, thereby unwittingly discarding all Maxwellian systems far from thermodynamic equilibrium with the active vacuum. See L. V. Lorentz, "On the identity of the vibrations of light with

electrical currents," *Philosophical Magazine*, Vol. 34, 1867, p. 287-301. In this paper [L. V.] Lorentz gave essentially what today is called the [H. A.]

Lorentz symmetrical regauging. When H.A. Lorentz also symmetrically **regauged** the Maxwell-Heaviside equations, the physics community **adopted** the procedure and resulting further truncation of the Maxwellian theory. That truncation continues to this day.

low energy **nuclear reaction** (LENR): Actually a bit of a misnomer, since it refers to a low *spatial* energy, high *time* energy reaction. Cold fusion, or the anomalous transmutations of elements that occur in certain electrolytes with specially prepared palladium electrodes. The transmutations occur even though in conventional theory there is insufficient *spatial* energy to accomplish them, because they use time energy. Time energy is spatial EM **energy** compacted by the factor c^2 , hence time has the same energy density as mass. The formation of temporary, fleeting time reversal zones (TRZs), with action from from inside-to-outside, is the genesis of a host of new nuclear reactions missing from conventional particle physics since the physicists do not account time as energy, and do not use such TRZs. For more on this hypothesis and the specific reactions generated, see T.E. Bearden, "EM Corrections Enabling a Practical Unified Field Theory with Emphasis on Time-Charging Interactions of Longitudinal EM Waves," *Journal of New Energy*, 3(2/3), 1998, p. 12-28 as well as Chapter 10 of the present book.

magnetic dipole: Paired north and south magnetic poles of equal strength ever microscopic or macroscopic distance.

magnetic induction: The act of a change in magnetic field producing an electric field at right angles, which in turn produces an electron flow.

magnetic spin: The intrinsic angular momentum, known as spin, of electrons, protons, and neutrons, etc. The electrons combined in an atom or ion have a resultant angular momentum that is the combined intrinsic spin of the electrons and the angular momentum due to their motion around the nucleus. There is also a magnetic moment associated with this angular momentum (spin) whenever it is nonzero. Therefore atoms or ions with nonzero spin are *magnetic* atoms or ions. This is often loosely referred to as "magnetic spin." It is actually the magnetic moment of nonzero spin.

magnetostatic scalar potential: Continuous mathematical function whose value in space, at any point it occupies, represents the potential energy collected upon an assumed unit magnetic north-seeking charge (pole).

There is a magnetostatic scalar potential between the poles of any magnet.

This scalar potential is **also** subject to **Whittaker's** 1903 decomposition into

a harmonic series of magnetic longitudinal phase conjugate wavepairs. Reinterpretation of Whittaker's wavepairs should be made according to Bearden, "Giant Negentropy of the Common Dipole," *J. New Energy*, 5(10, Summer 2000, p. 11-23. This reinterpretation agrees with quantum field theory; see Mandl and Shaw, *Quantum Field Theory*, Revised Edition, Wiley, 1993, Chapter 5.

matter: Highly condensed 3-spatial energy, compressed by factor c^2 and remaining in 3-space, and with the observation process d/dt having been applied to the fundamental masstime entity to provide mass as a frozen 3-space snapshot by stopping the flow of time momentarily. Matter, of course, has internal structure, order and organization, and dynamics. All matter is in a continuous energetic exchange with its active vacuum (4-spatial) environment. Matter stripped of its EM fields, waves, and potentials is called mass. Mass is an observable and therefore a frozen series of continual 3-space snapshots, formed by incessant photon absorption to change the mass m to masstime mt , with following incessant photon emission to change masstime mt back to mass m .

Maxwell, James Clerk: Brilliant Scottish scientist, 1831-1873, who first formulated the unified theory of electricity and magnetism. See *The Scientific Papers of James Clerk Maxwell*, 2 vols. bound as one, edited by W. D. Niven, Dover, New York, 1952, Vol. 1, p. 526-597 for his definitive paper, "A Dynamical Theory of the Electromagnetic Field," first published in *Royal Society Transactions*, Vol. CLV, 1865. In that paper, (see Niven's book) his general equations of the electromagnetic field are given in Vol. 1, Part III, "General Equations of the Electromagnetic Field," p. 554-561. On p. 561, he lists his 20 variables. On p. 562, he summarizes the different subjects of the 20 equations, being three equations each for magnetic force, electric currents, electromotive force, electric elasticity, electric resistance, total currents; and one equation each for free electricity and continuity.

Maxwell's famous book, *A Treatise on Electricity and Magnetism*, Oxford University Press, Oxford, 1873, Second Edition 1881 (Maxwell was already deceased), Third Edition, Volumes 1 and 2, 1891. Foreword to the second edition was by Niven, who finished the work. Maxwell had dramatically rewritten the first nine chapters to simplify his mathematics because of the resistance to it, with much new matter added and the former contents rearranged and simplified. Maxwell died before finishing the rest of the second edition. The rest of the second edition is therefore largely a reprint from the first edition. The third edition edited by J. J. Thomson was published in 1892, by Oxford University Press, and later was published unabridged by Dover Publications, New York, 1954. J. J. Thomson

finished the publication of the third edition, and wrote a "Supplementary Volume" with his notes. A summary of Maxwell's simplified equations are given in Vol. II, Chapter IX of the third edition. However, Maxwell had gone (in his second edition) to some pains to reduce the quaternion expressions himself, and not require the students to know the calculus of quaternions (so stated on p. 257). We note that Maxwell did not finish the second edition, but died before that. He actually had no hand at all in the third edition as to any changes. The Second edition was later finished by Niven by simply adding the remaining material from the previous first edition approved by Maxwell. The printing of the first nine chapters of the third edition was already underway when J. J. Thomson was assigned to finish the editing of the manuscript.

Maxwell's work profoundly affected the course of science and the course of human history. Maxwell, Heaviside, Hertz, Gibbs, Lorentz and others participated in dramatically curtailing Maxwell's original 1865 quaternion theory to the much more limited subset that it is today. Since the early part of the 20th century, work has slowly been ongoing to move EM theory back to a higher group symmetry theory, which ironically it already was when Maxwell first created it.

Maxwell's electrodynamics: Simply put, Maxwell's theory of electrodynamics consists of Maxwell's equations. His fundamental theory consisted of some 20 quaternion equations in 20 unknowns, appearing in his 1865 paper. After Maxwell's death and some curtailment by Maxwell himself, Heaviside modified and sharply curtailed these equations, into the familiar four equations of today, as did Gibbs and Hertz. Lorentz further curtailed the Maxwell-Heaviside equations, by symmetrically regauging them. This simplified their mathematical solution, but it also inadvertently and arbitrarily discarded all open Maxwell systems far from thermodynamic equilibrium with their active environment (such as the modern active vacuum). See James Clerk Maxwell.

Maxwell's Theory, fluid dynamics analogy: *Considering and adapting the fluid analogy approach of James Clerk Maxwell:* The intensity of the vacuum virtual particle flux may be treated as the intensity of a potential, thus by analogy corresponding to pressure in a fluid. Polarity (charge) is a **process** for establishing a change in the intensity of the vacuum potential - and **thus** a change in the ambient pressure of the vacuum fluid.

Diffence between vacuum pressures at two separated points creates a force **upon** any charge placed between those two points. Just as a differential in pressure between points in a fluid induces currents, a differential in vacuum pressure induces energy flow currents in the

vacuum fluid, which are called 'fields'. All EM circuits, charges, potentials, and forces in electrodynamics involve altering the vacuum to include altering its pressure and thereby producing the forces the resulting pressure gradients (fields) induce upon charges. All observable EM energy in space is EM energy intercepted and collected on charges, or assumed to be, and the spatial EM energy comes from the vacuum via these fundamental vacuum-engineering dynamics which all involve the giant negentropy 4-circulation between the time domain and 3-space.

Michelson, Albert Abraham: German-born American physicist, 1852-1931, who invented an interferometer (Michelson interferometer) named after him. Michelson used his interferometer in a renowned experiment in the 1880s designed to measure the velocity of the earth through the ether, which would produce a shift in his interferometer pattern. No such shift was observed, which indicated the absence of an ether wind and was largely responsible for the downfall of the concept of the material ether that had been previously assumed, including by Maxwell.

motionless electromagnetic generator (MEG): Transformer-like $COP > 1.0$ electrical power generator invented by Patrick, Bearden, Kenny, Hayes, and Moore, "Motionless Electromagnetic Generator," U.S. Patent # 6,362,718, Mar. 26, 2002. A second patent application is processing and several more are in preparation. In particle physics, any dipole (including a permanent magnet) is a known asymmetry in the fierce vacuum flux, continuously pouring out real EM energy extracted from the vacuum. The MEG continuously powers its transformer section core with a permanent magnet dipole, more than doubling the EM energy made available from the active vacuum via the permanent magnet dipole's broken symmetry in its exchange with the vacuum. [See M. W. Evans, P. K. Anastasovski, T. E. Bearden et al., "Explanation of the Motionless Electromagnetic Generator with $O(3)$ Electrodynamics," *Found. Phys. Lett.*, 14(1), Feb. 2001, p. 87-94; "Explanation of the Motionless Electromagnetic Generator with the Sachs Theory of Electrodynamics," *Found. Phys. Lett.*, 14(4), Aug. 2001, p. 387-393]. The MEG nanocrystalline core material extracts the magnetic field B of the permanent magnet from the surrounding space and localizes it in the core material. The active vacuum asymmetry freely replenishes the withdrawn magnetic B -field energy in space surrounding the core, but with uncurled magnetic vector potential A rather than magnetic field B . This is an application of *geometric phase*, specifically the well known *Aharonov-Bohm effect*, with several thousand papers in the literature. The MEG then transduces and outputs magnetic B -field energy inside the core material and some of the field-free magnetic vector potential A energy in

space surrounding the core, effectively having available more than double the energy being made available from the permanent magnet, or normally available to a transformer. The output power of the MEG is a function of (i) the time rate of change of a small amount of input EM perturbation energy to the input coil, plus (ii) the intercepting and collecting secondary charges available in the secondary coil, (iii) additional energy from chaotic oscillations, (iv), sophisticated feedforward and feedback regenerative self-oscillations, and (v) the geometric phase (Aharonov-Bohm effect). It thus **is** a rigorous practical application of the geometric phase effect to a **macroscopic** power system, and in fact is the first such application in practical electrical power systems. The noted feature of the MEG is a purely electrical interaction in the output coils, in which the voltage and energy are in phase within 2° , differing from all other transformer-like systems. Thus the MEG directly delivers real power rather than apparent power. See Aharonov-Bohm effect.

multicollection (of energy): Multiple collection and re-collection in a circuit of the same energy flow from a source dipole, by rerouting either (1) the dissipated Poynting energy back around to the collectors for another pass by them, with additional collection, or (2) retroreflecting the nondiverged Heaviside EM energy flow component back and forth across the **surface** charges in the circuit conductors, iteratively diverging additional energy into the conductors to potentialize and power the Drude electrons, or (3) a combination of the two. The interesting point is that this effect **can** "use" the same energy to do repeated work, multiple times. It takes **advantage** of the fact that work is merely the change of form of energy, and that the new form can again be changed (as for example, back into the **first** form again) to do additional work, again and again so long as the **energy** in each transformation is held in the system without escaping. This process permissibly violates classical equilibrium thermodynamics and its **infamous** second law, since it is an open system freely receiving excess **energy** from its active environment and thus far from equilibrium with that active environment. As is well known, such systems are permitted to exhibit $COP > 1.0$ and even self-powering of the system and its load simultaneously.

negative absorption of the medium: Excess emission from an active medium, as in the Letokhov work and in Bohren's experiment. The excess energy is first absorbed from the vacuum interaction (actually from Heaviside's unaccounted energy flow component that usually does not interact with the system), and then it is re-emitted. This is actually a true "Maxwell's demon," as pointed out by Letokhov.

negative resistor: Any component or function or process in an EM system that freely receives energy from outside the system in unusable or disordered form within the system, transduces that energy into usable form, and outputs it so that it can do useful work. In a *true* negative resistor, that is the *net* function performed. We specifically do not include "differential" negative resistors such as the tunnel diode, thyristor, and magnetron, which dissipate and disorder more energy from the system itself, overall, than the fraction that they order and furnish back to the system in their negative resistance regime. In anti-circuits, true negative resistors are quite natural components. Every charge and dipole in the universe is already just such a negative resistor, freely extracting unusable EM energy from the seething vacuum, transducing it, and continuously pouring out real observable EM energy in all directions in 3-space. A negative resistor can produce the five magic functions: (i) self-ordering, (ii) self oscillation or self-rotation, (iii) output more energy than the operator inputs, (iv) power itself and its load freely, and (v) exhibit negentropy. The condition for self-powering of a system containing a true negative resistor was given by Gabriel Kron.

negentropic: Functioning to produce or involve negentropy; reordering previously scattered energy without requiring the operator to input energy to perform the reordering. A simple example is passive retroreflection of radially scattered EM energy. The conventionally unaccounted enormous and nondiverged Heaviside energy flow component surrounding every circuit and every field/charge interaction is an example of a dynamically reordered and organized energetic vacuum, and thus an example of a **giant** negentropy process. The continuous observable EM energy freely pouring at the speed of light from every dipole and charge in the universe is also **an** example of the giant negentropy process.

negentropic engineering: Expending a little bit of energy to form a dipolarity, and then intercepting, collecting, and using some of the enormous EM energy freely and continuously extracted by the dipolarity from the vacuum, indefinitely, without using any of the extracted EM energy to scatter the charges in the dipole and destroy it. Retaining the dipole intact avoids shutting off the furnishing of copious free energy **flow** from the vacuum to the attached external circuit. As an analogy, it allows an electrical windmill operating in (driven by) a free electrical wind from the external environment of the system.

Newtonian recoil: Newton's third law reaction from the affected entity back to and upon the effecting entity. The "action" is the action from **the** effecting entity upon the affected entity. The "reaction" is the action from

the affected entity back upon the effecting entity. Newton's third law actually implies that the cause interacts upon the effect and the effect reacts equally back upon the cause, thus producing a strange kind of equilibrium. In a time-reversal zone, the "recoil" is reversed in direction by parity reversal. Tentatively, one may interpret from pumped phase conjugation that the Newtonian third law reaction of one single acting force can be amplified by properly directing the actions of other acting forces. An interesting aspect is that a pumped phase conjugate mirror does not recoil, no matter how powerfully it is pumped or how powerfully amplified is the emitted phase conjugate replica wave.

Newton's third law: For every action there is an opposite and equal reaction. This law should be extended and restated something like this: "for every action there is an opposite and equal reaction if the causative mechanism of the reaction is allowed to occur without interference and is not first redirected away from its target." An example of a violation of Newton's third law as usually stated is provided by the emission of a phase conjugate replica (PCR) wave from a phase conjugate mirror material. No matter how powerfully pumped, the PCM does not recoil by the emission of the PCR wave. The reason is that the antiwave cause of Newtonian third law recoil was intercepted by nonlinear multiwave interaction (wave-to-wave **interaction**) before reaching its target nuclei and interacting with them, and was diverted away from the atom and on out of the phase conjugate mirror material. Since the causative mechanism for Newtonian recoil did not occur on the mass of the mirror, the mirror did not recoil. We also point out that, if Newton's third law is indeed engineerable and controllable, then $COP > 1.0$ systems and self-powering EM systems are permissible a priori. In electrical system terms, this simply means that, if one can rid the system of its equal back emf or back mmf, the system can be **legitimately** self-powering because it no longer self-enforces the Lorenz-Lorentz symmetrical regauging condition.

non-Abelian electrodynamics: A electrodynamics based on a group theory in which the group operation is not commutative and hence not Abelian in nature. Contrast to an Abelian group in which the group operation is commutative.

nonequilibrium thermodynamics: Colloquial term referring to the newer **thermodynamics** of self-organizing systems and structures, far from equilibrium in their energetic exchange with their active environment. Since the **1960s**, there has emerged in physics (and in thermodynamics!) this surprising new area: the physics of far-from-equilibrium systems and the self-organization and large-scale ordering of such systems. The

equilibrium conventionally referred to is 3-space equilibrium, with no consideration of temporal equilibrium, although some pioneers of the field such as Prigogine are quite aware of the temporal disequilibrium also involved. Note that such "3-disequilibrium" thermodynamical systems are also in temporal energy flow disequilibrium as well as 3-disequilibrium, but overall are still in 4-equilibrium energetically. See **giant negentropy (of the dipole)**. For a necessary thermodynamics discussion, see Appendix A in this book.

nonlinear material (optical): A substance whose optical properties vary with the intensity of the light.

nonlinear optical functioning: Functioning in a manner prescribed by nonlinear optics and quantum optics, particularly with respect to time-reversal effects, use of phase conjugate mirrors, phase conjugate reflection, wave-to-wave interaction, and pumping for amplified phase conjugate reflection. To quote Knight, "A phase conjugate mixing device has remarkable optical properties: perfect retroreflection, the complete cancellation of optical aberrations and inhomogeneities in wavefronts, and the ability to reverse an optical beam and return it to its source." A most interesting modern science, eventually adaptable to $COP > 1.0$ systems, is developing in the study of intensely scattering optical materials.

nonlinear phase conjugate optics: See **phase conjugate optics**.

nonlocalization: Producing or rendering an effect or effect-producing agent at a distance, rather than at the immediate location of the effector. Extended throughout a large region or system, or to a distant part of a large region or system, rather than being confined to a small region of the large region or system. Nonlocalization effects are absolutely prescribed in quantum mechanics, and are experimentally confirmed. They have been largely ignored in classical electrodynamics and electrical engineering. Nonlocalization can result from the existence and use of a multiply connected space, as in Bohm's quantum potential and hidden variable theory. Engineering of action at a distance by engineering the quantum potential through multiply connected space gives one method of energy amplification. This method has unfortunately been secretly weaponized in five nations of the world, and none of the technology is available for use in electrical power systems for energy amplification and solving the energy crisis.

non-Riemannian geometry: Riemannian geometry is the geometry of Riemannian manifolds — i.e., manifolds having an infinitesimal squared distance ds that is everywhere positive. A non-Riemannian geometry

violates this property. [A manifold is a topological space with certain prescribed characteristics.]

nucleons: A collective name for the neutrons or the protons in a nucleus. In the nucleus, the neutrons and protons are continually changing one into the other by exchange of the charge. What is called a neutron and what is called a proton is thus somewhat arbitrary, so long as one makes a rule and stands by it. The interesting thing is that, in a nucleus, there is already continuous and highly rapid transmutation activity between nucleons, all the time, without giant accelerations and operator input of very intense spatial energy. In short, nature shows in all matter that matter can be and is continually transmuted from instant to instant, and is "constant" only on the "**average**". Since most present models used for this are statistical rather than causative, it strongly suggests that we should look for a causal mechanism. The use of the time-reversal zone and time-energy has been nominated in this book as providing a causal mechanism for transduction, which can be directly engineered. It appears that cold fusion research already accomplishes transmutations using the suggested mechanisms. Several specific nuclear transmutation reactions applying the new mechanisms, and consistent with hundreds of cold fusion experiments, are given in the present book.

O(3) electrodynamics: An electrodynamics extended from a two-dimensional inner group symmetry to a 3-dimensional inner group symmetry. O(3) electrodynamics also becomes an important subset of Sachs' **unified** field theory. The inner group symmetry of O(3) can be taken as normal space, which immediately opens up engineering the vacuum and using **spacetime** curvature engines to directly engineer matter for us.

open system: A system that communicates with its environment, and exchanges energy, matter, or both between system and environment. With the possible exception of a few theoretical or hypothetical systems, all systems in the universe are in fact open systems. An open system may be in equilibrium with its active environment, so that it cannot accept, store, and utilize any excess energy from the environment. Another open system may be in disequilibrium with its active environment, in which case it can accept, store, and utilize excess energy from the environment. When the operator inputs EM energy into an open equilibrium system, he automatically breaks its equilibrium condition with the external active environment, decreasing the system's entropy. This is an excited state, and the system will subsequently decay back to equilibrium (maximum entropy) condition by emitting or dissipating its excess energy. The reader interested in the thermodynamics should read Appendix A in this book,

since the thermodynamics definition (or misdefinitions!) of "closed system" actually permits the system to be open with respect to energy exchange with its active environment — either in equilibrium or disequilibrium — and only prohibits exchange of mass across the system boundaries. By that definition, a "closed system" can be far from energy flow equilibrium with its external environment, and hence permitted to perform $COP > 1.0$ or even $COP = \infty$. Hopefully our discussion in Appendix A will clarify the position we have taken on this matter.

optical switching: Switching of optical signals, or switching using optical frequency switching techniques, components, and circuits.

orthodox transistors: Ordinary transistors in use today, i.e., as contrasted with the Fogal semiconductor and its special functions.

orthogonal rotation: Simply speaking, a rotation from one direction to a direction at right angles to it. The Lorentz transform of special relativity, e.g., is a formula for the rotation of an object and all its parts away from its line of motion, as a function of the object's velocity, in a direction toward the time axis. The speed c just represents a full orthogonal turn, so that the projection intersection of the object with the observer 3-space, along the original line of motion, is zero.

outfolding: Translation by a system of received input longitudinal EM waves entering inside its potentials and fields, into conventional EM waves present in the system and then output from it. The opposite of *infolding*.

overpotential: Essentially the overpotential (as in an electrode in a solution) is a shift in the Fermi level necessary to allow the electron in the electrode metal to have energies overlapping with vacant acceptor levels in molecules adjacent to the electrode in the solution. The overpotential effect appears at small "double surfaces" of things in very close contact, particularly in electrochemistry and in solid state physics. The overpotential enables electron transfer, e.g., by tunneling. The overpotential increases with the log of the reaction rate that occurs at the overpotential location. For a small reaction rate, the overpotential is small; but for a small increase in the overpotential there occurs a dramatic increase of reaction rate. Fogal has utilized the overpotential effect in his semiconductor, to great advantage in accomplishing unusual charge blocking and other special effects. See **tunneling**.

overunity coefficient of performance ($COP > 1.0$): More energy out or work out of a system than the operator or experimenter must furnish **and**

input. The excess energy is input from the active environment. See **coefficient of performance.**

parity: Deals with studying a system of a sequence of events as if the events were reflected in a mirror. A system has parity if it undergoes no fundamental operational change if replaced with its mirror-reflected twin.

partially time-reversed region: A region of spacetime in which an object **temporarily** experiences not only the ordinary forward flow of time, but also an extra induced backwards flow of time, usually a fraction of the time- forward time stream. It appears that the combination of the two is what **constitutes** time dilation in relativity. In a mixed time-forward (photon interactions) and time-reversed (antiphoton reactions) zone, if time-forward predominates, the law of attraction and repulsion of charges is **partially** reversed, leading to overall reduction of the forces — which remain **in** their usual directions. If the time reversal predominates, the law of attraction and repulsion is reversed, and in that region like charges attract and unlike charges repel. If time reversal and optical pumping are **combined**, the reversed law forces of attraction of like charges and **repulsion** of unlike charges are amplified also.

particle physics: The branch of physics using accelerators to study high-energy particle collisions, to determine properties of atomic nuclei and of the **elementary** particles themselves. It appears that conventional particle physicists do not recognize or consider time-energy interaction and time-reversal zone nuclear interactions at all. Hence the present "high (spatial) energy" physics is a far lower "total" energy physics than is the physics where time-energy is deliberately utilized. When time-energy is utilized, then the **total** energy of the photon varies inversely as a function of its frequency rather than directly as a function of its frequency. Lower frequency photons have very much greater total energy than higher frequency photons. For practical electrogravitation, therefore, one is interested in lower frequency bandwidths such as the ELF region.

Patterson effect: The intense multiple scattering, multiple pass, multiple collection of energy **density** flow in an assemblage of palladium-clad spherical bead capacitors, as the palladium adsorbs hydrogen ions from the fluid in which the beads are immersed, and thereby charges up as a capacitor, becoming an energy-flow generator, and nonlinearly increasing the energy-flow as the charge of the capacitors increases.

Patterson Power Cell®: Patented overunity power **unit** by James Patterson, which has been independently validated to yield COP > 1.0.

However, continuing difficulty has been experienced with the palladium

metal used in the effect. See James Patterson, "System for Electrolysis of Liquid Electrolyte," U.S. Patent No. 5,372,688, issued Dec. 13, 1994. Patterson has several other patents in the area.

perpetual motion machine: The rather archaic and dogmatic assertion that no machine can indefinitely operate, since no closed system can input its output power back to itself while powering a load, because powering itself and its load violates the *equilibrium* thermodynamics (i.e., the thermodynamics of a closed system). Every system is already an open system in a violent energetic exchange with the active vacuum, so the pronouncement is a non sequitur assuming a false straw man — that every machine is a truly closed system or is in energy flow equilibrium with its active environment and can be treated as if it were a closed system. (The thermodynamic definition of "closed system" is misleading; it refers to a system where no mass exchange crosses the system boundary, but energy flow exchange can and does freely cross it. See Appendix A to this book for a proper discussion). Further, the equilibrium thermodynamics cited does not necessarily apply to either an open thermodynamic system far from energy equilibrium, or to a closed thermodynamic system in energy flow disequilibrium, as is now well known. After all, a common windmill will operate so long as there is a wind or until something breaks. But since it involves a mass flow across the system boundary, it is said to be a true open thermodynamic system. In electrodynamics, a closed system (with no matter exchange across its boundary) can yet have copious energy flow exchange across its boundary, and thus be far from EM energetic equilibrium with its external active environment. The charges and the dipoles in matter operate in a free "time-energy flow wind" and virtual particle flux wind in the vacuum, which are constant and unfailing, and thus charges and dipoles have been freely and continuously outputting real EM energy flow into 3-space for some 14 billion years. All assertions that overunity EM systems are perpetual motion nonsense are completely refuted by every charge and dipole in the universe. To repeat such gibberish only reveals the ignorance of the person making the improper assertion.

Ironically, those dogmatists fond of hurling perpetual motion labels at overunity researchers already recognize the overunity legitimacy of open systems far from thermodynamic equilibrium with their active environment; they refer to such systems *as false perpetual motion machines* or *fictitious perpetual motion machines*. All of them also accept the classical electrodynamics assertion of the source charge, from which all EM fields and potentials and their energy come. So the very dogmatists

so confidently pontificating that perpetual motion machines are ludicrous, themselves already implicitly accept that every charge and dipole in the universe is precisely such a perpetual motion machine, freely and continuously creating energy right out of nothing. No legitimate free energy researcher in his wildest nightmares has proposed such perpetual motion machines on such a universal scale. The greatest perpetual motion nuts on earth are precisely those pundits so confidently castigating the notion that an electrical system can output more energy than the operator himself must input. We will have a modicum of tolerance and respect from them, when they can demonstrate how they can purge all those "perpetual motion charges and dipoles" — and all their EM fields and potentials — from **their** own accepted electromagnetic model. Obviously if they do that, they simply destroy all EM energy in space, in systems, and in the entire universe. This is the absurdity of the position these pundits advocate so ignorantly.

phase conjugate: Of an entity: its time reversal. For waves: often referred to as *wavefront reversal*.

phase conjugate mirror: A nonlinear material which, when provided with an input wave, emits a phase conjugate replica (time reversed replica) of **that input** wave. The input wave is by practice called the *signal wave*. The time-reversed wave output is by practice called *the phase conjugate replica*.

phase conjugate optics: That portion of nonlinear optics dealing with multiwave mixing, formation of time-reversed waves, phase conjugate reflection (PCR), phase conjugate mirrors (PCMs), pumping PCMs to amplify **their** emitted PCRs, nonlinear interferometry, distortion correction, self-targeting, laser tracking, adaptive optics, and soon.

phase conjugate replica (PCR): Of a wave: the time-reversed duplicate of a signal (input) wave, after its detection by interaction with charge. We point out *there may still be some foundations difficulty, however, with the form in which the phase conjugate replica wave exists in spacetime prior to its interaction with charge and prior to its observation (observing the effect of its interaction with charged matter)*. Indeed, there is very serious foundations difficulty with the very notion of an EM transverse wavefront in space, traveling at the speed of light, for no such thing exists. See Robert H. **Romer**, "Heat is not a noun," *Am. J. Phys.*, 69(2), Feb. 2001, p. 107-109. This is an editorial discussion by the Editor of AJP of the concept of heat in **thermodynamics**, where heat is not a substance, not a thermodynamic function of state, and should not be used as a noun. In

endnote 24, p. 109, he also takes to task "...that dreadful diagram purporting to show the electric and magnetic fields of a plane wave, as a function of position (and/or time?) that besmirch the pages of almost every introductory book. ...it is a horrible diagram. 'Misleading' would be too kind a word; 'wrong' is more accurate. " "...perhaps then, for historical interest, [we should] find out how that diagram came to contaminate our literature in the first place."

phase conjugating action: In nonlinear optics, the process or action of producing a time reversed replica of an input wave. For a particle, producing its antiparticle. For a living cell, dedifferentiating it back to some previous form, genetics and all. In the presence of a predominately time-reversal zone, however, the cell is in a predominately phase conjugating mode *a priori*. Phase conjugating it a second time converts it from dedifferentiating to redifferentiating mode. We hypothesize that these combinations are the actual mechanisms generating cellular dedifferentiation and redifferentiation in the cell, tissues, and body. A future book will address that issue; meanwhile, see the 119-page "porthole briefing" on the author's website, www.cheniere.org.

phase conjugation: In nonlinear optics, the novel nonlinear mixing of waves which generate an output wave — called the phase conjugate replica or time-reversed replica — that precisely retraces the path previously taken by the input wave that stimulated the action.

phonon: A quantum of the lattice vibration energy in a crystal. This mechanical vibration energy is considered a field, and the phonon is the quantum of that mechanical energy field. Lattice vibrations in a crystal thus are characterized by waves in the lattice, where the waves are comprised of ordered phonons. Interesting effects occur between electron currents and phonons, due to electron-phonon interaction.

photon: In physics, the basic action quantum. Conventionally considered to be the basic quantum of the EM field. There is a foundations problem with the latter concept, because of the dichotomous use of "field" for both the *effect* force field in 3-space after observation (detection) and the *causal* force-free field in 4-space prior to observation (detection). Strictly speaking, the photon is the quantum of the causal 4-space massless **field**, since the photon possesses both spatial EM energy and time increments. In curved spacetime, the photon may possess mass because the time flow is a mix of time-forward and time reversal, and thus cause and effect are slightly intermixed as well. We point out that, in a negatively curved spacetime, the photon mass is negative, the photon energy is negative, **and**

the photon fields are negative energy fields. Presently the negative energy photons do not appear to be utilized in physics except haphazardly if at all.

This may represent a large class of photon interactions with matter that have been inadvertently omitted.

ping-pong: Colloquial term for iterative retroreflection.

pinned electrons: Electrons held stationary by a magnetic field, or other set of forces that react to "push them back into their positions and hold them fast" whenever they try to spatially move away.

pinning: The act of restricting (by restoring forces and fields) spatial movement (particularly of electrons) due to a disturbing magnetic field or other external force.

polaron: An electron in a substance, where the electron is trapped in a potential well due to polarization charges on surrounding molecules. The excitation in a substance is analogous to an exciton in a semiconductor.

positron: An antielectron (time-reversed electron), possessing a positive charge and positive mass. *Mathematically an empty negative energy electron* state in the Dirac sea whose usual occupying electron has been removed, leaving a four-dimensional "Dirac sea hole," may also be regarded as a positron for many purposes, at least *after observation resulting from interaction with matter*, so long as the remarkable difference of the Dirac 4-hole prior to observation from the Dirac 3-positron **after** observation is understood. Mathematically, the lattice hole previously occupied by an electron can be considered a positron-equivalent (i.e., as if observed), again so long as the real differences are kept in mind, between a Dirac hole *before* observation and what results after its observation by interaction with mass. This is important, because otherwise one is again substituting the effect for the cause. In addition, if the two are confused, **then** one also arbitrarily discards the negative energy fields and negative energy potentials of the source 4-hole in the vacuum prior to observation. That effectively discards anti-circuits and the ability to engineer practical electroantigravity.

power: In physics, the time rate at which work is done (at which *the form of energy is changed*). In electrical engineering, the term "power" is erroneously but ubiquitously also used to loosely mean "energy." Hence such odd and improper expressions as "draw power from the source," which is a non sequitur. Nonetheless, such non sequiturs are so universally utilized in electrical engineering that they have become a part of the literature itself.

Prigogine, Ilya: Noted Belgian chemist and Nobelist, and one of the pioneers of the thermodynamics of open systems far from thermodynamic equilibrium. Prigogine was awarded the 1977 Nobel Prize for his work on the theory of dissipative structures in nonequilibrium thermodynamics.

Poynting, John Henry: An English physicist who lived from 1852-1914, whose contributions to electromagnetics included the energy flow theory now known as Poynting flow. He contributed the Poynting theorem, which states that the rate of EM energy loss in a specific region of space is equal to the sum of the dissipation rate (heat loss) flowing across the boundary of the region. Concurrently with Oliver Heaviside, Poynting conceived the notion that energy flowed through space, which previously had not appeared in physics. Heaviside actually published first, but obscurely; Poynting published in a prestigious journal, so the theory came to be known as "Poynting theory."

Poynting energy: A loose term (not rigorous!) used to loosely describe the flow through space of Poynting energy density $S = E \times H$, which is that component of the total energy flow in space that will be *intercepted and collected* by the intercepting charges, circuit, etc. It actually describes not the energy flow density *per se*, but the component of it that would be intercepted by a unit point charge, or that actually enters an intercepting circuit. Poynting started with the assumption of the component of the energy flow that enters the circuit, *a priori*. Only the work of Heaviside considered the remaining component of the energy flow that is not intercepted by the charge or by the circuit. Because of the startlingly great magnitude of this remaining nondiverged Heaviside component, Lorentz integrated the entire (Heaviside) energy flow vector around a closed surface surrounding any volume element of interest. This discarded the entire nondiverged Heaviside component, and removed any necessity of considering or explaining how every generator and battery already pours from its terminals up to 10^{13} times as much EM energy as the presently accounted energy input to the shaft of the generator or the chemical energy available in the battery. We believe that the discarded and unaccounted Heaviside nondiverged energy flow component accompanying every field-particle interaction is responsible for the puzzling excess gravity holding the arms of the spiral galaxies together. In short, we believe it is the solution to the "dark matter" problem, now often believed to be a "dark energy" problem.

Poynting energy density flow: A somewhat more rigorous term used to describe the flow through space of the Poynting energy density flow

$\mathbf{S} = f(\mathbf{E} \times \mathbf{H})$ component that would be intercepted by a unit point charge or an intercepting circuit.

Poynting energy flow: A loose term (not completely rigorous) used to describe the flow of energy density $f(\mathbf{E} \times \mathbf{H})$. Rigorously, both \mathbf{E} and \mathbf{H} are "defined" only after their reaction with a unit point static charge. Hence \mathbf{S} is the resulting component of the overall energy flow that interacts with the charges (with the circuit) and is diverged into the circuit to power it. It is not the entire energy flow, which also includes a vast Heaviside nondiverged component that does not strike the charge and interact with it, and hence does not interact with the circuit but is just wasted. See Heaviside energy flow component and Poynting energy.

Poynting generator: Colloquial term for any dipole or potential difference that represents a broken symmetry in the vacuum's virtual particle flux, and hence extracts virtual energy from that asymmetry, and gates it out as a gushing energy flow in 3-space. When both electric field and magnetic field are involved, the component of the energy flow that would be intercepted and diverged by a unit point charge is the Poynting energy flow $\mathbf{S} = f(\mathbf{E} \times \mathbf{H})$.

Poynting vector: The vector \mathbf{S} , given as $f(\mathbf{E} \times \mathbf{H})$, used to represent the Poynting (intercepted and collected by a unit point coulomb) energy density flow component. In Heaviside's version $\mathbf{E} \times \mathbf{H} + \mathbf{G}$, where \mathbf{G} is an energy circulation flow term of trapped EM energy flow. Heaviside later **realized** that such a closed energy circulation flow exhibits substantial **gravitational** effects; in modern terms we would say that it represents an **appreciable** local curvature of spacetime. Unpublished notes on the gravitational aspects were found beneath a floorboard in his little garret apartment, years after his death. We also point out one limitation of the present use of the Poynting vector: It has rather universally been **associated** only with the flow of *positive* EM energy, and not with the flow of *negative* energy. Indeed, the concept of negative EM energy is still **confused**, with different views and positions, and still in debate without complete scientific consensus.

PPCM: Pumped phase conjugate mirror. A phase conjugate mirror material that has introduced to it appositive or "pump" waves (in other words, **stress** waves). In effect, pumping is "stressing" or "squeezing" rhytmically. It is also varying a stress potential, which emits longitudinal EM waves, each accompanied by a correlated scalar (time-polarized) wave. In the phase conjugating process, up to all the energy in the pump waves can be output as the energy in the emitted phase conjugate replica

wave. Thus the PPCM may be viewed as an *amplifier*, very similar to a triode. When the time-components of the photons in the signal wave input and also in the pumping waves are considered, then there is a functioning of the pumping also ongoing in the time-domain. There is a rhythmic variation of stress in the time-domain also, which creates the correlated time-polarized EM wave accompanying the longitudinal wave from the 3-space pumping.

So the time-reversal aspect (formation of the phase conjugate replica wave) may be thought of as a rhythmic time-stress wave (pumping or stressing in the time domain) which, by alternately decreasing and increasing the time potential of the mirror, produces two temporal force effects. During the decreases in temporal potential of the mirror, the time-force from the input wave and from the pump waves is forward into the mirror material, allowing the input and interaction of these waves. During the increase in temporal potential of the mirror, a reversed temporal force from the mirror back to the past (temporal potential earlier in 4-space) of the input "signal" wave. The pumping energy (excess temporal potential energy) adds the gain to the phase conjugate replica wave,

probability: The probability of a simple event is the ratio of the number of times it occurs to the total number of trials (for a large, essentially infinite number of trials). Note that "trials" constitute things that have occurred (are past, have been observed). Probability has resisted rigorous logical definition by Aristotelian logic; the reason is that it is an expression of the fourth law, the identity of opposites. Probability is an expression of the future (that which has not occurred) in terms of the past (that which has occurred). Consider *throwing a die to land with one face up*. Thinking of the event (as if it has just occurred, in terms of the most recent past), one can conceive six ways of looking at it. In other words, one can conceive of six "most recent pasts", however, these have not occurred. We were merely thinking of them as if they had occurred. By the fourth law, the *total* "most recent pasts that have not occurred" is identical to the "most immediate future" that has not occurred, on the common boundary between past and future. If one therefore *collects* all six "most recent **pasts** not occurred" they turn into the most immediate future, by the fourth law of logic. One may argue that only a single one of the events will actually occur. Here one counters with the observation that, when it occurs, it is the past, not the future, and then it has not been collected so as to move **to the** boundary. In theory, the hidden variable approach makes it possible to directly engineer those probabilities while the Schrodinger wavefunction is still propagating and has not yet collapsed to constitute an "observation."

I.e., it is theoretically possible to engineer Wheeler's "pre-reality," and **determine** in advance just which of the outcomes will occur.

Puthoff, Harold: Noted physicist active in a variety of fields and investigations including in psychoenergetics, extended electrodynamics, **energy** from the vacuum, inertia, antigravity, parapsychology, remote viewing, psychokinesis, zero-point energy of the vacuum, and cosmology. We are particularly impressed with Puthoff's cosmological feedback principle. Together with Cole, Puthoff also proved that thermodynamics does not prohibit extracting usable EM energy from the active vacuum. See Daniel C. Cole and Harold E. Puthoff, "Extracting Energy and Heat from the Vacuum," *Phys. Rev. E*, 48(2), Aug. 1993, p. 1562-1565.

QM vacuum: The quantum mechanical vacuum, which models the vacuum as an intense flux of virtual particles, each appearing and **disappearing** in such extremely short time intervals as to be unobservable individually—although as physics develops, from time-to-time what is observable changes because of increased observation techniques. Violent fluctuations of extremely short duration constantly occur in the QM vacuum **flux**. Various calculations estimate the energy density (in mass units) as up to 10^{80} - 10^{90} grams per cubic centimeter (in mass density units), or even greater. The vacuum is sometimes described as two separate components: (1) the ambient or average vacuum in deep space, which can be taken as a scalar potential having an enormous energy density, and (2) the **fluctuations** superposed upon the ambient vacuum as local violent potential energy changes. Finally, we note that any EM potential in a system is *a priori* a change to the local vacuum scalar potential.

quantized: Adjective which means (i) reduction of some observable quantity to multiples of some small, indivisible unit, or, (ii) expressed in terms of quantum theory.

quantum: A single "particle" of the quantity *action* (angular momentum). Often confused as a single quantity of energy alone.

quantum electrodynamics: The theory of photons and electrically charged **particles** and their interactions. The use of the term "quantum" implies that the EM radiation's discrete photon nature is significant, so that quantum theory must be employed.

quantum **field theory:** A quantum mechanical theory in which "... a physical field is considered as a collection of particles and forces, and observable properties of an interacting system are expressed as finite quantities rather than state vectors." [*Dictionary of Science and*

Technology.] More simply (after Davies, *The New Physics*, 1989): "The theory that describes the quantum effects of a classical system of fields defined on space-time and satisfying various partial differential equations." Particles are taken as quanta of fields similar to photons being quanta of the electromagnetic field. Each type of particle is represented by an operator that obeys certain commutation laws. The theory relates gluon fields and intermediate vector boson fields to the strong and weak interactions, and allows an overall theory of fundamental particles and their interactions.

quantum potential: A special potential added to the Schrodinger equation by Bohm in his hidden variable theory of quantum mechanics. The quantum potential is a multiply connected entity, so that it "occupies" widely separated but multiply connected points, events, or objects. It is also an extraordinary energy amplifier, since any energy input to one of the multiply connected points simultaneously and instantly appears in every other connected point, regardless of distance or location in the universe. In real life, the quantum potential also has a "coefficient of multiple connectivity", so that only a fraction of the energy input to one multiply connected point will appear in the other points of the multiple connection group. The quantum potential has been strongly weaponized by five nations, and quantum potential weapons are the dominant weapons on earth, being more powerful than nuclear weapons. In theory the quantum potential together with engines and antiengines could be used to treat and cure a given disease in all persons on earth simultaneously, or in one nation or area simultaneously. Sadly, engines have been developed to generate diseases in a targeted populace, rather than engines to heal the populace. Russia and Brazil have had the quantum potential weapon for some time, as have two nations friendly to the United States. In 2001, China also deployed the quantum potential weapon.

quark: Fundamental particle theorized to comprise hadrons (particles such as protons, neutrons, and mesons) by combining in twos or threes. There are six varieties of quarks. The difference between a proton and a neutron, e.g., is merely the orientation of a single quark. In a time reversal zone (TRZ) in the electrolyte in cold fusion experiments, the gluon forces can be significantly reduced, so that the quarks are nearly freed. Two protons (H^+ ions) can attract together in a TRZ so closely that each enters the reduced strong force region of the other, forming a quasi-nucleus. As the ions in solution outside the TRZ move to cancel the TRZ, it decays and the quasi-nucleus becomes an increasingly excited state, seeking to decay. Preferred method of decay is by quark flipping. So one quark flips, so that

the quasi-nucleus has become a quasi D^+ nucleus. As the TRZ vanishes and time-forward resumes, the strong force recovers faster than the Coulomb barrier returns. Consequently, the quasi-nucleus of D^+ merely tightens into a real nucleus of D^+ . This is one of the standard transmutation reactions in cold fusion experiments, forming excess deuterium.

quaternion: Expression comprised of the sum of four terms, one of which is real and three of which contain imaginary units, and where the terms can be written as the sum of a scalar and a three-dimensional vector.

quaternion algebra: The algebra of quaternions and their mathematical operations. Quaternion algebra is of higher topology than either vector or tensor algebra. Maxwell's original 1865 equations are some 20 equations in 20 unknowns, in quaternion and quaternion-like algebra. Heaviside and others reduced the algebra to vector algebra and some four equations; at his death, Maxwell himself was rewriting the equations in his *Treatise* to purge the quaternions, because of the controversy over the difficult quaternion form. The present vector equations taught in university as "Maxwell's equations" are in fact Heaviside's truncation of the Maxwell theory. Going to tensor algebra electrodynamics does not recover the full range of Maxwell's original 1865 quaternion EM theory.

quintessence: Literally, the "fifth essence". In short, *dark energy*. We have nominated the arbitrarily discarded, vast Heaviside nondiverged energy flow component surrounding every interaction of charge with field as the dark energy that is the source for the excess positive gravity holding the arms of the spiral galaxies in place. See dark energy, positive.

reactive power: Electrical power, measured in volts-amps-reactive (vars) that cannot do work as is. For sinusoidal waveforms, the formula for reactive power is $W \sin \theta$, where θ is the phase angle between the voltage and the current.

real hidden dynamics: The dynamics of vacuum engines, or of "internal energy" or "internal work" ongoing in a system or volume of space. These internally organized forces, fields, and energies involve dynamic curvatures of spacetime, and it is this dynamics of spacetime itself that provides the continuous work and dynamics of internal energy. See Einstein's second postulate extended; infolded; dimensioning.

real hidden vectors: The "hidden" or "infolded" real vector components, e.g., of a zero vector summations system. The individual hidden vector cannot spatially translate the entire bulk system, but it can interact inside

the system to perform *internal work* upon it or upon some particular portion of it. Such a system of a finite number of infolded deterministic vectors is said to constitute a "dimensioned" stress potential. Specifically dimensioned potentials, fields and waves thus can be constructed, so that they carry specific vacuum engines (spacetime curvature engines). The interactions of these dimensioned EM entities may differ from normal EM interactions in chemistry, physics, biological systems in general, cells in particular, etc. The long neglected combination of Whittaker's 1903 decomposition of the scalar potential, together with his 1904 demonstration that any EM field or wave pattern decomposes into two scalar potential functions, has neglected the development and use of the "internal EM" theory and technology for a century. One or more nations has, however, highly weaponized "dimensioned EM fields, waves, and potentials" as evidenced by the peculiar and anomalous results of the decades-long microwave radiation of the U.S. Embassy in Moscow. See dimensioning.

real power (active power): Power, measured in watts, that can do work, including generating heat. For sinusoidal waves, real power is given by the formula $I \cdot V \cdot \cos \theta$, where θ is the phase angle between the voltage and the current. Note that when higher group symmetry EM effects are involved (such as the Aharonov-Bohm effect), then the "normal" behavior of circuit components can be altered dramatically. As an example, in the MEG the secondary (output) coils of the transformer section are caused to exhibit a purely electrical interaction with the electrons and electron currents in the coils themselves. Consequently *the output current and voltage are in phase, in complete violation of conventional transformer theory and conventional assumptions about the interaction of inductors*. So the output of the MEG is real power, and phase angle does not enter into it.

regauging: In electrodynamics, changing the scalar potential or the vector potential, or both. If one or both of the potentials is/are changed so that a net new force is created in the system, that is an *asymmetrical* regauging. If only one potential is changed, a net force results and that is an asymmetrical regauging. If both potentials are changed but carefully selected so that the free force resulting from one change is equal and opposite to the free force resulting from the other, that is a net *symmetrical* regauging, often called "Lorentz regauging" or the "Lorentz condition". We note that longitudinal EM waves are produced very simply by rhythmically oscillating the magnitude of a stress potential, which is naught but coherently oscillating the individual vectors of a set of EM fields that sum to a zero vector resultant. The locked-in stress in T. Henry

Moray's semiconductors used in his radiant energy device tubes and the locked-in stress in the Chung negative resistor thus have to do with the production and use of longitudinal EM waves, time-polarized EM waves, and stress potentials.

reflection: The rebound of light or other energy from a surface.

refraction: The bending of light as it passes from one medium to another or through a density change in a given medium.

retarded wave: An electromagnetic wave that is derived from retarded fields, which in turn are derived from retarded potentials. The retarded wave at a point or region of space has arrived there or exists there as the result of the dynamics of charges and currents that existed at earlier times elsewhere. Compare to advanced electromagnetic wave.

retroreflecting: Precisely reversing the path of a reflected wave or object.

Sachs, Mendel: Noted scientist who has completed the work of Einstein and developed a unified field theory covering the universe from the tiniest part to the entire conglomerate. Since $O(3)$ electrodynamics has been shown by Evans to be an important subset of Sachs' theory, then for the first time we have a higher group symmetry electrodynamics and a unified field theory that is largely engineerable by novel electrodynamic means, using the $O(3)$ model.

Sachs' unified field theory: An extension and completion of Einstein's work that includes the universe and its dynamics from the tiniest part to the entire conglomerate, and includes quantum mechanics, electromagnetics, gravitation, and the strong and weak forces. See particularly Mendel Sachs, *General Relativity and Matter*, Reidel, 1982; *Quantum Mechanics from General Relativity*, Reidel, 1986. Sachs' unified theory provides a great generalization of general relativity, quantum mechanics, and electrodynamics reaching from the quarks and gluons to the entire universe. Much of the model is also engineerable by higher group symmetry electrodynamics such as the $O(3)$ electrodynamics pioneered by Evans and Vigier.

scalar: Characterized by magnitude only. However, with respect to polarization, a scalar photon is a term in use for a *time-polarized* photon, where the EM energy oscillates along the time-axis. Hence a scalar wave, following the same terminology, is an EM wave composed of scalar photons, hence whose EM energy is oscillating along the time-axis. The term "scalar" is used in the sense that no vector in 3-space exists even though a vector (and a variation of its magnitude) exists along the time

axis. The effects are observed as an oscillation in the rate of flow of time, hence a "time-density" oscillation. The term "scalar" with respect to polarization implies only that there is no vector component in 3-space.

scalar entity: In ordinary vector analysis, an entity thought to be completely characterized by magnitude alone. Actually this is incomplete; a scalar entity must contain a time-like vector component, if it is to steadily persist in time. What we usually do unthinkingly is assume a continual series of successive observations or d/dt operations upon the kt nature of a scalar k . We conceive these individually frozen 3-space snapshots to "continuously exist" since we can readily recall the "stream" of d/dt differentiations in our mind and memory. Since all observation is 3-spatial, then no observable *persists continuously* in time; instead, it *continually recurs* in time, instant to instant. This "iterative successive stream of frozen 3-space snapshots" exists in the continual and rapid recall from our memories. Compare this to the similarity of observing a sufficiently rapid series of still pictures on a screen, where the individual pictures differ by a time sequence taken of some phenomenon. One "sees" the recreation in one's mind of the flow through time of those events and entities so photographed. Yet at any one instant, there is only a single frozen snapshot on the screen, and no motion at all was "physically" observed.

scalar electromagnetics: Colloquial term for the electrodynamics that arises from considering transverse EM waves, longitudinal EM waves, time-polarized EM waves, electrogravitation, superluminal EM signals, interferometry, nonlinear optical functions, time-as-energy, and the infolded electrodynamics inside all usual EM fields, waves, and potentials. In secret superweapon projects, the Russian term for scalar electrodynamics is *energetics*. It is divided into three major fields, depending upon the intended target. Targeted against inert matter, **systems**, and fields, the same term is used: *energetics*. Targeted against the **physical** and chemical processes and biological fields and potentials of living organisms, the term used is *bioenergetics*. Targeted against the mind's time-polarized EM functioning and dynamics, the term *psychoenergetics* is used. In the latter, higher group symmetry electrodynamics and extensions to quantum field theory play significant roles. Significant progress and strategic testing of all three branches of energetics has been evidenced worldwide. Progress in the energetics branch was confirmed by a statement by U.S. Secretary of Defense Cohen in 1997. Quoting: "**Others** are engaging even in an eco-type of terrorism whereby they can alter **the** climate, set off earthquakes, volcanoes remotely through the use of

electromagnetic waves...So there are plenty of ingenious minds out there that are at work finding ways in which they can wreak terror upon other nations...It's real, and that's the reason why we have to intensify our efforts " Secretary of Defense William Cohen at an April 1997 counterterrorism conference sponsored by former Senator Sam Nunn.

Quoted from DoD News Briefing, Secretary of Defense William S. Cohen, Q&A at the Conference on Terrorism, Weapons of Mass Destruction, and U.S. Strategy, University of Georgia, Athens, Apr. 28, 1997.

scalar potential: Usually considered synonymous with the electric potential. The concept of potential was developed by Poisson, Green, and others **from** about 1813 to 1827. Three notions involved in the **development** of the concept of the potential are: (i) there is the collection of storage of energy in the system, via the collection or storage of some entity therein, and this "potential energy" can be released and dynamically used, (ii) the potential is a scalar function whose spatial rate of change is a vector force, and (iii) the dynamics of the stored energy is suspended by the "storage" or "collecting" entity; in other words it is a sort of "suspended action" waiting to be unleashed. *It requires some action—such as interception and divergence—to release the leashed energy.*

The second notion is false, since no force exists in the absence of mass because mass m is a *component* of force F via $F \equiv dp/dt = (m)dv/dt + (v)dm/dt$. It is corrected by stating that its spatial rate of change *when interacted with charged matter* is a vector force. For the third notion, we note that the concept of a "virtual" particle or particle flux means that it cannot become **me** observable unless some interaction is imposed. So we may handle the "third notion" requirement by assuming the potential in modern terms to be composed of hidden virtual particle flux, or hidden wave flux, in wave-to-wave interaction. Physics tries to define the electrical potential as energy per coulomb, W/Q . That equation, however, is actually not a definition at all (no equation is a definition), but rather is an algorithm for calculating the magnitude of the excess energy collection/collecting upon a coulomb of charge, when that coulomb is immersed in the potential. It in fact is the *reaction cross section* of the potential, not the potential entity itself. This now begins to give us a clue, Potential is *energy* in some fashion, and the term "potential energy" is a redundancy. So the entity must have essentially the same definition as energy! **Potential** energy, collected energy, stored energy, whatever—it is energy first and foremost. How it is collected and what it is collected upon or in, determines **the** "type" of potential. It also cannot be logically defined as the work expended by it upon a unit charge. The causal entity itself is

not the action taken; just as a man is not definable as "how far he has run" in some race.

scattering processes: Collision processes in which an incident particle such as a photon, electron, or proton, of known energy or direction or both, collides with another entity, and emerges from the collision with a different energy or direction or both.

Schrodinger, Erwin: Noted Austrian physicist, 1887-1961, and Nobelist who discovered the wave equation named after him as the Schrodinger equation, and performed other vital work in wave mechanics.

Schrodinger equation: In quantum mechanics, an equation that describes the propagation of waves associated with subatomic particles, or more generally, that describes the evolution over time of the quantum state of a system. The fundamental quantum mechanical equation governing the behavior of wave functions.

self-energy: In a quantum mechanical system, the energy associated with the emission and absorption of virtual particles. In a classical system, the energy associated with the interaction among parts of the system itself.

self-organization: (After Davies, *The New Physics*, 1989): "Spontaneous emergence of order, arising when certain parameters built in a system reach critical values." Simply put, self-organization is the spontaneous formation of patterns of localized order in a system that begins in a more homogeneous state. In short, the system moves from a simpler to a more complex state. Self-organization is one of the permissible features of an open system far from thermodynamic equilibrium with its active environment. Note that the localized orders represent free potential energy formations (free self-regauging) that in theory can then be dissipated in loads to perform free work. Hence the capability of a self-organizing system to perform some free work, or in other words to exhibit $COP > 1.0$.

self-potential (e.g., of the electron): The potential created in and of the charge (e.g., the electron) by its virtual particle flux exchange with the vacuum. Also, an asymmetry in the virtual photon flux of the vacuum, caused by the interaction of the charge (e.g., the electron) with the vacuum flux. From here, we note that the self-potential must consist of real observable 3-space EM energy flow or flows from the electron, because of the asymmetry. However, the charge is not the primary source *per se* of the energy flows that establish the self-potential, but instead is the asymmetric gate in the vacuum flux that "gates out" the potential and its energy **flux**. The asymmetry in the vacuum flux is the actual *source* or gate. Indeed, in

classical terms the energy is received by the charge in the form of converging longitudinal EM energy waves from the complex plane (from the time domain). The spin of the charges of the dipole transduces the absorbed complex EM energy into real observable EM longitudinal wave energy, and pours it out in all directions in 3-space. See discussions under Whittaker and phase conjugate.

self-targeting: Between two entities, where each acts partially or wholly as a phase conjugate mirror, self-targeting is the iterative phase conjugation or "ping-ponging" and rapid convergence of beams between the two PCMs.

S-flow: The Poynting energy density flow S , where $S = E \times H$. Heaviside's equation is given by $S = E \times H + G$. In the latter equation, E is the electric field, H is the magnetic field strength, and G is a trapped closed loop flow of energy density. Note that, from the very definitions of E and H , the Poynting energy flow represents only that portion of the total energy flow in a spatial region that is diverted by interception and interaction with charges. Heaviside's additional component G , which is not part of the field interactions but a result of the huge noninteracting part of the energy flow outside the interacted $E \times H$ component, does appear to be responsible for an enormous unaccounted EM energy flow component that generates the excess gravity required to hold together the arms of the spiral galaxies.

signal wave: In nonlinear optics, the signal (wave) input to a phase conjugate mirror (PCM), that stimulates the PCM to emit a phase conjugate replica (PCR) wave in return. See discussion under distortion correction theorem.

Slepian current: The vector $j\phi$, which in a current loop represents the energy unit area per coulomb of flowing charge, per unit of time, that is collected/collecting from the Poynting S -flow and dissipated in that current loop in its loads and losses.

Slepian flow: "Flow of collected-energy density's dissipation" in a current loop, and therefore related to the vector $j\phi$ in the current loop, which represents the energy per unit area per coulomb of flowing charge, per unit of time, that is being dissipated in that current loop in its loads and losses.

Slepian vector: Refers to the vector $j\phi$ in a current loop, which represents the energy density per coulomb of flowing charge, per unit of time, that is being dissipated in that current loop in its loads and losses.

solid-state parametric oscillator: A parametric oscillator circuit employing solid-state devices. A parametric oscillator is a device that oscillates by rhythmically changing a parameter (such as capacitance or inductance, etc.). Simple switching between differing values of the parameter is often used to induce the periodic change of the parameter. One way of close-looping a $COP > 1.0$ EM system is by using a bit of the positive output energy to do parametric switching, in effect converting the system to a self-oscillating energy flow system. The AC flow of EM energy is then much more easily intercepted, collected, and dissipated to power loads without killing the source dipole extracting and furnishing the free flow of EM energy from the active vacuum.

soliton: A "solitary wave" consisting of a wave pulse which propagates without changing its shape and without dispersion.

source dipole: Any dipole, considered from the viewpoint that real observable EM energy continuously pours out of it without any observable EM energy input. There is no true "source" as such in nature, since the energy is not created but only transduced and gated. In the case of the dipole and electrical charge as sources of EM energy, fields, and potentials, the broken 3-symmetry of the dipole initiates an automatic and more primary 4-symmetry, where EM longitudinal wave energy flows into the negative charge of the dipole from the time domain (complex plane), is transduced into normal EM longitudinal wave energy in 3-space, wherein the 3-space energy is absorbed by the positive charge of the dipole, transduced back into time-energy and reradiated back into the time-domain (fourth Minkowski axis). We roughly state that the dipole "emits observable EM energy" into all directions in 3-space as observable EM energy. However, what actually happens is that this *energy 4-circulation process* is what is emitted into and along 3-space, along every radial direction, with the process occurring at every spatial point along that direction. Any charge (taken together with its clustering virtual charges of opposite sign as a dipole) then inserted at any point in space along a radial line, will dipolarly intercept the ongoing process. We will observe the interception by its 3-effect on the intercepting and interacting 3-space charge, but we will not observe the 4-process itself. This deeper examination of the EM field-charge interaction requires a new interpretation of what is meant by "propagation of EM energy through 3-space", which is a non sequitur. Recall again Romer's acid objection **to the** totally illogical picture in every elementary textbook of the so-called "EM wave through 3-space" as a flat x-y plane orthogonal to the line of **motion** z, and where the E-field vector is oscillating along one axis while the

magnetic field B is oscillating along the other. That representation is totally false, just as pointed out so strongly by Romer.

spacetime or space-time: The entity represented by the "fused product" of space and time, to give "space x time". Spacetime is also dynamic

geometry, in the general relativistic interpretation. We may also consider spacetime to be a giant potential, and also active geometry, and also active vacuum, and also virtual particle flux of the vacuum, and also hidden EM wave flux. If we wish, we can also consider spacetime to be comprised of longitudinal EM waves and impressed dynamics.

spacetime curvature engine: Seed deterministic pattern and dimensioning.

special relativity: Einstein's theory of inertial frames in which, if two systems are moving uniformly in relation to each other, one cannot determine anything about their motion except that it is relative. Each of the two frames is said to be "rotated" with respect to the other, but not accelerating. The velocity of light in space (the vacuum) is constant, and is independent of the velocity of its source and the velocity of an observer. All the laws of physics are the same in all inertial frames of reference.

spin: The intrinsic angular momentum of a particle such as an electron, proton, neutron, photon, graviton etc., even when at rest, as if it were a top spinning about an axis, but had to spin 720 degrees before it turned "full circle." Spin is quantized, and is always described as a half or whole spin,

e.g., -1, -1/2, 0, 1/2, 1, etc. A spinning charged particle such as an electron thus demonstrates a magnetic moment, due to the circulation of charge in the spinning. In the nucleus of an atom, the spin of the nucleus is the resultant of the spins of the nucleons (particles comprising the nucleus).

spiral galaxy: A member of the class of galaxies having arms that extend in the form of spirals. About 70% of all galaxies are spiral galaxies: only about 10% of the gravity necessary to hold the spiral arms together can be accounted for by known gravitational sources. This has led to the

theorizing of dark (hidden) matter of exotic and unknown form, which would be responsible for the excess gravity. Later it was theorized that some sort of "dark energy" might be responsible for the extra gravity. The

present author has proposed that the *unaccounted* enormous Heaviside component of the EM energy flow surrounding every field/charge interaction, and not entering into that interaction, is the missing source of the excess gravity. The dark Heaviside energy flow was arbitrarily

discarded by Lorentz in the 1890s, and it is still discarded today by all electrodynamicists and astrophysicists.

Stoney, George Johnstone: Well-known scientist (1826-1911) who first estimated the value of the electronic charge (1874) and was the first to advocate the particle nature of electricity. In 1891, he named the unit of electronic charge the *electron*. In 1896-7 he laid the foundation for Whittaker's 1903 bidirectional wave decomposition of the scalar potential.

string wave or "plucked taut string" wave: The transverse wave on a taut string produced when the string is plucked. The string wave itself stays on the string and does not travel through the slapped external medium.

subspace: In vector mathematics: a subset of a vector space which is closed under vector addition and scalar multiplication operations. In the new approach, we may consider the active ambient vacuum as a giant scalar potential. This ambient potential then decomposes into longitudinal EM waves via Whittaker's 1903 decomposition. One can then refer to longitudinal EM waves deliberately transmitted "inside" that Whittaker "subspace" as "subspace communication". The Fogal semiconductor is able to infold normal EM signals into such subspace signals (longitudinal EM wave signals) in the transmitter, and to outfold the longitudinal EM waves back into normal EM waves in the receiver. Hence the Fogal semiconductor can be utilized to perform subspace and superluminal communication. These capabilities have been demonstrated by Fogal in ~~the~~ laboratory. As this is being written, Fogal is in serious negotiations with several large companies for the funding to get his chips into volume production and onto the marketplace in very sophisticated and advanced equipment representing a great leap forward in technology. There are, however, powerful interests who do not wish the Fogal semiconductor to ever be produced and marketed. We have worked with Fogal for some years, and — once the semiconductors are available in quantity — we **will** be developing and marketing COP>1.0 electrical power systems utilizing his semiconductors and technology, under license from Fogal.

superconductivity: Property of some materials or metals whereby at **very** low temperature their resistance reduces to zero. These materials also exhibit many additional properties that are anomalous compared to **normal** materials. Much research has gone into the attempt to find materials that exhibit superconductivity at higher temperatures, with the goal of **reaching** room-temperature superconductivity. Room-temperature superconductivity is also just COP = 1.0. EM systems far from equilibrium with the active

vacuum, and which exhibit $COP > 1.0$ at room temperature, may involve most of the odd entities also observed in superconducting materials (polarons, lattice holes and hole currents, Dirac sea holes and Dirac sea hole currents, "charging" by Dirac sea hole excitation, vortices, etc.) The energy density in the output section is greater than the energy density input by the operator to the input section. Considering the giant negentropy mechanism and the dipolarity of the input and output sections, the tempic potential of the output section of a $COP > 1.0$ EM system is greater than the tempic potential of the input section. Hence there is a tempic gradient across the entire system, and a tempic force from output to input. This may "sweep" out a great deal of the produced "superconductivity" entities, and particularly may result in a Dirac sea hole current in the vacuum, out of the input section back into the external power source, as a novel output of the $COP > 1.0$ system. Feedback from output to input may also be in the time domain, corresponding to what Gabriel Kron referred to as the "open path". By recombinations and other means, the feedback in the tempic domain may be transduced in the input section of the device to ordinary current in forward time. When the voltage and current in this transduced tempic feedback are properly adjusted to that being supplied from the external power source, the external source can be disconnected and the $COP > 1.0$ system becomes self-powering, while simultaneously powering its load also.

superluminal: Exceeding c , the speed of light in vacuum. Longitudinal EM waves can travel either slower or faster than the speed of transverse wave light in vacuum. See W. A. Rodrigues and J.-Y. Lu, "On the existence of undistorted progressive waves (UPWs) of arbitrary speeds $0 < v < \infty$ in nature," *Found. Phys.*, 27(3), 1997, p. 435-508; W. A. Rodrigues and J. Vaz Jr., "Subluminal and Superluminal Solutions in Vacuum of the Maxwell Equations and the Massless Dirac Equation," *Adv. Appl. Clifford Algebras*, Vol. 7(S), 1997, p. 457-466.

superluminal communication: The movement of intelligent signals faster than the speed of light in vacuum, and the transmission and reception of such signals and extraction of their transported information. Longitudinal EM waves are not limited to speed c , whereas transverse EM waves are. The infolded electrodynamics inside all EM fields, potentials, and waves consists of longitudinal EM phase conjugate wave pairs, with their impressed dynamics. Hence this "subspace" is a superhighway for such waves, including those moving at superluminal velocity. In essence this is a very special kind of "tunneling" which might be referred to as *subspace tunnelling*. The limitation to light speed rigorously applies to the modeled

transverse EM waves which are a sort of "bulk upheaval" waves similar to waves on the surface of the ocean. As in the ocean wave analogy, "pressure" waves underneath the ocean may travel very much faster than the bulk upheaval waves on the surface.

When making longitudinal EM waves, the process is imperfect and the resulting longitudinal EM waves will have a transverse residue as well. The resulting "transverse-noisy" LW is called an undistorted progressive wave. Undistorted progressive waves may move slower than the speed of light or faster than the speed of light. The degree of transparency of matter to LWs is an inverse function of the "transverse-noisiness" of the LWs.

superposition: The simple linear addition and subtraction of two or more values, states, etc.; one of the key principles in field theories and in the concept of potentials. When the situation is sufficiently nonlinear, however, interaction of waves and potentials occurs instead of simple superposition.

supersystem: A higher level or "metasystem" of interactions between ~~the~~ classical system, the active vacuum, and the active local curvatures of spacetime. Hence the supersystem consists of three interacting components: (1) the EM system and its dynamics, considered in conventional fashion as if the local vacuum were inactive and the local spacetime were flat; (2) the local interactive vacuum and its dynamics, and (3) the local curvatures of spacetime and their dynamics. In component (2), one must consider the Dirac sea, Dirac holes and hole currents, with concomitant potentials and forces impressed on them. In component (3), the time-domain interactions (time-energy, time-force, time-potential, **and** currents of energy along the fourth Minkowski axis) must be accounted to include negative energy.

All three components of the supersystem interact with each other. In general, the vacuum interactions may be taken from particle physics, and the spacetime curvature reactions may be taken from general relativity. However, this will yield only a rough or "first order" analysis, since it does not produce the tri-reactions of all three components at once, but mostly reactions between pairs of the components. The concept is easy to conceptualize, however, and yields valuable clues and insight in many areas, such as chemistry (including biochemistry), electrical physics, electrodynamics, thermodynamics, and electrogravitation. It is particularly useful in understanding the phenomena encountered in COP>1.0 EM power systems.

symmetrical regauging: In electromagnetics, changing the scalar potential to a different value, and simultaneously changing the vector potential to a different value, with the two changes precisely selected so that the two extra forces (each created by one of the changes) are equal and opposite — thus canceling each other's effect with respect to bulk translation and doing no net *external* work. The two forces remain and can perform internal work upon the system. Note that the stressing effect of the two new forces is not canceled, and that the stress of the system is altered a priori. See regauging.

tantalum capacitor: Electrolytic capacitor with a tantalum or sintered-slug anode, such as a solid tantalum, tantalum-foil electrolytic, or tantalum-slug capacitor.

targeted pinpoints: Those separated points which engage in self-targeting between themselves and some separated signal energy source (as in Fogal's semiconductor). The effect is to sharply narrow the retroreflected source signal energy from the source onto the separated points by means of the mutual ping-ponging. In this fashion much more energy density from the source can be concentrated on the targeted pinpoints. In effect, *phase conjugate shooting* — the return of the phase conjugate reflected scattered energy directly to the original target emitting the signal wave in pinpoint fashion - is evoked. See distortion correction theorem.

tensor: A special mathematical entity which is a generalized vector element of a vector space, with more than three components, each of which is a function of the coordinates of an arbitrary point in space of an arbitrary number of dimensions.

Tesla, Nikola: Famous American emigre electrical engineer, inventor and eccentric (1856-1943), whose numerous inventions fueled much of the electrical 20th century. In essence he produced the AC system, including polyphase systems. Also, Tesla invented radio transmission, not Marconi, according to a U.S. Supreme Court decision that upheld the prior patents of Tesla over Marconi. In his famous experiment, Marconi in fact utilized a variation of one of Tesla's circuits. This does not denigrate Marconi's many accomplishments, but just sets the record straight on who invented radio transmission. The impetus to the development of commercial radio transmission technology and the industry itself came from Marconi.

thermodynamic equilibrium: Stable state eventually reached by an isolated system or one in a well-behaved active environment. One may consider it a "balanced" or "preferred" state. It is important to note that, in particle physics, there can be no equilibrium of a mass system unless the

vacuum interchange with that system is considered. Electrodynamics mistakenly continues to omit the active vacuum interaction with a Maxwellian system, hence is seriously flawed in that respect.

thermodynamics of open systems: Systems far from thermodynamic equilibrium with an active environment are permitted to exhibit five "magic" functions. Such a system can (1) self-order, (2) self-oscillate or self-rotate, (3) output more energy than the operator himself inputs (the excess energy being freely received from the active environment), (4) power itself and its load simultaneously (all the energy being freely received from the active environment), and (5) exhibit negentropy.

time: In our view, time is spatial EM energy compacted by the factor c . Time thus has the same energy density as mass, but in the time domain rather than in the 3-space domain. Also, time is not observable *a priori*; mass is an observable. Time persists since it is persistence itself. No observable persists *a priori*, since observation is a d/dt operator imposed upon LLLT spacetime, yielding a frozen LLL snapshot which does not even exist the very next instant. When we say "mass exists in time" (or any observable continuously persists), we are unwittingly invoking a very rapid iterative d/dt operator repeatedly, and recalling these iterative sequential "frozen snapshots" or observations from memory. One may produce and utilize EM energy flow in the time domain, as in 3-space. Time, being energy and energetic, has tempic potential (energy density), tempic potential gradients, and therefore has "tempic force." The photon is composed of both spatial energy and time-energy as its two canonical constituents. The lower the frequency, the higher the energy of the photon when the time-energy is considered, since the magnitude of the time-component of the photon increases as the spatial energy component decreases, and the energy of the photon in that case increases as c^2 times the increase in time magnitude, while decreasing linearly proportional to the decrease of the spatial energy magnitude. When transduction of time into spatial energy occurs, or vice versa, the energy conservation law is modified to specify the sum of the spatial energy, time-energy, and mass energy.

time-charge, time charging: Since time is a special highly compressed form of energy, then time-excitation or *time-charging* also occurs. Also, since tempic longitudinal EM waves accompany all longitudinal EM waves (per reinterpretation of the phase conjugate half set of the Whittaker decomposition), then irradiating a mass with substantial longitudinal EM wave radiation will time-charge the mass, exciting it with time-energy. There are excited states and internal structuring (engines) in time **charging**.

much like the excited states and internal structuring (engines) in energy excitation of normal charge. When the longitudinal EM wave radiation is removed, the time-charged entity then slowly emits longitudinal EM wave radiation as the time-excitation slowly decays via the giant negentropy process of the charges.

time-energy: Time may be considered as spatial EM energy compressed by the factor c^2 . See also discussions under time and time charging.

time excitation: See time charging.

time-flow generatrix (mechanism): Since any observable is a frozen nonpersistent snapshot in 3-space, then the common expression "flow of a mass through time" requires an active generating mechanism to add time to mass, converting it to mass time, which is persistent. Mass time mt is as different from mass m as impulse (Ft) is from force F . The flow of a mass through time is generated by the ubiquitous interaction of photons with the mass. This includes all photons, both virtual and observable. Thus for the ambient vacuum, there is an ambient flow of time, since there is an ambient rate of total photon interaction. The "macroscopic" movement of the mass through time is the result of (i) absorptions and emissions of observable-sized photons, and (ii) the continuous integration of virtual photon absorptions into observable-sized photons. The macroscopic flow of time thus has myriads of "sublevels" of infolded time flows and engines. Hence the flow of time has a marvelous, internal, dynamic structure.

time-forward: Refers to the flow of an entity through time in the forward direction, as seen by an external observer. Time-forward flow occurs when (to the observer) there is a predominance of time-forward photons interacting with the body that is moving in forward time. Contrast to time-reversal of an object, as seen by the external observer, which occurs when (to the observer) there is a predominance of time-reversed photons (antiphotons) interacting with the body that is observed to be time-reversed. Pumping a given living mass (in the nonlinear optical sense) with time-reversed EM waves pumps the object in the time domain. That dramatically extends nonlinear optics, since the pumped living object's cells will be observed to slowly reverse back to a previous physical state or condition. Since time-polarized EM waves accompany all longitudinal EM waves via reinterpretation of Whittaker 1903, pumping a living mass (a body) with longitudinal EM waves also pumps it with time-polarized EM waves, time-charging the body which continues the pumping in the time domain after the longitudinal EM wave radiation is removed.

time-forward EM wave: A normal EM wave moving in forward time as seen by the observer. Otherwise known as the retarded wave. The external observer comfortably sees its forward progress as expected.

time-polarized electromagnetic wave: An electromagnetic wave whose vibrations occur in the time domain only. May be referred to in a quantum field theory sense as a *scalar* EM wave. It is a longitudinal EM wave in the time domain. It may also be said to be a longitudinal EM wave in the complex plane, since in Minkowski space the fourth axis may be taken as -ict. The time-polarized EM wave is indicated in quantum field theory, or at least its time-polarized photon is theorized and called a "scalar" photon.

time-polarized photon (scalar photon): A photon whose vibrations occur in the time domain only, also known as a "scalar" photon. This polarization of the photon is utilized in quantum field theory. Neither the scalar photon nor the longitudinal photon is individually observable. However, the combination of the two in the presence of charge is observable as the instantaneous scalar potential.

time reversal: For EM waves, the process of forming the phase conjugate wave. For a particle or a mass, the process of pumping the particle or mass with time-polarized EM waves, so that the resident spacetime curvature engine in the mass is amplified and phase conjugated, forming a precise, amplified antiengine which then slowly time-reverses the mass back to a previous physical condition and state. We accent that time reversing a single object or single group of objects is not the same thing as "travel into the past" so popularized by science fiction. For time travel to the past, the entire universe and everything in it — except the traveler — would have to be time-reversed. That would not seem possible by any stretch of the imagination today! On the other hand, time-reversal of a single thing such as a particle or a wave — or even a group of things such as a group of particles or waves — is not only feasible but is readily achievable. A Dirac sea hole is a negative energy electron, for example, having negative energy and therefore negative mass prior to observation. After observation, it is seen as a positive energy, positive mass electron of opposite charge to the conventional electron and reacting with fields in opposite direction from the conventional negatively charged electron. In short, after observation (interaction with mass) it becomes the positron.

time reversal zone: A region of space in which the majority component of the overall time flow mechanism runs backwards, and hence the fundamental mechanism generating the flow of a mass through time is reversed. The "time running backwards" is due to the predominance of

interactions with antiphotons. It follows that, in the time-reversal zone (TRZ), there is a predominance of antiphoton interaction over photon interaction. In a TRZ, the law of attraction and repulsion of charges is reversed; like charges attract and unlike charges repel. Also, induced action by the time reversal forces start *inside and throughout* an affected mass in that zone, originating at every point in that local spacetime zone and moving outward. It thus involves a novel action "from inside to outside", beginning even inside the nucleons, and first affecting the quarks and gluons. Deliberate use of time-reversal zones and their subsequent decay allows a great new class of dramatic nuclear reactions, including simple transmutation and loosely called "cold fusion" reactions, at low spatial energy but very high time-energy. High energy physics has neglected the use of time-energy, opting to go for high spatial energy. Hence the high energy physicists have actually eliminated a much higher energy physics (at low spatial energy so readily examined on the bench far *more cheaply*) than the science they have long developed.

time-reversed wave: A phase conjugate reflected wave, which is a wave moving in reversed time. Since the external observer "sees" in forward time only - and even then he sees in an iterative series of frozen 3-space snapshot — he *observes* the time-reversed wave as a 3-spatial wave (series of iterative frozen snapshots) traveling in the opposite direction as its generatrix wavefront (the *signal wave*).

topological: Invariant under transformation by continuous mappings, or related to the properties of geometric shapes and figures that remain invariant under transformation by continuous mappings.

topological properties: Those properties of a geometrical space that are unchanged by continuous distortion of the space.

topology: Mathematics of the properties of geometric configurations invariant under transformation by continuous mappings. In short, the mathematics of the large-scale structure of curved spaces.

transverse (with respect to waves): Wave oscillatory movement perpendicular to the wave's primary direction of principal propagation, as in the movement of a plucked taut string in a wavelike motion traveling down the string but with the oscillations being lateral. Based on Faraday's notion that the field lines of the electromagnetic field were physical material lines (in the material ether) similar to taut strings, Maxwell assumed the transverse wave model in his theory. The entry of longitudinal waves, into the theory can easily be demonstrated by rhythmically and coherently varying the magnitudes of the Lorentz symmetrical regauging

condition, producing "stress potential waves" which are in fact what longitudinal EM waves really are. The production of a longitudinal EM wave in 3-space will be accompanied by the simultaneous production of a time-polarized companion wave.

tunneling: In quantum mechanics, a phenomenon in which a particle penetrates and crosses a small region where the potential opposing such passage is greater than the particle's available energy. The phenomenon is thought to be impossible according to classical physics, but occurs nonetheless. Further, the speed of transit through the "tunneling" separation can be superluminal. Tunneling of music between two separated points in a waveguide has been measured at more than four times the speed of light.

A more extended type of tunneling is the travel of longitudinal EM waves infolded inside the normal EM potentials, fields, and waves. Indeed, this is a more fundamental electrodynamics, and it can be shown that interferometry of this "internal" electrodynamics creates the external electrodynamics by a form of longitudinal EM wave interferometry. E.g., see M.W. Evans, P.K. Anastasovski, T.E. Bearden *et al.*, "On Whittaker's Representation of the Electromagnetic Entity in Vacuo, Part V: The Production of Transverse Fields and Energy by Scalar Interferometry," *Journal of New Energy*, 4(3), Special Issue, Winter 1999, p. 76-78. This is part of the technical basis for the "scalar interferometry weapons" developed by the Russians after World War II. Today, some 10 nations have such weapons, more are developing them, and even the Japanese Yakuza has such weapons.

unified field theory (engineerable): A unified theory of the four forces of physics — the electromagnetic, gravitational, strong, and weak forces that is not just an intellectual model but which is also engineerable on the laboratory bench and in actual physical systems using higher symmetry $O(3)$ electrodynamics as a special subset of Sachs' unified field theory.

unitary Q_E (charge of the electron): Fixed or unit charge q of the electron. This notion is held because q is not decomposed into its component elements, but treated as if it were an indivisible unit, charge and mass and all. The mass of a fundamental particle at rest is quantized, and the massless charge (self-potential) of the particle is discretized as a function of the background potential (virtual particle flux density) in which it is embedded or to which it is exposed. In our view the definition of a charge q is $q \equiv m_q \phi_q$, at least to first order. (The ϕ_q may be internally structured with deterministic "engines", so that one electron need not be

identical to another, in its actions in some cases). The *electrical charge* of the "charged mass m_q " should be taken to be the massless ϕ_q component. For an electron, $q_e \equiv m_e \phi_e$. The *electrical charge* of the electron should be taken to be the massless ϕ_e component. We note that the charge is also structured, since ϕ_e or ϕ_q decomposes via Whittaker 1903 into a harmonic set of EM longitudinal phase conjugate wavepairs. Our reinterpretation of this decomposition then yields the solution to the problem of the "source charge" and its associated fields and potentials and their energy. The massless charge ϕ_e is a dipolarity and hence a broken 3-symmetry in EM energy flow, invoking a more primary 4-symmetry in EM energy flow so that EM longitudinal wave energy is continuously incoming from the time domain, being absorbed by the charge q of which ϕ_e is a component, being transduced into real EM energy in 3-space, and emitted in all directions in 3-space at the speed of light, creating the fields and potentials and their energy that are associated with charge q . If a charge (say, an electron) is placed in an additional potential ϕ_1 , then the total massless charge of the electron (i.e., its virtual vacuum flux exchange with mass m_e) is $(\phi_e + \phi_1)$.

As can be seen, the massless charge of the electron (its virtual flux activity) has now changed. The electron is then said to *be collecting and to have collected* excess energy (which may be either positive or negative, depending upon the sign of ϕ_1). Further, either ϕ_e or ϕ_1 or both can be internally and deterministically *dimensioned* (structured in Stoney-Whittaker-Ziolkowski fashion). When its massless charge (its own ϕ_e) potential is soidimensioned, then the dimensioned electron is said to contain or transport an *engine* or a *vacuum engine* or a *spacetime curvature engine*.

vacuum: Space devoid of observable matter. In modern theory, the "empty" space is in fact bristling with very rapid fluctuations of EM energy, remaining in the virtual state. It is also filled with a violent, fluctuating flux of virtual particles, appearing and disappearing so quickly that an individual particle does not persist long enough to be individually detected. Thus the vacuum is extraordinarily energetic, but the energy is in very special form (fleeting violent fluctuations and virtual particle flux). Nonetheless, because it contains enormous energy, the *average* vacuum may be considered a potential. All potentials then are changes to this vacuum potential, or to an intermediate potential which is a change to it. In another sense, the vacuum, potential, and spacetime are all one-and-the-same thing. This means that general relativity's spacetime curvature is ubiquitous and extraordinarily dynamic. The vacuum very near a mass also can act in some cases as a semiconductor, capable of supporting self-

oscillation between the mass and the local vacuum. Considerations of the active vacuum and its nature lead to the notion of the *supersystem*, which is comprised of three parts: (1) the physical system and its dynamics, (2) the active vacuum and its dynamics, and (3) general relativity and its dynamics (since physicists persist in separating the notions of spacetime and vacuum). No analysis of any mass system is complete unless an analysis of the entire supersystem and the interactions of the three components, one with the other, is performed.

Every charge is "embedded" in the active vacuum by its potentials and fields, which themselves are spacetime curvatures and alterations of the local vacuum. This is easily seen by $q \equiv m_q \phi_q$, where ϕ_q is a change to the local vacuum potential *a priori*. In the quantum view, the fields and potentials may be taken as organized polarization patterns and dynamics (currents) in the vacuum virtual particle flux.

vacuum engine: Also referred to as a *spacetime curvature engine*. From the particle view: a deterministic internal pattern or *template* deliberately created as a deterministic structuring and dynamics in the virtual flux comprising a scalar potential. It can also be created in, and transported by, the two scalar potentials that comprise a static or dynamic force field, or a moving EM wave in the vacuum. It can also be created in the local vacuum potential, in which case it has a "charge-up" creation time and a "discharge time," exhibiting a sort of "time constant" very much like a capacitor charging and discharging.

In the wave view: the vacuum engine is a deterministic internal pattern or template deliberately created in the Stoney-Whittaker-Ziolkowski internal biwaves and wave products comprising the scalar potential. Again, it can be implanted in the vacuum or in an EM signal as a carrier. The self-energy (scalar potential) portion of any electric charge or magnetic charge can also be a "carrier" that is conditioned *{dimensioned}* with a vacuum potential. The process or act of conditioning any of the carriers with vacuum engines is called *dimensioning* that carrier. Russian energetics used in secret weapons programs refers to the vacuum engines of a dimensioned carrier as the *information content of the field*. Such vacuum engines, e.g., were used in the potentials of the microwave radiation of the U.S. Embassy in Moscow for several decades, inducing a variety of health changes and sicknesses in the personnel of the embassy. Interestingly, all these health changes occurred in the field-free regions of the Embassy. There the field-free potentials existed and were stable and unchanging. Hence a body exposed in that region was steadily exposed to the specific engine being induced, and time-charged with that engine accordingly. The

deterministic set of spacetime curvatures comprising this charge then acted upon the cells and body to slowly change it to the damaged or diseased condition. See dimensioning.

vacuum flux exchange: The virtual particle interaction between the active vacuum and a mass, particularly a charged particle.

vacuum's **virtual particle flux:** In the particle viewpoint, the quantum mechanical vacuum identically is a virtual particle flux. Present physics, however, is prone to refer to the vacuum as an implied emptiness containing a virtual particle flux, even though that is known to be in error. In **our** view, energy, vacuum, spacetime, virtual particle flux, and dynamic geometry are all synonyms. One must note that the ageless contradiction of the wave vs. particle view has still not been resolved in physics, even by the duality principle. The duality principle is merely an agreement to quit fighting, and to feel free to consider a thing a particle in one case or circumstance and a field in another case or circumstance, *whichever works*.

vector: In mathematics, an entity completely characterized by a magnitude and a direction.

vector potential: A potential having — at any point in it — both direction and magnitude. The direction, e.g., may be linear, curvilinear, or swirling. The term "vector potential" is often used as the magnetic vector potential A. When it is swirling, the magnetic vector potential A may be said to be the **magnetic** field B. However, the swirling magnetic vector potential (the **magnetic** field B) may be "bottled up" and contained locally inside a long tight solenoid, or inside a toroidal coil, or inside a special nanocrystalline **material** used as a closed transformer core as in the motionless electromagnetic generator. In that case nature freely replenishes the energy in the surrounding space which would have been occupied by the **nonrestricted**, nonlocalized B-field (curled A-potential) but replenishes that **space** with an uncurled (linearly flowing) magnetic vector potential A. This in fact at least doubles the available energy flow available, without any additional EM energy input by the operator. The well-known Aharnov-Bohm effect clearly demonstrates this effect, and it is **deliberately** employed in the motionless electromagnetic generator (MEG) of **which** the author is one of the five co-inventors. Present dictionaries of physics and many textbooks are confused as to the definition of magnetic vector potential A and its relation to B, many stating that the A is defined by the equation $\nabla \times \mathbf{A} = \mathbf{B}$. However, no equation is a definition; it is an **expression** of equality of two magnitudes, and not a definition of either side. If we substitute the more stringent $\nabla \times \mathbf{A} \equiv \mathbf{B}$, we see that the $\nabla \times$

operator acting upon the A potential is precisely what a B field *identically is*. Hence the A potential exists in two forms: (1) in curled form as identically the B-field, and (2) in uncurled field-free form as the linearly moving A-potential energy current that has no imposed $\nabla \times$ operator and thus has no curl. This makes total sense with $\nabla \times \mathbf{A} \equiv \mathbf{B}$.

vector field: Conventionally, the assigning of a magnitude and a direction (that is, a vector) to each point in a region of space occupied by a field. In our view the field is in fact a change to the active energetics of that spatial region, such that the region will interact with any appropriate entity (e.g., a charged mass) placed at any point in the region and produce a force upon that entity.

vector zero: See discussion under zero vector.

virtual antiphoton: An antiphoton that spontaneously appears and disappears, so swiftly that it cannot be individually observed. It is real while it exists. Coherent integration of a stream of virtual photons, however, adds to produce an observable quantum of energy, which is observable in its effects on a charged particle.

virtual particle: A fleeting quantum particle that spontaneously appears and disappears, so swiftly that it cannot be individually observed, so that it exists only temporarily. It is real while it exists. The virtual particle does not satisfy the usual relation between energy, momentum, and mass because it is under the aegis of the Heisenberg uncertainty principle. The virtual particle can have any amount of energy momentarily, so long as the product of its energy and the time interval of its existence is less than the uncertainty principle's minimum magnitude.

The coherent interactions of large numbers of virtual particles with a **mass** or charge can combine to generate real observable effects (forces). In quantum field theory, all forces of nature are caused by the interaction of the mass entity with virtual particles. Interaction of a mass with virtual photons, e.g., is projected to cause all mechanical and electromagnetic forces.

virtual particle flux exchange: Interaction with or exchange of a flux of virtual particles.

virtual photon: A photon that spontaneously appears and disappears in the vacuum so quickly that it cannot be individually observed.

virtual photon flux: See definitions under **flux** and under **virtual particle**. For electromagnetics, the vacuum can often be modeled as a flux

of virtual photons. One gets the virtual charges also, since the photon is also considered to consist of a positron-electron pair. That is, the photon is continually separating into a positron-electron pair, whose particles then annihilate each other to form additional photon(s), etc.

virtual photon flux exchange: The mutual exchange of virtual photons, as between the vacuum and a charged mass, or between two colliding masses.

virtual photon flux of vacuum: In our view, the vacuum identically is a flux of virtual particles. For many electromagnetic cases, it can just be modeled as identically a flux of virtual photons, where the word "photons" in general usage refers to both photons and antiphotons.

virtual positron: A positive electron (positron) which spontaneously appears disappears in the vacuum so quickly that it cannot be individually observed. More accurately, in the 4-vacuum, a negative energy electron state that spontaneously appears and disappears so quickly that it cannot be individually observed. A virtual Dirac sea hole.

Whittaker, Edmund Taylor: Well-known English mathematician and physicist, 1873-1956, who made major contributions to mathematics and physics. Whittaker dramatically extended Stoney's earlier work of 1897-8 and authored two papers in 1903 and 1904 giving the basis for the theory of scalar electromagnetics (Russian energetics, not including the quantum potential portion). His decomposition of the scalar potential into a harmonic set of longitudinal EM wavepairs, where each pair is a phase conjugate pair, may be reinterpreted to solve the long-vexing problem of the source charge or source dipole and its continuous emission of EM energy in 3-space, providing its associated potentials and fields and their energy. The problem was solved by the present author's reinterpretation in that manner, published in 2000. This was later found to be consistent with quantum field theory as well, by interpreting the observability of the combined scalar and longitudinal photon pair as opposed to the nonobservability of either the scalar or longitudinal photon individually.

Work: The changing of the form of energy. One joule of energy whose form is totally changed in a reaction, does one joule of work in that reaction. However, it is strongly stressed that after that joule of work is performed, one still has a joule of energy left to use (with which to do additional work). This remaining joule of energy is just in different form than was the initial joule of energy. So one can do joule after joule of work from a single *initial* joule of energy, so long as the energy is not dissipated and lost after each change of its form. In any one single change of form, only **one** joule of work can be done from one joule of energy. So energy is

conserved through many changes of form, but work is not. To work in $COP > 1.0$ systems, one absolutely must root out from one's consciousness the mistaken notion that only one joule of work can be done from a joule of input energy. One of the places where extra joules of work are performed by each joule of energy is that of strong gradients. Strong gradients are known and recognized to violate thermodynamics. Work is further divided into **internal work** and **external work**.

work, external: The changing of the form of the collected energy of a body or system by dissipating it upon an external load or entity is the external work *done by* a body. The changing of the collected energy of a body or system by performing work upon it is the external work *done upon* a body or system.

work, internal: The changing of the form of the internal energy of a body or system. It may also involve the changing of internal parts of the system.

work-energy theorem: In mechanics, a theorem that the change in kinetic energy of a particle in motion is equal to the work done by all the forces acting upon the particle.

zero-point energy: The energy remaining at a temperature of absolute zero, due to the Heisenberg uncertainty principle and the quantum mechanical theory of an oscillator. Also, the minimum energy of a system due to its quantum fluctuations, resulting from its incessant virtual particle activity. Quantum mechanically, no system of interest (including even spacetime itself) can have zero energy. The zero-point energy of the vacuum is the lowest energy vacuum state, with fluctuations taken into account. Even at low energies, quantum fluctuations continually arise, and result in an incessant, extremely rapid, and violent "jittering" of the energy momentarily present. The minimum energy due to these quantum fluctuations is called the *zero-point energy*.

zero vector: Candidates are: (i) A vector having no length (no magnitude) or specific direction; (ii) absence of any and all finite vectors; (iii) resultant of a system of multiple, finite vectors whose vector sum has **no** specific direction but may have nonzero scalar magnitude.

The second definition differs drastically from the first. That is, we **cannot** say that a vector resultant zero has no infolded magnitude, if we **consider** its nonzero components, all of which have magnitude. (See the discussion under **zero**). It only has no net magnitude for *translating* force. It is, in fact, *a. stress potential*, and it is one with a deterministic internal structure or *engine*. By rhythmically and coherently varying each component of a

zero vector system, one easily produces longitudinal EM waves,, each of which is accompanied by a correlated time-polarized EM wave. In vector analysis, the zero vector axiom states that any vector v plus a zero vector is **equal** to a zero vector plus v . Note that, being an axiom, this is not proven, but just assumed for any zero vector. We very much disagree with that blanket axiom; it reduces vector analysis to a highly special single case, where all zero vector systems are to be considered equal, and totally "inactive." That is true only for bulk translation. In the real world that need not be true at all; specifically, it is not true for two different zero vectors having different internal structure and dynamics (different internal engines).

There are an infinite number of different zero vector resultant systems, and so zero vectors may differ, if their infolded component "substructure" is considered. In the real world, things that are vectors very often have energy. The energy is infolded and hidden, so that it represents not only (i) a local curvature of spacetime, but also (ii) a structured, deterministic set (a template) of curvatures of local spacetime. Therefore this zero vector system is actually a *vacuum engine*. Any mass system placed in such a potential, will be acted upon in its internal parts by that local vacuum engine; in short, it will have internal work performed on its interior. Further, the zero vector resultant system is a "stress potential," since it does contain "collected internal energy."

So between zero vector resultant systems, the "infolded, hidden energies" differ dramatically in (i) total infolded and trapped (collected) energy, (ii) specific internal action patterns (templates), (iii) general relativistic effects, and (iv) type of engine. Accordingly, the actions the zero-vector system induces in an exposed mass may be designed in advance. This is vacuum engineering. This spacetime engineering. This is the formation and use of engines. It is also one of the bases of Russian energetics.

The problem is the *vector algebra itself*. In the abstract algebra, a "vector space" is regarded as an inert thing, where the only actants are the overall net nonzero vectors, and there is no interaction between an overt vector and a covert set of vectors. The vector space is not allowed to have an internal realm, stress, hidden engines, or to interact with the vectors representing the physical system. So vector algebra lacks the capacity to model such higher topology phenomenology. Consequently, for over a century electrodynamicists — thinking primarily of spatial translation —

have routinely discarded such "zero vector systems" as if they represented the total absence of any finite vector. *This they do, in the unsuitable*

assumptions of the vector algebra. This they do not do, in the real world, whether we are aware of it or not.

The common practice in electrical physics of replacing a zero-summed system of nonzero vectors with a vector zero indicating a "complete absence of vectors" is very much incomplete. This present practice should be changed; it has reduced the topology of electromagnetics far too much, and gutted vast, important parts of the theory insofar as an extended electromagnetics is concerned. The vector zero should be replaced with a special organized vector zero system and a dimensioned scalar potential.

The interactions of the "hidden" vectors — the *engines* — should be incorporated. By failing to do this, physics excludes the ability to engineer electrogravitation, spacetime, the virtual state, local general relativity, free energy, effects at a distance, and the probabilities of the states propagated by the Schrodinger equation. It also excludes unification of forces. As another more human example, for every cellular disease condition there is a specific engine resident in the cells. An amplified antiengine for that disease pattern can fairly readily be generated. That antiengine, embedded in ordinary EM fields and potentials, can be irradiated into a diseased body with that disease, and it will time-reverse those diseased cells slowly back to normal. This is actually the basis of the body's own healing system the cellular regenerative system studied mostly by Becker. Unwittingly using this "antiengine" approach, Priore and a team of French scientists provided startling cures of terminal cancers, infectious diseases, clogged arteries, etc. in laboratory animals in France in the 1860s and early 1970s. The work is strongly documented and replicated in the French scientific literature, but the work was suppressed in the early 1970s in the change of the French government. See our "porthole briefing" on our website www.cheniere.org for our extension of the Priore method, for greater ease portability, and rapid treatment of mass casualties.

In the new view, a zero vector may be a system of nonzero vectors that vectorially sum or multiply to zero for spatial translation purposes, but nonzero components may still exist "inside" and dynamically function inside the zero-resultant envelope. This substructure can act on nonlinear or resonant systems. Any or all of the nonzero components may be time varying, or none of them may be. The zero vector system may thus be a dynamic engine and a dimensioned scalar stress potential. In addition, such a vector zero system is considered to be also a scalar stress potential, whose magnitude is equal to the sum of the absolute values of the components. In addition, a separate type of stress potential may be included for the magnitude of the absolute values of the swirl components

(torques). Other associated potentials may be included for the system, particularly if the system is in multiple dimensions, if it consists of more than one type of virtual particle flux, if several fluxes intercommute, etc.

zero vector summation systems: Zero summations of real, nonzero vectors, so that the real vectors are still present but do not cause *spatial translation* of the exposed mass or charges. Instead, the zero vector summation has an internal structure and dynamics, hence an internal engine. Also see discussion under zero vector.

Appendix A

Relation to Equilibrium and Disequilibrium Thermodynamics

"The second law [of thermodynamics] does not rule out the possibility of pushing heat uphill, as it were, from a cold object to a hot one, or of creating order out of disorder. It merely states that such a reversal of the natural flow requires an influx of energy..." [Raymond Serway] {697}

"It is in no way possible, either by mechanical, thermal, chemical, or other devices, to obtain perpetual motion, i.e., it is impossible to construct an engine which will work in a cycle and produce continuous work, or kinetic energy, from nothing." [Max Planck] {698}.

*"What might appear to be empty space is, therefore, a seething ferment of virtual particles. A vacuum is not inert **and** featureless, but alive with throbbing energy and **vitality**. A 'real' particle such as an electron must always be viewed against this background of frenetic activity. When an electron moves through space, it is actually swimming in a sea of ghost particles of all varieties - virtual leptons, quarks, and messengers, entangled in a complex melee. The presence of the electron will distort this irreducible vacuum activity, and the distortion in turn reacts back on the electron. Even at rest, an electron is **not** at rest: it is being continually assaulted by all manner of other particles from the vacuum." [Paul Davies] {699}*

*"I assert... that for the general theory of relativity, i.e., in **the** case of the general invariance of the Hamiltonian function, energy equations... corresponding to the energy equations in orthogonally invariant theories do not exist **at all**. I could even take this circumstance as the characteristic feature of the theory of general relativity." [D. Hilbert] {700}*

*"**In formulating the** equivalence principle, Einstein actually abandoned the idea of the gravitational field as a*

Faraday-Maxwell field, and this is reflected in the pseudotensorial characterization of the gravitational field that he introduced. Hilbert was the first to draw attention to the consequences of this. ... Unfortunately, ... Hilbert was evidently not understood by his contemporaries, since neither Einstein himself nor other physicists recognized the fact that in general relativity conservation laws for energy, momentum, and angular momentum are in principle impossible. " [Logunov and Loskutov] {701}

"No amount of theory can refute a replicable experiment that contradicts the theory. A single replicable experiment can refute any theory that is in conflict. That is the very heart of the scientific method. " [Myron Evans, private correspondence].

"It only takes a single white crow to prove that not all crows are black. " [Anon.]

"One of the most important principles of physics, that disorder, or entropy, always increases, has been shown to be untrue. " [BBC News] {702}

"One of the most fundamental rules of physics, the second law of thermodynamics, has for the first time been shown not to hold for microscopic systems. ... [The experimenters]... found that the change in entropy was negative over time intervals of a few tenths of a second, revealing nature running in reverse. ... But over time intervals of more than two seconds, on overall positive entropy change was measured and normality restored." [Chalmers] {703}.

"We experimentally demonstrate the fluctuation theorem, which predicts appreciable and measurable violations of the second law of thermodynamics for small systems over short time scales... Our results show entropy consumption can occur over colloidal length and time scales. " [Wang et al.] {704}.

A.1 Introduction

For excellent background books on thermodynamics matters, at various levels of difficulty, the reader is referred to texts by Gyftopoulos and

Beretta {705}, Kondepudi and Prigogine {706}, Chalidze {707}, and Dugdale {708}.

It has long been known in physics that at sufficiently small levels (e.g., atomic levels) the second law of thermodynamics does not always hold true. Recently, as quoted above, Wang et al. {704} have extended this area of permissible violation of the second law to much more appreciable times (a few tenths of a second) and lengths (the micron scale). Without further discussion, we note that this places regions and times of negentropy well-within circuitry switching times and interaction with fundamental charged particles. Hence these experiments are beginning to point the way to practical negentropic devices. When coupled with the demonstrated continuous giant negentropy of a charge (considered with its clustering virtual charges of opposite signs), these experiments now strongly support the feasibility of practical overunity EM circuits and systems. The interested reader is encouraged to continue to read the literature along those lines, and stay abreast of developments in that field.

In this book we have presented considerable discussion of time-energy (time as a special, highly compacted form of energy). We have also discussed the three components of the supersystem, including the system, the local active vacuum, and the local curvatures of spacetime. All three components of the supersystem interact with each other continuously, and such interactions are not modeled in classical thermodynamics (CTD), classical electrodynamics (CED), or electrical engineering (EE). Hence one should not be surprised that the supersystem model and supersystem analysis involve contradictions (actually, *extensions*) of these three models, which are special cases and approximations only.

All COP > 1.0 EM systems result from supersystem component interactions.

So COP > 1.0 EM systems are in conflict with CTD, CED, and EE since these three models exclude those interactions.

To falsify any absoluteness of the three models considered, one or more solid, demonstrable, replicable experiments are presented to establish validity of the new higher symmetry approach. This is sufficient to negate the conventionally accepted absoluteness of the lower symmetry CTD, CED, and EE models. Scientifically, these experiments suffice to demonstrate that those three models describe "*special-case* domains of nature" rather than full generalizations of nature. It is clearly understood that the three models remain very useful and very often quite sufficient, just as Newtonian mechanics is useful and often sufficient, without use of relativistic mechanics.

The experiments also falsify any interpretation of the three models as "proof that $COP > 1.0$ systems are impossible. Accordingly, many of the accepted statements and assumptions of the three models must be corrected for $COP > 1.0$ research, as must be the conventional interpretation that the laws of nature (as understood based on those three models) prohibit $COP > 1.0$ EM systems. This follows directly from the quotation by Evans at the beginning of this appendix. Experimental evidence of $COP > 1.0$ is abundant and decisive, such as the many hundreds of routine "negative resonance absorption of the medium" experiments as typified by Bohren's paper {709} and experiment and Letokhov's work {710}. Also, every charge in the universe already falsifies all three models, as amply discussed in this book. That fact for at least a century has generated the source charge problem — the problem of the source charge and its associated fields and potentials and their energy, reaching across the universe. The solution to this problem was published by the present author in 2000, based on the experimentally proven and well-established broken symmetry of opposite charges, such as are on the ends of a dipole.

In the extended approach, conservation of energy in 4-space does not require simultaneous conservation of energy in 3-space. The concept of energy conservation in 4-space does not exist in the three models mentioned, which contain only 3-space energy conservation. There exists a "giant negentropy" 4-space energy flow (circulation) mechanism, as we developed in this book, and it is experimentally demonstrated by every charge in the universe. In a classical 3-spatial energy conservation analysis and view, the giant negentropy action may continuously perform useful work in a system, since it already furnishes all EM field energy and potential energy in every system. All 3-space energy conservation is an extra condition imposed upon 4-space energy conservation, and that condition may be violated at will without violation of the general conservation of energy law.

To the three conventional models mentioned, 4-symmetry in energy flow with broken 3-symmetry, will appear to be perpetual motion and a total violation of the more limited 3-space conservation of energy law. It *does* permissibly violate 3-space energy conservation, which is just a special case a priori. But it is not a violation of energy conservation overall, since we are using a more fundamental energy conservation law (4-symmetry) than the 3-symmetry used in the mentioned CTD, CED, and EE models,

In short, the three models must be extended to provide 4-space energy conservation with simultaneous violation of 3-space energy conservation, accompanied by simultaneous time-symmetry energy flow violation. The

two broken symmetries — of 3-space energy flow and of time domain energy **flow** — thus act as a special extension of the notion of symmetrical regauging, accomplishing it by "equal and opposite-effecting" fields, one in **the** time domain and one in 3-space.

Ironically it then follows that what have heretofore been conceptually called "perpetual motion machines" with respect to 3-space energy conservation are simply attempts — successful or unsuccessful — to build analogues of a windmill turning in a free wind and powering a load. In short **they** are attempts to duplicate in systems what every charge in the **universe** already demonstrates unequivocally. *Nature's* CTD, CED, and EE do not prohibit such systems — again, as evidenced by every charge in the universe demonstrating exactly such "perpetual motion" (we prefer the exact term "giant negentropy") and violation of present *human* CTD, CED, and EE. None of the original charges from the beginning of the universe has slowed and stopped its motion, or stopped pouring out EM energy freely, in some 14 billion years or so. And charge may be taken as the most basic Maxwellian system. Further, all EM fields and potentials, and their energy, comes from their source charges. So those so adamant against perpetual motion machines should first purge their own three models of their *assumed* perpetual motion machines. If this is done, they will purge the three models of all charges, fields, and potentials — and all EM energy in the **process**. In short, the three conventional models used by those same **skeptics** so loudly condemning "perpetual motion machines" will eat **themselves**" by swallowing their own tail, so to speak.

in short, all three models are easily falsified by every charge in the universe, as well as by every EM field and potential, and by the existence of EM energy itself.

Either their models must surrender any pretense at absoluteness and accept being useful approximations only, or else the conservation of energy law **itself must be surrendered**.

Conventional CEM, CTD, and EE have just hidden this appalling fact and conveyed the serious flaws in the modeling by ignoring what Sen {711} referred to as " *the most difficult problem in classical and quantum electrodynamics*. "We believe it will very difficult to find a single electrical engineering department or professor or text that deliberately acquaints electrical engineering students with the source charge problem and its implications.

As an example, in Chapter 9 we presented an experimentally verified and patent-pending method for a special energy conversion method. This

method is proven on the laboratory bench. With this method, a system accepts time-energy and negative energy input, converts it to ordinary positive 3-spatial energy, and uses the converted input energy to close-loop an EM system far from equilibrium. With that conversion process invoked in a governed feedback loop, the $COP > 1.0$ system becomes "self-powering" (an informal term referring to the system freely receiving all its input energy from its active environment). Self-powering, of course, involves the system continuously operating and performing useful work, analogous to a windmill in a wind and powering a water pump. Rigorously, the self-powering $COP = \infty$ EM system becomes directly powered by energy from the broken symmetry induced in its supersystem component interactions.

In Chapter 10 we presented the novel concept of the time-reversal zone (TRZ), which uses the extraordinary EM energy density of time to reverse the Coulomb barrier in nuclear reactions in an electrolyte {712}. This enables nuclear transmutation reactions at low *spatial* energy (but at very high *total* energy when time energy is also considered). There are some 600 successful cold fusion experiments worldwide, in multiple laboratories, by multiple researchers, and most of these experiments demonstrate examples of the specific nuclear reactions made possible by the actions of the TRZ. The time-energy anomalies are directly demonstrated in rigorous electrolyte experiments at U.S. Navy research facilities at China Lake, as we have also discussed in this book. So the experimental results are replicated and well proven. Hence there is adequate, replicated experimental demonstration that additional nuclear reactions exist outside the conventionally known nuclear reaction model. Therefore the set of conventional nuclear reaction models also is reduced to a special case domain, with any absoluteness of those models already experimentally falsified. Either that, or we must abandon scientific model where successfully replicated experiments falsify any theory in contradiction to the experiments.

In our proposed solution to the source charge problem {71 lb}, we found a broken 3-symmetry in energy flow while 4-symmetry is maintained. This is a more primary principle of energy conservation. We called this principle "giant negentropy", which is laughably simple to demonstrate experimentally, since every charge and dipole in the universe already demonstrates it. We showed that such giant negentropy is consistent with quantum field theory, particle physics, and a slight corrective reinterpretation of Whittaker's 1903 decomposition of the scalar **potential**. The experimentally proven and theoretically justified giant negentropy

falsifies any absoluteness of the CTD, CED, and EE models in conflict with it.

Again, this does not mean that one abandons the CTD, CED, and EE models! They are still very useful models in most cases of interest. It means that these present models are still incomplete, and extended models must be developed and used for $COP > 1.0$ EM system research. It also means that none of these three models is valid as a prohibition of the permissibility of $COP > 1$ EM systems.

All EM energy in 3-space comes from the time domain and returns to it. Since all three models exclude time-energy and its transduction into spatial energy, all three are in conflict with the proven giant negentropy model and with the unlimited experimental demonstrations. Accordingly, the experimentally demonstrable giant negentropy of the charge and dipole strongly points out the inadequacy of the three models and the nuclear reaction models, which do not account for time reversal zones, or time-energy and its transduction into a very large magnitude of 3-space energy.

In paragraph A.2 below, we briefly discuss some of the fundamental but permissible supersystem violations of these older models of CTD, CED, and EE, and provide some comments. It is obvious that all three classical models need very serious updating and extension. We point out that exceptions to present thermodynamics models and "laws" already are recognized{713}, and work on such exceptions is being performed under the heading of extended thermodynamics {714}.

In effect, all three models *exclude* every charge, dipole, or dipolarity in the universe - which therefore excludes all matter, fields, and energy - something completely untenable in modern electrodynamics and modern physics. Since the fundamental nature of the "heat" notion of CTD is electromagnetic field energy, and all EM fields and potentials (and their energy) are excluded if their source charges are excluded, then heat itself is excluded by the three models. That is, CTD is also totally falsified by CED'S exclusion of the source charge's demonstrated giant negentropy, which in effect excludes heat itself. This is a non sequitur of such magnitude that it absolutely requires the complete rework of CTD, CED, and EE.

A.1.1 Features of the Development of Thermodynamics

In the development of thermodynamics, a few key events of interest are listed in Figure A-1 below.

Selected Events in the History of Thermodynamics {715}

- 1673 Huygens builds a motor driven by gunpowder explosion.
- 1690 Papin uses steam to move a piston.
- 1712 Newcomen develops a steam engine.
- 1723 Stahl popularizes phlogiston and Becher's concepts.
- 1724 Boerhaave proposes that heat is a fluid.
- 1733 Bernoulli publishes a text that is the first truly statistical treatment of kinetic theory, and publishes an update in 1738. It is almost forgotten until 1859.
- 1765 Watts invents a steam engine that is more than six times more effective than Newcomen's engine.
- 1783 Lavoisier points out the weakness of phlogiston theory with respect to combustion.
- 1786 Lavoisier and Laplace provide a Memoir on Heat.
- 1789 Lavoisier publishes his *Elementary Treatise on Chemistry*, which presents the law of conservation of mass.
- 1791 Prevost publishes a theory of heat and radiation exchange. Richter founds stoichiometry.
- 1798 Thompson demonstrates the conversion of work into heat, in his *Enquiry Concerning the Source of Heat which is Excited by Friction*.
- 1799 Davy's experiments seriously challenge phlogiston theory.
- 1800 Herschel explores the heating ability of different frequencies of light.
- 1802 Lussac establishes the thermal expansion of gases.
- 1803 Dalton forms his atomic theory of matter, setting the stage for atomic chemistry.
- 1804 Leslie shows that light and radiated heat have similar properties.
- 1806 Young formulates a precursor to the modern kinetic energy.
- 1811 Poisson develops a mathematical theory of heat, based on Fourier's work. Avogadro presents his law. Berzelius states that electrical and chemical

- forces are the same and that atoms are electrically charged.
- 1819 Dulong and Petit show an empirical law on the specific heat of solids.
- 1824 Carnot studies the thermal efficiency of machines, introduces reversible transformations, and generates the foundations of thermodynamics in his "Reflections on the Motive Power of Fire".
- 1829 Coriolis defines "kinetic energy".
- 1834 Clapeyron presents the first version of the second law of thermodynamics, based on steam engine studies.
- 1837 von Suerman experimentally verifies Clapeyron's version of Carnot's equations.
- 1842 Mayer equates the conservation of energy law and shows the equivalence between heat and mechanical energy.
- 1843 Waterston anonymously publishes an accurate kinetic theory of gases. It is essentially ignored.
- 1845 Waterston submits a beautiful paper on the kinetic theory of gases to the Royal Society. It is rejected and ignored for more than 40 years, until finally resurrected by the President of the Royal Society.
- 1847 Helmholtz generalizes the conservation of energy law for mechanical, caloric, electric and magnetic energy.
- 1848 Lord Kelvin introduces the absolute temperature scale. Joule finishes establishing the exact relation between heat and mechanical work; his work is almost ignored.
- 1850 Clausius states the second law of thermodynamics.
- 1851 Thomson derives the second law of thermodynamics based on Carnot's work.
- 1855 Rankine publishes *Outlines of the Science of Energetics*.
- 1857 Clausius establishes heat as energy distributed among particles.
- 1858 Clausius introduces the idea of the mean free path of a colliding particle.

- 1859 Kirchhoff establishes the thermodynamic foundation of radiation theory, and completes the basic radiation theory in 1862.
- 1860 Maxwell provides studies in kinetic theory of gases and gives the distribution of molecular velocities. The paper, "Illustrations of the Dynamical Theory of Gases," was read in 1859.
- 1860 Maxwell shows a discrepancy between experiment and the kinetic theory of diatomic gases. It was not resolved until the early stages of quantum theory.
- 1861 Kirchhoff advances the notion of the blackbody.
- 1865 Clausius, Rankine and Kelvin provide the concept and definition of entropy.
- 1860-1877 Boltzmann and Gibbs provide the foundations of statistical classical mechanics.
- 1867 Maxwell publishes *On the Dynamical Theory of Gases*, his major work on the kinetic theory.
- 1874 Thomson points out the reversibility paradox.
- 1877 Boltzmann defines entropy in terms of probabilities.
- 1873-1878 Gibbs publishes several important papers on thermodynamics, widely influencing scientists.
- 1879 Boltzmann establishes the relation between radiation intensity per unit area of a blackbody, and the absolute temperature. Stephan formulates the "Stephan-Boltzmann law" $R_T = \sigma T^4$.
- 1879-1899 Discoveries of various laws and effects, particularly at the micro level.
- 1900 Planck proposes the quantum of action and derives the correct radiation spectrum for blackbodies. (He published the definitive paper in 1911).
- 1905 von Smoluchowski and Einstein independently investigate Brownian motion. Einstein publishes a paper on the photoelectric effect.
- 1906 Nernst advances his heat theorem, where at absolute zero temperature both heat capacity and entropy change go to zero. This is later recognized as the "third law of thermodynamics".
- 1909 Einstein corrects Planck's blackbody derivation.

- 1910 Perrin experimentally validates Einstein's calculations on Brownian motion, providing a strong argument for the existence of atoms.
- 1911 Rutherford proposes the nuclear model of the atom. Sackur points out the need for an absolute definition of entropy. Nernst's experiments provide strong support for the new quantum theories.
- 1925 Born, Heisenberg and Jordan formulate quantum mechanics from matrix algebra. Einstein points out that the analogy between quantum gases and molecular gases is complete; photons and molecules have both wave and particle characteristics.

Figure A-1. Key Events in the History of Thermodynamics up to the Development of Quantum Mechanics.

During the early period of science, a continuing struggle between various notions of esoteric fluids and fluid flow occurred. French scientist Lavoisier (1743-1794), regarded as the father of chemistry, is identified with the concept of heat as an invisible fluid, which he named "caloric". The notion was that one drove this invisible fluid — this caloric — out of a material by some action such as mechanical friction or combustion. This produced the "manifestations" of what was loosely called "heat". In short, caloric was considered to be "heat" which was itself an esoteric fluid. In his famous Treatise {716}, published posthumously, atoms were still in dispute. However, Lavoisier listed the known elements, and included light and heat as elements. Asimov pointed out {717} that Lavoisier had *"... eradicated one imponderable fluid, phlogiston, but it was only partly through his influence that caloric, just as false, remained in existence in the minds of chemists for a half a century."* Caloric dogmatically existed in the minds of scientists deeply into the nineteenth century, until Maxwell and Boltzmann produced theories that strongly supported the concept of atoms as the building blocks of matter. In the late 1790's, Count Rumford (Benjamin Thomson) showed that the supply of heat that could be "driven from matter" was unlimited, which totally contradicted the caloric theory {718}. Yet the notion of caloric persisted until Maxwell's theory eventually killed it, once application of that theory showed that heat was comprised of EM energy.

The fundamental ansatz of thermodynamics was formed and solidified before the advent of modern physics, and even before Maxwell's theory of electrodynamics, and before heat was known to be electromagnetic energy. It has unjustifiably retained an aura of "absoluteness" and dogma, even though its foundations concepts are based on outdated notions already scientifically falsified as far as any absoluteness is concerned. As Mallove states {719}:

"It is astonishing to realize that many modern conceptions (or laws') in the science of heat— thermodynamics — arose during the nineteenth century, a period of utter confusion about the fundamental nature of heat. How could it have been otherwise, given that the very existence of atoms was still in question! One sees the shakiness of the claim that the laws of thermodynamics had reached a state of near perfection' in the twentieth century...when they in fact rested on this very flawed foundation. "

During that formative period, the notion of the conservation of energy **was** also being searched for, as if in a thicket of brambles. For some time, any notion of energy conservation was seen as directly contradicted by caloric, and — in formulating the heretical notion that energy is conserved — pioneers such as Mayer {720} were severely castigated.

In 1850 Clausius resolved the conflict between caloric and conservation of energy in a seminal paper {721}.

Mallove {722} explains how the theory developed from there:

"In one fell swoop Clausius 'scooped' Kelvin and cast into precise form both the First and Second Laws of Thermodynamics — energy conservation, and the limit of the Carnot efficiency."

Clausius' statement of the Second Law is: *"It is impossible for a self-acting machine, unaided by an external agency, to convey heat from one body to another at a higher temperature. "*

In 1851, Thomson (Lord Kelvin) stated the Second Law as:

"It is impossible, by means of inanimate material agency, to derive mechanical effect from any portion of matter by cooling it below the temperature of the coldest of the surrounding objects."

In 1865 — the same year that Maxwell published his seminal paper in his electrodynamics {723} — Clausius derived entropy and showed the two laws of thermodynamics expressed in the same way as the old caloric theory. Clausius used the concept of "entropy" to represent the "*dissipated potential*". In a public speech with the title "The Entropy of the Universe Tends to a Maximum," Clausius included how thermodynamics requires an eventual heat death for the universe. His view was that

"The energy of the universe remains constant (first law), while entropy increases. " {724}

We stress that the notion of the flow of EM energy through space did not originate until the 1880s, when Heaviside and Poynting formulated it independently. Neither relativity — with its notion of a combined spacetime - nor the Minkowski space had been born. Neither had quantum mechanics, quantum electrodynamics, quantum field theory, etc.

For a succinct and very useful listing of the major developments in the history of thermodynamics and statistical mechanics, one is referred to the work of Biggus {725}.

A.1.2 Inadequate Fundamental Definitions in Thermodynamics

In the view we take in this book, energy is the all-important concept, in all its forms, no matter how esoteric. The interactions of energy with matter must therefore be extended to include all known energy interactions, not just those prescribed by CTD or CED. Consequently, two fundamental definitions of thermodynamics are faulted by the supersystem concept.

First, thermodynamics defines an *open system* as one that is open to the exchange of energy and mass across its boundary. No concept or discussion of virtual energy, virtual mass, time-energy, or multiply connected space effects is included. Further, mass is actually a special form of energy, and hence this definition only prescribes the exchange of energy across the system boundary.

Second, thermodynamics defines a *closed system* as a system with no mass exchange across its boundaries, but heat (energy) exchange is permitted. This definition has been a non sequitur since general relativity was established in 1915, and also since caloric (heat) was identified as energy rather than a thin material fluid that was forced or beaten out of matter by doing work on the matter. Since then, energy and mass are also known to be the same thing, as established by general relativity. Whenever the energy of a system changes, its mass changes a priori. So a system thought of as "closed to any mass transfer across its boundaries" still undergoes

mass change due to the exchange of energy across its boundary. Further, the definitions of "closed system" and "open system" are not mutually exclusive. As an example, a system exchanging energy but not mass across its boundary can be classified as a "closed system", and also as an "open system" where normal exchange of mass is blocked but the mass of the system still changes as the systems absorbs and emits energy.

Rigorously, even the energy of a system cannot individually change in 3-space, without first invoking 4-space change! Instead, the "energy x time" — the action — of the system is what moves and changes in 4-space. Observation applies a d/dt operator, resulting in a 3-space energy observed as having already happened or been fixed.

The modern view of gravitation is that the energy in mass generates the gravitational field, not the mass per se {726}. Also, mass is an observable, hence it is a continuously recurring 3-spatial snapshot that does not even continuously exist as mass, but alternately as mass and masstime. The assumption of the continuous existence in mass is falsified by the quantum mechanical nature of observation itself; hence all three models — CTD, CEM, and EE — are falsified.

Nonetheless, let us continue to use the conventional notion of "flow of energy" and "flow of mass" for convenience.

The thermodynamic definition of "open system" ignores the state in which mass exists as "masstime". No "change of mass", flow of mass, etc. occurs. Instead, masstime can flow or change, but mass is an observable and **thus** frozen 3-space snapshot at one instant. Time is "outside" any 3-space material system, hence when mass becomes masstime, it already "exchanges across the system boundary". *For a mass merely to continue to exist requires the exchange of mass across the 3-space system boundary.* Indeed, only "masstime" can be changing, so in failing to consider masstime, the definition is falsified as it stands, in its very assumption of "continuous change of mass" when there is no such thing in all of nature. As stated, a similar consideration applies to energy, which does not **and** cannot "continuously exist in 3-space" at **all**, and cannot *continuously* change. Also, *time is highly concentrated energy* as we develop in this book, and time certainly "exchanges across the boundary" of any mass system. Time may be taken as a sort of "multiple connection" in space, since in theory each point in space is said to "exist simultaneously" in the same time-point.

With quantum potential connection, external energetic processes may be "superposed instantly in multiply-connected space" with one or more

points of the "closed system". Hence, if there exist processes in the system to transduce time-energy into 3-spatial energy — as in the well-proven cold fusion experiments — matter changes including nuclear transmutations can and do occur. Then the "system closed against mass motional exchange through 3-space" (which does not even concretely exist) is not closed against mass changes at all.

To eliminate the mass-change effects of energy transfer across the system boundary, the present thermodynamic definition of a *closed system* must be completely recast into what thermodynamics presently calls an *isolated system* - one in which neither energy nor mass is exchanged across the system boundary. No such system exists in the universe, since merely to exist it has to be open to continual energy exchange between time and 3-space domains, mass has to continually interchange between mass and masstime, and energy has to continually interchange between energy and (energy x time). The blunt truth is that *only open systems exist in nature*.

All systems are open systems in their supersystem interactions, and they can and do exchange time-energy and mass changes due to spacetime curvatures and active vacuum changes. Any local spacetime curvature made by an energy change in a system or nearby, also reacts back upon the system from its local curved spacetime environment. It may react in a totally energetic fashion, or it may react to produce mass in the system (as in pair production). In the book we pointed out that the supersystem components external to the system can also interact in the system to eliminate mass (as when a Dirac hole combines nonradiatively with a Dirac **electron**).

Finally, the notion of an "open system" as one in which energy and mass both can be exchanged across the system boundary must be extended to include a system which can also exchange time-energy, spacetime curvature energy, virtual particle flux activity and energy, and other supersystem effects across the boundary. Further, the notion that a "closed system" can be open to energy exchange but not mass is totally falsified in modern physics' virtual particle exchange between environment and system. Virtual mass — which is physically real — is continually exchanged across the system boundary. Though each virtual mass particle is individually unobservable, coherent summations are observable.

To properly evaluate the conventional thermodynamic definitions of open system, closed system, and isolated system, simply select and use a physics model containing only one fundamental unit, the joule. Now all basic entities are made of energy and functions of energy. So all basic

entities are forms of energy; e.g., both mass and time are special forms of energy. As presented previously in this book, to even "exist in time" a system is continually exchanging and transducing 3-space energy and time energy, across its boundary at an enormous rate. Every system is an open system, *a priori*, and the thermodynamic "closed system" is a non sequitur. The thermodynamic "isolated system" is revealed as the early attempts to deal with observation; i.e., the observed system as a series of frozen 3-space snapshots (effects), each stripped from a 4-space ongoing process at a single moment by the observation process d/dt (LLLT) = LLL. Each snapshot is an isolated system (which is what observation produces). Now we understand that this "isolated system" existed only at a single frozen instant, continually recurring, and never existed continuously in time at all,

So in view of today's physics, the old thermodynamic "isolated system" concept is an early attempt to deal with observation of the system without input or input (without dynamics, hence frozen). "Closed system" is a non sequitur since mass is energy and energy is continuously exchanged across the system 3-boundary in several forms. Both virtual mass and virtual energy are continuously exchanged across the system boundary. It follows that the only type of system existing continuously in nature is the *open system*. The other two "types of thermodynamic systems" are at best only approximations for special cases.

Under modern physics and the new definitions, we conclude that there is no such thing as a truly closed or isolated system continuously existing in the universe. Hence that very definition disappears, *as far as any absoluteness*. It is retained only as a *useful approximation in special cases*, when the more esoteric mass effects and energy effects are intentionally omitted or negligible, and only classical effects are of importance. Any scientist dogmatically objecting to COP>1.0 EM systems on thermodynamics grounds alone, simply reveals his lack of knowledge (or lack of acceptance) of modern physics.

This is similar to the situation existing between Newtonian mechanics and relativistic mechanics. We can still use the Newtonian model for many practical matters, since the relativistic effects are often small and nearly inconsequential. Similarly, the present CTD concept of "closed system" now assumes that kind of relationship to *one class* of open systems in which the more esoteric reactions are negligible or inconsequential. But rigorously, all systems are now open systems, removing a gross non sequitur in CTD which is especially violated by COP>1.0 EM systems including every charge in the universe.

This is a correction to both equilibrium (classical) thermodynamics and disequilibrium thermodynamics. Unfortunately the two disciplines have continued to use the same (old) definitions for closed system and open system. Hence both equilibrium and disequilibrium thermodynamics at present are useful approximations, and their "laws" must not be misinterpreted as "absolute". Thermodynamics remains a very useful model, but further development is also indicated. Indeed, presently such scientific development and extension of the thermodynamic model is being done under the heading of "extended thermodynamics".

A.2 Comments on Problems with Thermodynamics

Quoting, from Kondepudi and Prigogine {727}:

"Every system is associated with an energy and an entropy. When matter undergoes transformation from one state to another, the total energy remains unchanged or is conserved; the total entropy, however, can only increase or, in idealized cases, remain unchanged. "

The absoluteness of that statement is falsified by the solution {12} of the long-vexing problem in CED of a source charge and its associated fields and potentials. The observable charge is a charged mass and thus a Maxwellian system. It is also a thermodynamic system, meeting the present erroneous definition of a "closed system" utilized in both equilibrium and disequilibrium thermodynamics. No observable mass crossed the system boundary, although virtual mass continually crosses it.

The charge is "fed" by a more esoteric energy input in disordered form (the virtual particle flux energy of vacuum), yet it outputs ordered observable

EM energy spreading radially outward at the speed of light across the universe. The charge increases and sustains the organized energy density of a volume of space depending on the radius ct , where t is the time since the formation of the charge and c is the speed of light in empty space. This continuous outflow of observable energy is a continuous and giant negentropy, exhibited by every source charge and dipole. When positive charge, negative charge, polarization of space, and both positive and negative energy are considered, what is spreading is precisely a reordering of the active vacuum — in short, a giant and increasing negentropy. Since the universe is filled with charges, this is a natural process continuously ongoing everywhere in the universe.

Re-quoting Serway (697):

\The second law [of thermodynamics] does not rule out the possibility of pushing heat uphill, as it were, from a cold object to a hot one, or of creating order out of disorder. It merely states that such a reversal of the natural flow requires an influx of energy... "

Our comment is that any mechanism by which the system receives extra usable energy in forward time, or is time-reversed, enables the system to permissibly violate any narrow interpretation of the second law of thermodynamics. The second law was formulated in accord with forward time assumed, and with the old definition of "closed system", which erroneously permitted energy exchange but ignored the mass effects of energy exchange. Therefore, the second law is a special case for equilibrium in its energy exchange with its active environment, but effectively allowing its own negation anyway, and it always has. In the new approach with altered definitions, all EM systems are open systems, and they may also be brought into disequilibrium (in excited states or potentialized condition). Thus in theory all systems are permitted to violate the second law, *particularly when broken symmetries in their supersystems are involved*. This is especially true of EM systems, where all the EM field energy and potential energy in the system— even in the matter itself— comes from the active vacuum environment (particle physics view) by means of the broken 3-symmetry of the source charges and dipoles. The condition of 4-symmetry in energy flow exchange together with broken 3-symmetry and t-flow symmetry, is a disequilibrium condition and an excited state. Every charge and dipole already exhibits this state and the giant negentropy condition.

To first order, then, one may say that the present second law assumes no broken 3-symmetry or broken t-flow symmetry in energy flow, while violation of the second law assumes broken 3-symmetry and broken t-flow symmetry.

Quoting Serway {728}:

"Thermal equilibrium is a situation in which two objects in thermal contact with each other cease to have any net energy exchange due to a difference in their temperatures."

Our comment is that net energy exchange — to include time-energy exchange and negative energy emission, absorption, and transduction are not modeled in thermodynamics and are arbitrarily excluded in **the** quoted statement. Since both are exhibited experimentally, the statement is

falsified as far as being absolute. Instead, it is a special case and a useful approximation when some of the esoteric energy considerations are negligible.

Quoting Serway again {729} on the zeroth law of thermodynamics:

"If objects A and B are separately in thermal equilibrium with a third object, then A and B are in thermal equilibrium with each other. "

A corollary is stated by Serway {730} as:

"...two objects in thermodynamic equilibrium with each other are at the same temperature. "

Our comment is that these statements are true if the time-energy exchange is identical among all three. Otherwise, they are not necessarily true. It is not generally true, e.g., for a system in an accelerated frame. Also, the zeroth law is not necessarily true if negative energy (and/or its transduction is involved with one or more of the objects.

An example: A and B are at the same temperature as C, as measured by a thermometer. But A is also emitting negative energy, which is being absorbed by B, to maintain A and B at the temperature of C. A and B are not in real thermal equilibrium in their supersystem interactions, even though they are at the same macroscopic temperature. A second example: A is emitting negative energy to maintain its temperature, while B and C are not. The supersystem of A is not in real thermal equilibrium with the supersystem of either B or C, even though the observed temperatures of A, B and C are the same.

Quoting {731} on what is meant by the term "heat":

"...heat is treated as another form of energy that can be transformed into mechanical energy. " ... "The word heat should be used only when describing energy transferred from one place to another. That is, heat flow is an energy transfer that takes place as a consequence of temperature difference only."

Quoting Lindsay and Margenau {732}:

*"A complete statement of the first law comprises two **assertions**: (a) heat is a form of energy, (b) Energy is **conserved**."*

The statement in (a) that heat is simply a form of energy is misleading, and the statement in (b) that energy is conserved must be expanded to include total energy, not just heat and the presently accounted forms of energy. Specifically virtual particle energy, time-energy, and energy from the curvature of spacetime must be included.

More correctly, heating is a form of *energy disordering* or energy scattering. As previously pointed out, entropy itself was and is conceived as *the dissipation (irretrievable loss) of potential energy*. Heat thus would be the process of energy disordering, which means that heat is a form of the process of entropy (loss of control of the energy). Note the strong non sequitur with the notion that heat is energy. *Heat cannot logically be both energy and the dissipation of energy*. The concept of energy (its mere presence) is not identical to the concept of scattering of energy or transfer of energy, but the concept of heat is identical to it. The thing is not identical to something done to the thing or to transfer of the thing to another place. A form of scattering of order is not a form of ordering. Transfer of heat is a transfer of disordering of energy, not the transfer of energy per se. Hence, considering heat as simply "heat energy" is a fundamental non sequitur of classical thermodynamics, and remains so to the present day and in the present textbooks. For an example of strong support of this position, see Romer {733}. Quoting {734}:

"The work done on (or by) a system is a measure of energy transfer between the system and its surroundings, whereas the mechanical energy (kinetic or potential) is a consequence of the motion and coordinates of the system. Thus, when you do work on a system, energy is transferred from you to the system. ... one can refer only to the work done on or by a system when some process has occurred in which the system has changed in some way."

Our comment: Consider a system which "ping-pongs" the energy it receives from the environment, between two parts of itself. In each part, the form of the energy is changed by that interacting part and that does work upon the part. But the new form of energy remaining after the work was done in that component is not lost but is ping-ponged to the other component, where it does work upon that component, and so on. In this case, each joule of energy input from the environment does more than a single joule of work, with the work performed being limited only by the ability of the system to sustain and contain the "ping-ponging". There is

work but no entropy if the energy doing the work (changing its form) is not lost from system control!

There is no law of "work conservation" in nature, and a joule of input energy can do more than one joule of work (as in this example) if repetitive changes of its form are considered. Thermodynamics arbitrarily excludes such cases, and hence is incomplete. Again, the conventional perception of the absoluteness of thermodynamics is falsified. It models a special case where the energy can be "used" to do work only once, and then all control of the new form of the energy (it is all still there, just in a different form) is lost.

For a particular substance, the heat capacity C is usually defined as *the amount of heat energy needed to raise the temperature of the sample being tested by one degree Celsius*. This definition assumes only one "use" of the energy to perform work in the substance, and completely ignores

"multipass, multi-use" of the energy to perform more than one joule of work from one joule of input energy. As an example, if an equal amount of positive and negative energy is steadily input, then no amount of the positive heat energy input component would raise the temperature at all. The modern active vacuum, with a local energy density in the region of 10^{80} or more grams per cubic centimeter (expressed in mass units), nevertheless is harmless to living systems immersed in it. It has equal positive and negative energy densities, and so normally inputs the same enormous amount of positive and negative energy in its overall interactions with a living system.

The first law of thermodynamics is usually written as

$$\Delta U = U_f - U_i = Q - W. \quad [1]$$

This is a highly special case, which does not include time energy transduction (spatial energy transduced into time energy and vice versa), or energy transduced from the active vacuum via the broken symmetry of an electrical system in continuous exchange. The definitions of work and heat have to be changed and drastically extended.

As an example of a legitimate exception, when time-energy T_E is transduced into available spatial energy inside the system, we have

$$\Delta U = U_f - U_i = Q + T_E - (W_D + W_L) \quad [2]$$

where W_D is the energy that was dissipated in the system losses without doing useful work and W_L is the energy leaving the system but doing useful work in a load L . $(Q + T_E)$ represents the total net energy entering

the system, while $(W_D + W_L)$ is the total energy leaving the system, either as losses or to do useful work in the load. Here we are also incorporating virtual energy under the title of time-energy, since both time and virtual energy are unobservable, and virtual energy "exists in time".

Now suppose Q entering the system, and collected for use in it, is freely furnished from the active vacuum via the broken symmetry of the electrical system's dipolarity. Suppose T_E is spatial energy freely transduced from the time domain by ongoing processes in the system, and thus T_E also enters the system freely. Then suppose that the system processes are deliberately adjusted by the operator so that

$$(Q + T_E) = (W_D + W_L) \quad [3]$$

In that case,

$$\Delta U = U_f - U_i = 0 \quad [4]$$

yet continuous loss energy W_D is escaping from the working system, useful work W_L is continuously being done in the load, and useful energy $(Q + T_E)$ is continuously entering the system from the active environment (the active vacuum and the local curvatures of spacetime). This system is totally permissible in nature (and is already operating in every charge and dipole in the universe). It is an example of an open system far from equilibrium in *3-space* energy flow, but in equilibrium in *4-space* energy flow. Yet it is artificially excluded by classical thermodynamics.

Classical thermodynamics thus excludes every charge and dipole in the universe, and therefore is an extraordinarily curtailed model. It is a special case approximation having no absolute authority as a proper limiting model of EM systems.

The first law of thermodynamics for infinitesimal changes may be stated as

$$dU = dQ - dW \quad [5]$$

Following the previous reasoning, for involvement of time-energy transduction (with virtual energy included) we have

$$dU = dQ + dT_E - (dW_D + dW_L) \quad [6]$$

If dQ and dT_E are freely received in the system from the active vacuum and local curvatures of spacetime respectively, and if

$$dQ + dT_E = dW_D + dW_L \quad [7]$$

then

$$dU = 0 \quad [8]$$

So with no change in its internal energy at all, the microsystem or microprocess is receiving excess energy continuously, and also is continuously emitting energy that is doing useful work with some losses. The system is in fact in *energy 4-flow* equilibrium, and doing useful work, without the operator inputting any of the energy.

So the *corrected* standard statement of the first law allows an equilibrium system to steadily produce output work W , if its "energy input Q " is freely received. The first law of thermodynamics, properly extended and reinterpreted, does indeed admit "electrical windmills" operating in free electrical winds.

Now turning to the second law. In effect, the second law prescribes those processed in nature — more exactly, in the prescription of the first law — that may or may not occur. It is a law of limitation. It states that, of all the energy conversion processes permitted by the first law, only certain types of energy conversions can take place. A priori, the validity of its prescription depends totally on the nature of the functions involved in the system considered! However, since we dramatically extended the first law, using new processes experimentally determined to take place, then we have automatically extended and changed the second law because we used experimentally *proven* functions. The old second law is now revealed as a special case, with no absolute limitations. The perception that it prescribes absolute limitations has been falsified. It is still useful, however, but to be careful one must completely re-examine (and possibly rework) the second law whenever the energy functions of a system are changed. We strongly stress that *the second law is a conditional law, and its application is totally dependent upon the system energy functions behaving in the limited manner assumed by the second law. Whenever the energy functions of the system are changed outside those assumed by the second law, the second law is permissibly invalidated for that system.* In short, in that case the second law is simply a totally inadequate model for that system, and cannot be used as any sort of criterion for stating the "permissibility" or "impossibility" of that system. As an analogy, a model specifying scalars only cannot be applied to a vectorial system as a decisive logical criterion or restriction.

Quoting Seray{735}:

"From an engineering viewpoint, perhaps the most important application [of the second law] is the limited efficiency of heat engines. Simply stated, the second law states that a machine capable of continuously converting

thermal energy completely into other forms of energy cannot be constructed."

Our comment is that, if we believe that energy is conserved in the entire universe, then the universe itself already violates Serway's statement. If we consider the seething virtual particle flux energy of the active vacuum as a special form of thermal energy, then every charge and dipole in the universe already is a heat engine that falsifies the second law of thermodynamics. The charge and dipole continuously absorb this special form of thermal (virtual flux) photon energy, and also continuously convert it into real, observable photon emission in 3-space. This is negentropy on a giant scale, already demonstrated by every charge and dipole and thus experimentally falsifying the present second law.

Classical thermodynamics also assumes irreversibility. While many of the physics models and equations prescribe reversible reactions, thermodynamics takes the view that events occur with a much greater probability in one direction in time than in the other. This of course is usually borne out in our perception of the gross observable universe around us. However, charge conservation alone requires equal amounts of charge and time-reversed charge. With the nearly ubiquitous time-reversed charge and charge conservation, it follows that some factor not accounted for in thermodynamics is operating in the universe. And so it is, but it is a general relativistic factor. We shall use a biological example of the cellular healing mechanism we discovered in the living body {736}, extending Becker's work and Priore's work.

Normally most processes do not involve deliberate net transduction of time-energy into spatial energy, nor do we model and account for the specific set of ongoing interactions between every part of the system **and** its concomitant set of spacetime curvatures acting back upon it. Call that set of spacetime curvatures the *resident spacetime curvature engine and its dynamics*, or just *its engine* for short. The engine is comprised of structured energy and energetics, and it is already experimentally demonstrated in nonlinear phase conjugate optics that energy can be **time** reversed. The engine's spacetime curvatures act directly upon the **mass-energy** dynamics of the system. Time-reversing the system's operation is a matter of producing a sufficiently amplified, phase conjugated engine to act in reverse upon the physical system and overpower its resident **engine**. In that case, the thermodynamic system and its functioning can be **made to** run backward.

In fact this is the fundamental mechanism used by the body's own cellular regenerative system to heal its damaged cells. To a limited degree, the body is able to "pump" its cells in the time-domain (with time-energy), thus producing an amplified "phase conjugate energy and engine dynamics".

Pumping a living cell with time-energy is interesting. The resident engine serves as the "signal input wave" in conventional nonlinear phase conjugate optics, and the output time-reversed engine (the amplified anti-engine) serves as the "phase conjugate replica wave". A sufficiently simplified anti-engine acts upon the cell and all its tiniest parts, time-reversing all energetic operations in exact phase, proportion, and timing. This is the mechanism for thermodynamic reversibility. It is also the "secret" to eventually reversing aging.

This action is upon all the energetics of the cell and its parts, including the mass-energy and mass-energetics as well.

The result of the action of the anti-engine is to slowly time-reverse the damaged cell and all its parts back to a previous state and dynamics. Electromagnetic amplification of the process was unwittingly demonstrated by Priore {737} and by Becker {738}. We refer the reader to our website {739} and to our "porthole briefing" for pertinent technical information, and for a most important extension and great simplification of the Priore/Becker approach and methodology.

Present classical thermodynamics does not consider or model the reaction of local spacetime curvatures and their dynamics upon the system. Hence all time-domain pumping that occurs is occurring rather randomly in each and every microscopic part of the system. In short, there is no organized anti-engine, and an organized anti-engine is what is required for time-reversing the system's operations back to a previous state. However, by mimicking, the body and pumping the physical process in the time-domain, with sufficient pumping a precise, amplified anti-engine will be formed and act upon the system — *any* system. The applicability is limited only by the state of development of the appropriate time-pumping technology.

In theory (and as experimentally demonstrated unwittingly by Priore and by Becker), this anti-engine can and does overpower the resident engine. It can in fact time-reverse the pumped physical processes in the system itself.

So the classical thermodynamics assumption of irreversibility for heat engine energy processes is not absolute but only provisional. Specifically, it assumes no overall time-domain pumping process that provides a precise

anti-engine and time reversal of the system energetic process of concern and its dynamics.

If the second law is extended to encompass and model the new concepts such as broken symmetry and time-energy, then the extended second law will encompass reversible heat engine processes, Maxwell's demons, $COP > 1.0$ electrical systems, $COP \gg 1.0$ electrical systems (electrical windmills), time-reversal of the dynamics, reversibility of that which has been irreversible, etc.

As given by Kondepudi and Prigogine, the third law of thermodynamics essentially states {740} that

"... at the absolute zero of temperature the entropy of every chemically homogeneous solid or liquid body has a zero value."

This is also known as Nernst's heat theorem, after W. Nernst who proposed it in 1906. The third law states that

$$S \rightarrow 0 \text{ as } T \rightarrow 0 \quad [9]$$

Certain violations of the third law are already known. E.g., C=O: carbon monoxide molecules can align in various ways in a crystal, so there is entropy associated with C=O crystals at 0°K. In this case, A and B are equally probable and the following equation can be used to calculate the entropy (called residual energy):

$$S = nR [1/2 \ln(1/2) + 1/2 \ln(1/2)] = -nR \ln 2 \quad [10]$$

From the new viewpoint, the definition of $T = 0^\circ$ is open to change. Rigorously, the present third law assumes no local broken 3-symmetry of the vacuum's flux exchange with the system, and it also assumes no broken time-energy flow symmetry. In the new approach, both these symmetries can and are broken by every charge while a higher 4-symmetry is maintained. This leads to a giant negentropy, so that the "calculation of entropy" via Nernst's theorem fails. A fundamental charge at $T = 0^\circ$ thus continues to exhibit giant negentropy, in total violation of the third law of classical thermodynamics. Hence the third law is also devoid of any absoluteness, and it is reduced to a special case statement. It remains useful where the more esoteric energy interactions are negligible.

We have now demonstrated (by citing actual substantiating experiments) that all the laws of CTD are falsifiable insofar as being absolute. Hence they have *no* absoluteness. Instead, they are special case models and "approximation laws" only. They remain very useful and applicable,

However, so long as the more esoteric energy interactions of the supersystem do not play a major role in the system operation.

We conclude that the present form of classical thermodynamics and disequilibrium thermodynamics are special case models — as indeed is every model, by Godel's theorem and proof alone — with no absoluteness. They do not prohibit $COP > 1.0$ EM systems, nor can they necessarily be used to rule out $COP > 1.0$ EM systems.

This also falsifies all current arguments that $COP > 1.0$ EM systems violate either the first, second, or third law of classical thermodynamics. Calling $COP > 1.0$ systems "perpetual motion machines of the first, second, and third kind", according to which law they supposedly violate, is a total non sequitur. Indeed, every original charge in the universe has already demonstrated just such "perpetual motion" for some 14 or so billion years, and happily violates all three laws of the present CTD. Every charge is in violation of the "laws" of the present models of CTD, CED, and EE, and it is still in motion and still freely pouring out EM energy. We have no ability to examine the notion of "perpetual" past the entire past existence of the universe.

All three models examined — CTD, CED, and EE — are seriously out of date and in need of revision and extension, because any absoluteness of their predictions and assumptions is already falsified by actual experiments and examples. Some work is already ongoing to extend thermodynamics, but is not nearly extensive enough. A thorough overhaul of the very foundations is what is needed for all three models. The three models remain useful as special case approximations, but their received use to arbitrarily rule out $COP > 1.0$ EM systems is dogma, not science because such use is already experimentally refuted by every charge in the universe.

Appendix B

Maxwell's Demon: Alive and Thriving

Introduction

ITHERE is a long history of discussion over "Maxwell's demon", a fictitious being that Maxwell proposed to "sort" molecules striking a barrier between two volumes of gas initially at the same temperature. By intentionally opening a trap door between two for hotter, more energetic molecules to pass through from the left side to the right side, but shutting the door for lower temperature molecules so that they are retained on the left side, eventually a temperature gradient would "freely" exist between the two reservoirs. In theory, then, if one had the demon working "for free", one would be able to utilize the temperature difference between the reservoirs to perform free work. Then one could repeat the demon's sorting procedure, to obtain more free work again. And soon.

The prevailing discussions have ignored the main feature: the fact that the demon is part of the "external environment" (i.e., not under control of the system, and operating independently of any energy input by the operator). Maxwell's demon represents an analogy to the system's environment furnishing free energy (free ordering and sorting). A lot of breath and mental gyrations have gone into the discussions over the years, with very little concrete experimental examination. The prevailing concept in science, which still adheres to the "absoluteness" of the second law of thermodynamics, is that Maxwell's demon is impossible.

Recently, the former editor of *Nature*, Dr. John Maddox, wrote a very clear emeritus editorial on Maxwell's famous demon, repeating the standard conclusion that such is not possible. Since there are specific examples in physics of what can be called "experimentally proven Maxwell's demons," the present author prepared a respectful commentary to *Nature* to refute the standard erroneous thesis in the interest of science. Since experiment is supposed to be decisive in physics, we hoped that citing overwhelming experimental proof would be sufficient. It wasn't.

Almost symbolically (i.e., "free the demon!"), I submitted the commentary to the editor by E-mail on the evening of July 4, 2002. The very next day I received rejection (not too unexpected) by E-mail with no further discussion accepted. So I wrote a polite note in response, and then posted my commentary note on my website.

In this appendix, I include my E-mails of both 4 July and 5 July 2002, and then include the commentary that was submitted. The reader can read the cited emeritus editorial in *Nature*, and then decide for himself or herself whether experiment still rules the day at *Nature* where $COP > 1.0$ and $COP = co$ EM systems are concerned.

E-mail to *Nature* 4 July 2002, submitting the Commentary.

Dear Editor:

Attached is a significant commentary on John Maddox's excellent emeritus editorial on Maxwell's demon, titled "Slamming the Door," *Nature*, 417, 27 Jun. 02, p. 903.

Forms of Maxwell's demon are very much alive and thriving, and experimentally confirmed, as we develop very clearly in this commentary. They are unwittingly used widely in electrodynamics, though seldom recognized.

Most sincerely,

Tom Bearden, Ph.D., Magnetic Energy Ltd.

E-mail to *Nature* 5 July 2002, submitting a comment on the rejection.

Dear Ms XXX:

Thanks for the prompt reply.

Since *Nature* will not be publishing the note, I have now posted it on my website (some 80,000 hits per day from all over the world). It can be seen at <http://www.cheniere.org/articles/maxwells%20demon.htm>

This is a respectful article, and I just thought the experimental information needed getting out there to the scientific community. I also understand you cannot discuss it further. I only wish to note that it is based on cited replicable experiments, which are supposed to be the decisive thing in science and scientific method. It seems a bit odd that you would not publish the results of several replicable and replicated experiments **that** falsify a prevailing theoretical thesis and conclusion. Nonetheless, I respect the wishes of *Nature*, and I do enjoy the Journal each week.

Best wishes,

Tom Bearden, Ph.D.

Within days of this rejection, the paper by Wang et al. [741] was published, extending the known physics "Maxwell's demon" regime (i.e., where the second law of thermodynamics is known to be violated) from the atomic scale and very short periods of time, to the micron scale in size and time up to a few tenths of a second.

Here is the rejected commentary I submitted to *Nature*.

Maxwell-type demons are alive and thriving

The recent emeritus editorial by Maddox on Maxwell's demon [742] is a short overview of one historical aspect of would-be negentropy, but much greater thought on the subject needs to be given. Indeed, Maxwell's demon is alive and thriving, but just in a different form not requiring a nimble-fingered microscopic being. We now discuss such experimentally proven demons.

Consider the prevailing ansatz that Maxwellian systems outputting more EM energy than the energy input by the operator or experimenter are impossible. Such proposed systems are said to constitute examples of forbidden perpetual motion machines because they violate the second law of classical (equilibrium) thermodynamics. That prevailing ansatz has been falsified in classical electrodynamics since the 1880s, and in particle physics for 45 years, but eerily it is still the prevailing scientific opinion nonetheless.

The ansatz can be experimentally disproved in classical electrodynamics as follows: Lay a charged capacitor or electret on a permanent magnet so the E-field of the capacitor or electret is at right angles to the H-field of the magnet. That optimizes $\mathbf{S} = f(\mathbf{E} \times \mathbf{H})$, and hence optimizes the continuous flow of Poynting EM energy from that simple device, even though the fields, seem to be "static". As Buchwald states [743], "*Poynting's result implies that a charged capacitor in a constant magnetic field which is not parallel to the electric field is the seat of energy flows even though all macroscopic phenomena are static.*" [744] This simple device will freely pour EM energy indefinitely, so long as it remains intact.

We consider a special but universal kind of related Maxwell's demon problem: the vexing problem of the source charge, sometimes called "the most difficult problem in classical and quantum electrodynamics." [745] Any charge pours out observable EM energy continuously in all directions, at the speed of light, with no *observable* EM energy input. This continuous flow of EM energy establishes the charge's related fields and potentials and their energy, reaching even across the universe for very old charges. In

the classical electrodynamics (CED) model and therefore in electrical engineering, there is no solution to this problem because CED does not model *nonobservable* EM energy inputs such as the virtual particle flux exchange of the charge with its vacuum environment.

With no solution available in CED, then the present CED and electrical engineering assume that every charge in the universe *freely and continuously creates energy out of nothing*, and pours it out in all directions, forming its associated fields and potentials and their energy. Either we must solve the problem in the classical EM model, or totally surrender the conservation of energy law in the model in its present limited form. Or — as is presently the case — we may continue to ignore it, as has been done during the 45 years since the proof of broken symmetry in particle physics [746].

On the other hand, particle physics models and utilizes virtual energy **in** the seething vacuum, including the interactions of the vacuum with charge, With the 1957 experimental proof of broken symmetry by Wu et al., [746] certified by the award of the Nobel Prize to Lee and Yang later that **same** year, one of the proven broken symmetries in the vacuum virtual energy exchange is the asymmetry of opposite charges, such as are on the ends of a dipole. For a dipole or dipolarity, then by the very definition of broken symmetry *something virtual has become observable*. We diverge for a moment, and then will return to this proven asymmetry of the opposite charges of the dipole.

If we take the modern view of the bare charge clustered by virtual **charges** of opposite sign, then the magnitude of the bare charge in the middle is infinite (including its energy) and so is the magnitude of the charge of the surrounding clustering virtual charges. [747] So for an "isolated **observable** charge" we actually have a sort of "infinitely powerful dipole". Yet **the** difference between these two infinite values of charge is finite; it is routinely calculated as the observed charge of an elementary charged particle, the value that is listed in standard texts and handbooks. The asymmetry of this "opposite composite charges" model of the "isolated observable charge" now explains the long-vexing source **charge** problem. The observable "composite" charge continuously absorbs **virtual** photon energy from the seething vacuum exchange, transduces it **into** observable photon energy excitation, and this excited state **continuously** decays to emit real observable photons in all directions at the speed of light. When *virtual* energy input as well as *observable* energy output is accounted, the charge's proven asymmetry in the vacuum exchange **makes** the source charge an open system far from equilibrium in its active

environment. As an open disequilibrium system the charge is thermodynamically permitted to (1) self-order (hence coherently integrate absorbed virtual photon energy into observable photon energy), (2) self-oscillate or self-rotate (spin), (3) output more energy than the "operator" **inputs** (the operator inputs none at all), and (4) exhibit negentropy. Every charge in the universe is already doing those four functions. It is also a system having a COP (coefficient of performance, or useful energy output divided by the operator's energy input) of $\text{COP} = \infty$, since the operator inputs nothing.

Inshort, every charge in the universe already is a special kind of known "Maxwell's demon", whose operational mechanism is long since proven in particle physics but does not appear in classical electrodynamics or electrical engineering. It is a dependable Maxwell's demon, since all charges in the original matter in the universe have been pouring out real EM energy freely, using this asymmetry mechanism, for some 14 billion years, **and** they continue to do so. Further, any charge one assembles in the laboratory instantly starts up its Maxwellian demon performance automatically, and it will continuously pour out EM energy in all directions indefinitely, so long as the charge remains intact. So this demon is **easily** created and demonstrated experimentally. The Maxwell's demon **for** freely extracting copious EM energy from the vacuum is one of the easiest entities to invoke in all of physics

This is **not** a violation of thermodynamics, since classical *equilibrium thermodynamics* with its infamous second law does not apply because the charge is far from equilibrium in its exchange with its active vacuum environment. Although the $\text{COP} = \infty$, the *efficiency* of the charge system — defined as the useful energy output divided by the total energy input from all sources — is never more than 100%. Hence this is not a perpetual motion machine, and the charge rigorously does not create energy; it only transduces energy input to it in a novel form. In this case, the charge can permissibly act as if it were a free electrical windmill turning in a novel free electrical wind due to its asymmetry in the vacuum flux.

So every charge in the universe exhibits $\text{COP} = \infty$, clearly proving that Maxwell's demon in an improved form exists and is thriving throughout the universe. There would be no EM fields and potentials and their energy, and hence no electrical circuits or power systems, were it not for this asymmetry of the charge in its virtual energy exchange with the vacuum, making the charge a true Maxwell's demon.

In the usual CED model and electrical engineering, the 1867 L. V. Lorenz symmetrical regauging (later credited to H. A. Lorentz) [748] of the equations carefully selects only those Maxwellian systems that have two simultaneous equal and opposite disequilibria with their active environment. This assumes that the potential energy of the system is freely changed twice (by gauge freedom), but only in such highly selected manner as to form two equal and opposite new "free" force fields in the system. These two force fields perform *internal work* inside the system continuously, increasing its stress (and its stress potential, thereby curving local spacetime). Since there is no *net resultant* force field, the two force fields are unable to translate electrons in the circuit to do free *external* work in the external load. So the symmetrically regauged Maxwellian system has been altered: its energy has been changed twice, forming a stress potential inside it and increasing and maintaining that stress on the system, and the frame of the system has been somewhat rotated out of ~~the~~ laboratory frame. The symmetrically regauged Maxwellian system most decidedly is not identical to the system prior to regauging.

We note merely that the common Lorentz symmetrical regauging unwittingly assumes two Maxwell's demons of yet different kind, each freely fueled from the local vacuum environment, and each continuously performing internal work upon the system to produce and maintain system stress.

Gauge freedom is thus revealed as a special kind of Maxwell's demon, since (1) it assumes that the potential energy of a system can be freely changed at will at any time, and (2) unless we abandon the conservation of energy law, that energy change must have involved energy exchange **with** the external environment. So the gauge freedom axiom of quantum field theory assumes two specialized Maxwellian demons — i.e., mechanisms for transfer of energy between environment and system, so as to continuously perform internal work upon the system. In this case the two demons are equal and opposite, and fight each other to a draw insofar as performing any useful external work.

Oddly, in present electrical circuits the ubiquitous but *arbitrary* closed current loop circuit — passing all spent current from the external circuit back through the source dipole in the generator against the dipole's **back** emf— self-imposes Lorentz regauging of excitation discharge in the circuit and prevents COP>1.0 functioning. This is not required by thermodynamics in general! Indeed, several areas are already known to violate present thermodynamics. Sharp discharges (strong gradients), for example, are known to violate it. [749] Other known areas where

thermodynamics is violated include rarefied media, and anomalous memory effects in materials. Modern research is being conducted in such areas under the heading of "extended thermodynamics". [750].

Since experiment and not theory is primary in science, let us consider some additional actual Maxwell demon experiments. The well-known "negative resonance absorption of the medium" produces more output energy than the operator inputs to the experiment, with hundreds of these experiments done every year routinely by many nonlinear optical laboratories. As an example, Bohren's version of such an experiment [751] commonly outputs 18 times as much EM energy as the operator inputs, exhibiting $COP = 18$. Independent replication of Bohren's work by Paul and Fischer [752] is reported in the same journal issue.

Added to the charged capacitor lying on a permanent magnet, there thus exist plenty of proven, replicated experiments which can be easily performed to demonstrate a Maxwellian demon operating in a Maxwellian system and freely producing $COP > 1.0$, or even $COP = \infty$. Because of the demon (the operational mechanism), these experiments all involve open systems far from equilibrium with their active environment. Hence they are not limited by the second law of classical equilibrium thermodynamics.

In short. Maxwell's demon is very much alive in many forms and is thriving after all. It has just been hiding in different form than what is usually suspected.

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ENDNOTES

1. (a) Albert Einstein, "Foreword," in (b) Max Jammer, *Concepts of Space: The History of Theories of Space in Physics*, Harvard University Press, Cambridge, Massachusetts, 1969, p. xi-xii.

2. George Zebrowski, "The holdouts," *Nature*, Vol. 408, 14 Dec 2000, p. 775; expressing the thinking of Stephen Hawking, one of the leading physicists of our day.

3. Mario Bunge, *Foundations of Physics*, Springer-Verlag, New York, 1967, p. 176.

4. (a) J. H. Poynting, "On the transfer of energy in the electromagnetic field," *Phil. Trans. Roy. Soc. Lond.*, Vol. 175, Part II, 1884, p. 343-361; (b) — "On the Connection Between Electric Current and the Electric and Magnetic Inductions in the Surrounding Field," *Phil. Trans. Roy. Soc. Lond.*, Vol. 176, 1885, p. 277-306.

5. (a) Oliver Heaviside, "Electromagnetic Induction and Its Propagation," *The Electrician*, 1885, 1886, 1887, and later — a series of 47 sections, published section by section in numerous issues of *The Electrician* during 1885, 1886, and 1887; (b) — *Electromagnetic Theory*, 3 vols., Bunnell, London, 1893-1912. Second reprint 1925. An unabridged edition of all three volumes, with a critical and historical introduction by **E. Weber**, was published by Dover, New York, 1950. See particularly (c) - "On the Forces, Stresses, and Fluxes of Energy in the Electromagnetic Field." *Phil. Trans. Roy. Soc. London*, 183A, 1893, p. 423-480. In this prestigious publication, Heaviside discusses the Faraday-Maxwell ether medium, outlines his vector algebra for analysis of vectors without quaternions, discusses magnetism, gives the EM equations in a moving medium, and gives the EM flux of energy in a stationary medium. On p. 443, he credits Poynting with being first to discover the formula for energy flow, with Heaviside himself independently discovering and interpreting this flow a little later by himself in an extended form.

6. E.g., a polite debate has continued at intervals, for about 30 years, in the *Am. J. Phys.* alone.

7. Richard P. Feynman, Robert B. Leighton, and Matthew Sands, *The Feynman Lectures on Physics*, Addison-Wesley, Reading, MA, Vol. 1,

8. *Ibid.*, Vol. 1, 1964, p. 12-2.
9. *Ibid.*, Vol. 2, 1964, p. 2-1.
10. John D. Kraus, *Antennas*, Second Edition, McGraw Hill, 1988.
11. Raymond A. Serway, *Physics for Scientists and Engineers with Modern Physics*, Third edition, updated version, Saunders College Publishing, Philadelphia *et al*, 1990, p. 620.
12. T. E. Bearden, "Giant Negentropy from the Common Dipole," *J. New Energy*, 5(1), Summer 2000, p. 11-23. Also on website www.cheniere.org.
13. (a) T. D. Lee, "Question of Parity Conservation in Weak Interactions," *Phys. Rev.*, 104(1), Oct. 1, 1956, p. 254-259; (b) — with Reinhard Oehme and C. N. Yang, "Remarks on Possible Noninvariance under Time Reversal and Charge Conjugation," *Phys. Rev.*, 106(2), 1957, p. 340-345; (c) — and C. N. Yang, "Parity Nonconservation and a Two Component Theory of the Neutrino," *Phys. Rev.*, 105(5), Mar. 1, 1957, p. 1671-1675.
14. C. S. Wu, E. Ambler, R. W. Hayward, D. D. Hoppes and R. P. Hudson, "Experimental Test of Parity Conservation in Beta Decay," *Phys. Rev.*, Vol. 105, 1957, p. 1413.
15. We published it crudely two years later. See T. E. Bearden, *Quiton/Perceptron Physics: A Theory of Existence, Perception, and Physical Phenomena*, NTIS Report AD-763-210, 1973.
16. A time-reversal zone is a momentary tiny region of the fluid wherein antiphoton reactions with the main ions predominate over **photon** reactions.
17. See T. E. Bearden, "EM Corrections Enabling a Practical Unified Field Theory with Emphasis on Time-Charging Interactions of Longitudinal EM Waves," *J. New Energy*, 3(2/3), 1998, p. 12-28. A slightly expanded paper by the same title is published in *Explore*, 8(6), 1998, p. 7-16.
18. E.g., see Xiaodong Chen, "A New Interpretation of Quantum Theory — Time as Hidden Variable," Los Alamos National Laboratory web site, arXiv:quant-ph/9902037 v3, 11 Feb. 1999. Using two more **time** variables as the quantum hidden variables, Chen derives Dirac's field equation under the principle of quantum physics, and then extends **the**

method into quantum fields with arbitrary spin number. Chen's model offers very interesting unifications of quantum mechanical behavior.

19. F. Mandl and G. Shaw, *Quantum Field Theory*, Wiley, 1984, Revised Edition 1993, Chapter 5. This is a deeper coverage of the photon polarization. Mandl and Shaw argue that the longitudinal and scalar (time-polarized) polarizations are not directly observable, but only in combination, where they manifest as the "instantaneous" Coulomb (i.e., electrostatic) potential. This argument, translated from particle terminology to wave terminology, directly fits and strongly supports my reinterpretation {12} of Whittaker's 1903 wave decomposition of the scalar potential {85}. The reinterpretation also represents the discovery of the giant negentropy process favored by nature, easily evoked by breaking 3-symmetry (as by forming a simple dipole).

20. James Clerk Maxwell, "A Dynamical Theory of the Electromagnetic Field," *Roy. Soc. Trans.*, Vol. CLV, 1865, p 459. Read Dec. 8. 1864. Also in *The Scientific Papers of James Clerk Maxwell*, 2 vols, bound as one, edited by W. D. Niven, Dover, New York, 1952, Vol. 1, p. 526-597. In this seminal paper, Maxwell's equations of the electromagnetic field are given in "Part III, General Equations of the Electromagnetic Field," p. 554-564. On p. 561, Maxwell lists his 20 variables. On p. 562, he summarizes the different subjects of the 20 equations, being three equations each for magnetic force, electric currents, electromotive force, electric elasticity, electric resistance, total currents; and one equation each for free electricity and continuity.

21. B. J. Hunt, *The Maxwellians*, Cornell University Press, 1991 gives the history of the alteration of Maxwell's field theory by Fitzgerald,

Heaviside, Lodge, and Hertz. In an appendix, Hunt makes a comparison between the standard expressions of the Maxwell field equations and their expression in quaternionic form.

22. E.g., J. D. Jackson, *Classical Electrodynamics*, 2nd Edition, Wiley, 1975, p. 219-221.

23. Willis E. Lamb Jr. and Robert C. Retherford, "Fine structure of the hydrogen atom by a microwave method," *Phys. Rev.*, 72(3), Aug. 1, 1947, p. 241-243. Lamb received the 1955 Nobel Prize in physics jointly with Polykarp Kusch for experiments measuring the small displacement later called the "Lamb shift" of one of the energy levels in atomic

hydrogen. This is a small "vacuum energy" effect, but the *energy density* involved is greater than the surface energy density of the sun.

24. Craig F. Bohren, "How can a particle absorb more than the light incident on it?" *Am. J. Phys.*, 51(4), Apr. 1983, p. 323-327. Under nonlinear conditions, a particle can absorb more energy than is in the light incident on it. Metallic particles at ultraviolet frequencies are one class of such particles; insulating particles at infrared frequencies are another.

25. See also H. Paul and R. Fischer, "(Comment on "How can a particle absorb more than the light incident on it?")," *Am. J. Phys.*, 51(4), Apr. 1983, p. 327 for a replication and validation of Bohren's experiment,

26. H. B. G. Casimir, "On the attraction between two perfectly conducting plates," presented at a meeting of the Royal Netherlands Academy of Arts and Sciences on 29 May, 1948. Published in the same year in *Proc. Koninklijke Nederlandse Akad. van Wetenschappen*, Amsterdam, vol. 51(7), 1948, p. 793-796. In English. It is an extrapolation of the more detailed paper of Casimir and Polder, 1948.

27. S. K. Lamoreaux, "Demonstration of the Casimir Force in the 0.6 to 6 micro mrange," *Phys. Rev. Lett.*, 78(1), Jan. 6, 1997, p. 5-8. Lamoreaux gives a rigorous experimental verification of the Casimir effect.

28. Franklin B. Mead and Jack Nachamkin, "System for Converting Electromagnetic Radiation Energy to Electrical Energy," U.S. Patent No 5,590,031. An invention for extracting energy from the vacuum via the proven Casimir effect.

29. (a) Floyd Sweet and T. E. Bearden, "Utilizing Scalar Electromagnetics to Tap Vacuum Energy," *Proc. 26th Intersociety Energy Conversion Eng. Conf. (IECEC '91)*, Boston, Massachusetts, 1991, p. 370-375. Sweet's device produced 500 watts output from a 33 microwatt **input** by the operator. A highly successful anti-gravity experiment designed by the present author was also performed, and is reported in the paper. Unfortunately, Sweet later died and never fully revealed the activation secret by which barium ferrite magnetic materials could be in self-oscillation at 60 Hertz. Weak self-oscillation of such permanent magnetic materials at higher frequency is now known, of course. E.g., see (b) V. E. Zakharov and V. S. L'vov, "Parametric excitation of spin waves in ferromagnets with magnetic inhomogeneities," *Sov. Phys. Solid State*, 14(10) 1973, p. 2513. Particularly see (c) V. S. L'vov, *Wave Turbulence Under Parametric Excitation: Applications to Magnets*, Springer Series in

Nonlinear Dynamics, Springer-Verlag, New York, 1994. Self-oscillation can in fact be induced in permanent magnet materials. We comment that, while a permanent magnet is in self-oscillation, a simple set of wires or a coil around the magnet will receive EM energy by induction, and can power a very tiny load in a closely adjacent circuit.

30. T. E. Bearden, "Bedini's Method for Forming Negative Resistors in Batteries," *J. New Energy*, 5(1), Summer 2000, p. 24-38. Also carried on restricted DoE website <http://www.ott.doe.gov/electromagnetic/> and on the present author's open website <http://www.cheniery.org>.

31. Teruo Kawai, "Motive Power Generating Device," U.S. Patent No. 5,536,518. Jul. 25, 1995. My board of directors and I were physically present when the Kawai system, company, etc. were seized by what can only have been the Yakuza (Japanese mafia), even though Kawai was being backed by one of the wealthiest investors in Japan. I had just reached an agreement with Kawai to produce and market his overunity motor worldwide. Several legitimate Japanese overunity systems, ready for production, have been stopped in this fashion. Kawai's process, applied with efficient switching such as photon-coupled switching, essentially doubles the COP of the motor to which it is applied. If one starts with a high efficiency (e.g., Hitachi) permanent magnet electric motor of 0.7 or 0.8, one can expect to produce COP = 1.4 and 1.6 respectively, the actual results obtained by Hitachi tests of two Kawai-modified Hitachi motors. We accent that the efficiencies of the motors remain less than 100% at all times.

32. Gabriel Kron, "Electric circuit models of the Schrodinger equation." *Phys. Rev.* 67(1-2), Jan. 1 and 15, 1945. Quoting, p. 41: *"Now a value E of the negative resistances, at which the generator current becomes zero, represents a state at which the circuit is self-supporting and has a continuous existence of its own without the presence of the generator, as the negative resistances just supply the energy consumed by the positive resistances. ... When the generator current is positive the circuit draws energy from the source, and when the current is negative the circuit pumps back energy into the source. At zero generator current the circuit neither gives nor takes energy, and theoretically the generator may be removed."* In this passage, Kron was required to insert the word "theoretically". Kron was the chief scientist for General Electric on the Network Analyzer project at Stanford University before WW II. In the 1930, he did successfully build negative resistors (at least three), and he

did successfully power the network analyzer with them. He was never permitted to release the technical details, although he placed judicious hints in several of his papers, and slipped certain key phrases past the censors. Interestingly, Sweet was his protegee, and it is conceivable that the basis for Sweet's device may have been Kron's original negative resistor. Independent tests and verification of the Sweet device were performed by Walter Rosenthal, a retired professional test engineer of considerable experience.

33. Shoukai Wang and D. D. L. Chung, "Apparent negative electrical resistance in carbon fiber composites," *Composites, Part B*, Vol. 30, 1999, p. 579-590. Apparently the referees required the replacement of the term "negative electrical resistance" by the term "apparent negative resistance". In the paper, simply examine the actual results shown in the curves of the negative-going current, against the voltage, with the line passing directly through the origin. That is a true negative resistance, not a differential one or an "apparent" one. A patent was filed on this invention.

34. (a) T. H. Moray, *The Sea of Energy*, 5th Edn., Salt Lake City, 1978. The Moray device weighed 55 pounds and produced 50 kilowatts of power in the late 1930s, and was demonstrated to scientists and engineers numerous times, Moray made tubes which actually contained very special semiconductors, three of them in contact, each pressed at high pressure during a sintering process. A very eerie chain of circumstances eventually destroyed the device. Moray rode in a bulletproof car, and he was sometimes fired at from the sidewalk or an alley. A double agent, working for both the U.S. and the Soviet Union, infiltrated his lab and eventually destroyed the device. The Morays were never given a proper scientific hearing and were never funded for full development. T. Henry Moray was shot and wounded in his own laboratory, wrestling with a would-be assassin. Yet so many expert engineers and scientists witnessed and tested the machine in operation that there is no question of its legitimacy. Unfortunately, the reference cited is not at all a satisfactory scientific examination of the Moray device. A related U.S. patent was issued which at least shows some details of the Moray tube: See (b) Thomas H. Moray, "Electrotherapeutic Apparatus," U.S. Patent No. 2,460,707, Feb. 1, 1949. I personally received a treatment on a Moray device for severe pain, and the relief was rapid and remarkable.

35. See (a) William B. Burford III and H. Grey Verner, *Semiconductor Junctions and Devices: Theory to Practice*, McGraw-Hill,

New York, 1965, Chapter 18: Point-Contact Devices. The very first transistor — the point contact transistor — also often exhibited negative resistance. Quoting, p. 281:

"First, the theory underlying their function is imperfectly understood even after almost a century..., and second, they involve active metal-semiconductor contacts of a highly specialized nature. ... The manufacturing process is deceptively simple, but since much of it involves the empirical know-how of the fabricator, the true variables are almost impossible to isolate or study. ... although the very nature of these units limits them to small power capabilities, the concept of small-signal behavior, in the sense of the term when applied to junction devices, is meaningless, since there is no region of operation wherein equilibrium or theoretical performance is observed. Point-contact devices may therefore be described as sharply nonlinear under all operating conditions."

Certainly degenerate four-wave mixing and therefore time reversal can occur in semiconductors. E.g., see (b) R. K. Jain, "Degenerate four-wave mixing in semiconductors: application to phase conjugation and to picosecond-resolved studies of transient carrier dynamics." *Opt. Eng.*, 21(2), March/April 1982, p. 199-218. We also point out that hole current can be emitted from an n-type semiconductor having a metallic point placed on its surface, and hole current will move against the voltage (electron current view). A process (patent pending) by Bedini and Bearden have shown that a capacitor may be charged by hole current, and then discharge electron current, effectively transducing negative energy into positive energy. It is therefore possible (Bedini's method) to switch a capacitor from a hole-current charging circuit by a hole-emitting process, to a bypass capacitor across a source such as a battery after the capacitor has reached higher charge voltage than the source. The capacitor will then charge the battery and power the circuit as well, during that portion of its discharge cycle while its voltage is above that of the battery. This is a legitimate COP > 1.0 process, invented by Bedini.

36. (a) William Jay Fogal, "High Gain, Low Distortion, Faster Switching Transistor." U.S. Patent No. 5,196,809, Mar. 23, 1993; (b) — "High Gain, Low Distortion, Faster Switching Transistor." U.S. Patent No. 5,430,413, July 4, 1995. The Fogal semiconductor can be rigged to perform the permitted degenerate four-wave mixing and therefore time reversal. It can thus be rigged as a true negative resistor, where the current moves against the voltage.

37. Stephen L. Patrick, Thomas E. Bearden, James C. Hayes, Kenneth D. Moore, and James L. Kenny, "Motionless Electromagnetic Generator," U. S. patent # 6,362,718, March 26, 2002.
38. (a) T. E. Bearden, "Energy from the Active Vacuum: The Motionless Electromagnetic Generator," in M. W. Evans (Ed.), *Modern Nonlinear Optics*, Second Edition, Wiley, 2001, Part 2, p. 699-776; (b) M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "Explanation of the Motionless Electromagnetic Generator with 0(3) Electrodynamics," *Found. Phys. Lett.*, 14(1), Feb. 2001, p. 87-94; (c) M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al.*, "Explanation of the Motionless Electromagnetic Generator by Sachs's Theory of Electrodynamics," *Found Phys. Lett.*, 14(8), Aug. 2001, p. 387-393.
39. A version of the MEG was also independently replicated by J. L. Naudin. See his website at <http://jnaudin.free.fr/html/meg.htm>.
40. T. E. Bearden, "Dark Matter or Dark Energy?", *J. New Energy*, 4(4), Spring 2000, p. 4-11.
41. See Chapter 4 for a high-level expose of this methodology.
42. Sweet and Bearden, {29a). Sweet performed an antigravity experiment designed by the present author, and successfully reduced **the** weight of an object on the laboratory bench, by 90%. Sweet's solid state magnetic vacuum triode amplifier produced a COP = 1,500,000, so a **very** appreciable Dirac sea hole current was available to work with. Conversion of the Dirac sea hole current into electrical current via the present Bedini-Bearden process would have eliminated the antigravity and produced a very large increase in output electrical power.
43. See (a) T. E. Bearden, "The Unnecessary Energy Crisis: How to Solve It Quickly," ADAS Position Paper, June 2000; (b) Bearden {12}; (c) Bearden {30}; (d) T. E. Bearden, "EM Energy From The Vacuum: Ten Questions With Extended Answers," September 2000. The present author has been calling for just such a program. These papers are on restricted DOE Website <http://www.ott.doe.gov/electromagnetic/> and also are on the author's website at <http://www.cheniere.org>.
44. Nathan Smith, "Marketable Results vs. Good Science?," *Sci. Am.*, 284(5), May 2001, p. 8-9. Quote is from p. 9.
45. This is the actual phrase often used in such Government contracts. What it means is that the Government (which means the government

employee controlling that program and its funds) can suddenly declare that the Inventor is not getting his invention developed rapidly enough, and the Government then seizes the patent to "get it developed more quickly".

The inventor is suddenly left hanging, no longer in control of his own intellectual property. Or the Government has the power to block developmentaltogether.

46. Often the universities just bluntly state that *all patents revert to the university*.

47. Hal Hellman, *Great Feuds in Science*, Wiley, New York, 1998. We particularly call attention to Hellman's dissertation on Wegener's persecution. Today, the legitimate overunity EM researcher and the cold fusion researcher are regarded much like Wegener was regarded — as the very epitome of a fool. This label is appended by "experts" who are not even aware of what really powers an EM circuit or an electrical power distribution system.

48. A photon is a piece of angular momentum (called "action" by the physicist), consisting of a little piece of spatial energy (ΔE) and a little piece of time (Δt), welded together as $(\Delta E)(\Delta t)$ with no seam in the middle, so to speak. But now look at that little (ΔE) (Since the photon is quantized $(\Delta E)(\Delta t) = k = \hbar$. Any change in (ΔE) requires that (Δt) change inversely; i.e., $(\Delta E) = \hbar / (\Delta t)$. So increasing (ΔE) decreases (Δt) accordingly. Let us call the spatial energy s compacted into (dt) the equivalent energy of the photon. Then s is given by $s = c^2(\Delta t) = 9 \times 10^{16} (\Delta t)$. So as the frequency of a photon lowers, the (Δt) time component increases proportionally, and the total equivalent energy in the photon increases dramatically by many orders of magnitude! As an example, suppose we halve the spatial energy (ΔE) that doubles the original time interval (Δt) , which gives the new $s = c^2(2\Delta t)$ or $s = 2c^2(\Delta t)$ for the new equivalent energy. So while we halved the *normal* spatial energy formally transported by the photon, we multiplied the *equivalent* time-energy by the enormous factor of $2c^2$ which is approximately 18×10^{16} in the MKS system. It follows that, if we use the equivalent time) energy of the photon and transduce a little of it into normal spatial energy, the energy density of those nuclear reactions now seen only in distant energetic objects such as pulsars, exploding stars, etc. can be achieved right on the laboratory bench. *The highest energy physics has not yet been born in the physics community, and what is presently being done in the high-energy*

accelerators is child's play compared to what can be done with time-energy engineering.

49. To see by another method that time is energy, one notes that the choice of fundamental units chosen for one's physics model is arbitrary. So we choose a single fundamental unit, the joule, to make a new physics model. Thereupon all other entities are energy and energy functions only. Hence, time is totally a function of energy. Actually, time is spatial energy compressed by the factor c^2 , so it has the same energy density as mass, except the highly compressed spatial energy is placed in the time domain to appear at "time" rather than in 3-space to appear as "mass".

50. E.g., in cold fusion experiments where the time-energy is partially transduced in a time-reversed manner, the gluon forces binding the quarks in the affected neutrons and protons are dramatically reduced and the quarks are therefore nearly freed. This is being done in an apparatus of perhaps two cubic feet in volume, rather than a giant accelerator 20 miles in diameter and costing billions of dollars. So far, the largest accelerator using 3-space (decompressed) energy is just a bit short of the energy required to free the quarks. Use of time (compressed) energy allows such reaction as freeing the quarks to be easily accomplished, while the accompanying decompressed *spatial* energy is very low.

51. Time energy has the same energy density as mass, but that highly compressed energy has just been placed in the 4th axis *ict* of Minkowski space rather than in 3-space. In *ict* the only variable is t , so the variation of the compressed energy can only appear in the t variable portion. See Chapter 2.

52. (a) James Patterson, U.S. Patents 5,318,675; 5,372,688; 5,607,563
(b) — and Dennis Cravens, U.S. Patent No. 5,607,563.

53. Ironically, as suppression of innovative research in science increases, science may eventually face turning into the kind of dogmatic system that it struggled against for some 300 years before escaping. When science defends a theory that experiments refute, as it does today in the case of cold fusion, then it is very close to that debacle that can spell the end of science itself.

54. E. Allan Blair, Letter to the Editor, *Newsweek*, Mar. 3, 1997, p. 14.

55. Arthur C. Clarke, "Space Drive: A Fantasy That Could Become Reality," *NSS... AD ASTRA*, Nov/Dec 1994, p. 38.

56. William K. George, in *Editing the Refereed Scientific Journal*, edited by Robert A. Weeks and Donald L. Kinser, IEEE Press, New York, 1994. p. 227-228.

57. Max Planck, in G. Holton, *Thematic Origins of Scientific Thought*, Harvard University Press, Cambridge, MA, 1973.

58. Jonathan Schlefer, editor of *Technology Review*, published at MIT. in an October 1990 editorial.

59. Rolf Landauer, "Fashions in Science and Technology," *Physics Today*, 50(12), Dec. 1997, p. 62.

60. Julius Robert Von Mayer, "Bemerkungen iiber die Krafte der unbelebten Natur," in J. von Liebig's *Annalen der Chemie* (vol. 42), 1842; *Die organische Bewegung in ihrem Zusammenhange mit dem Stoffwechsel*, (Organic Motion in Its Relation to Metabolism), 1845. His papers were published as *Die Mechanik der Warme*, 1867, with third edition in 1893.

61. Alfred Wegener, *Die Entstehung der Kontinente und Ozeane*, 1915; fourth revised edition, 1929. A Dover reprint of the fourth revised edition, translated into English, *Origin of Continents and Oceans*, was published in 1996.

62. Paul Nahin, *Oliver Heaviside: Sage in Solitude*, IEEE Press. New York, 1988, p. 225.

63. Martin Gumpert, *Trail-Blazers of Science*. New York, Funk and Wagnalls Company, 1936, p. 232.

64. This area is now referred to as *ovonics*, where the "ov" is directly taken from "Ovshinsky". The materials have found use in copy machines, fax machines, liquid crystal displays, and optical memory disks.

Ovshinsky has obtained over 200 patents and continues to work in the energy conversion field. His development of a new storage battery, e.g., broke all the Department of Energy tests and doubled the energy density permitted. Once in awhile the good guys beat the scientific suppression system.

65. Stan and Iris Ovshinsky were honored with the American Chemical Society's Heroes of Chemistry Award for 2000. They were honored for 40 years of sustained effort and contributions in the

sustainable and renewable energy field, including amorphous silicon cells for roofs of houses, highly specialized storage batteries, etc.

66. On the other hand, many scientific disagreements are conducted in quite proper and gentlemanly fashion. An example is the continuing decades of argument over energy flow theory, in *Am. J. Phys.* The problem has still not been officially resolved; we would hope that the material in this book will shed new light upon it, by pointing out the exact difference between the long-neglected nondiverged component as well as the diverged component, and also pointing out what Lorentz's trick of closed surface integration of the energy flow vector really does.

67. It follows quite naturally that, once we compress spatial energy by c , we may place the compressed energy in 3-space, in which case it is known as "mass", or we may place it in the time domain, in which case it is known as "time". If that cannot be done, then physics errs in using time as a variable on the fourth axis, and fundamental units are not arbitrary after all.

68. E.g., see D. K. Sen, *Fields and/or Particles*, Academic Press, London and New York, 1968, p. viii. Quoting: "*The connection between the field and its source has always been and still is the most difficult problem in classical and quantum electrodynamics.*"

69. See T. D. Lee, "Can Time Be a Discrete Dynamical Variable?". *Phys. Lett*, 122B(3, 4), Mar. 10, 1983, p. 217-220. Lee showed that time is a discrete dynamical variable across the entire range of mechanics: from classical to nonrelativistic quantum mechanics, and then to relativistic quantum field theories. In all stages of mechanics, time can be treated as a discrete parameter, and it can be treated as a bona fide dynamic variable, Hence time has dynamics and structure, and therefore energy.

70. E.g., one may assume that the entire virtual state is an internal structuring and dynamics existing inside the macroscopic flow of time. The virtual state dynamics obviously exists in spacetime (which is assumed to be continuous), but we also consider any "virtual particle" (e.g., a virtual electron) as if it had been suddenly "observed" momentarily. That assumes d/dt (LLLt) \Rightarrow LLL, a frozen 3-space snapshot. However, since that cannot really be observed, then we are actually considering something analogous to "if we could observe something in spacetime that cannot be observed in space alone". The only place left for it to

!observably exist anyway, if we could in fact observe it" is time, if space is ruled out.

71. It is necessary to trace the energy transductions and dissipations inside the generator. Ignoring those internal dynamics, the casual observer sees that one inputs shaft energy to the generator, and out comes some electromagnetic energy in the external electrical circuit, pouring from the generator terminals. We catch a lesser amount out there in the external circuit or power line, so we think we input some energy, had some internal losses and what gets collected in the conductors of the power line is the remainder of what we input, after transductions and losses in the generator. That is not what happens at all! Embarrassingly, an *enormous* flow of energy comes out of those generator terminals, if all of it is accounted.

This includes (i) the tiny component that strikes the surface charges of the external conductors and gets diverged into the conductors, thus being captured by the circuit, and (ii) the enormous remainder of the energy flow in the surrounding space, which misses the circuit altogether and is just wasted. Something like a trillion times as much EM energy may be pouring out of the terminals of the generator and *being wasted*, as we mechanically input to the generator shaft, or as we "catch" and use in the external circuit. As later chapters discuss, Poyntin ; never considered the component that misses the circuit entirely. Heaviside discovered it but could not explain its startling magnitude or its source. Lorentz knew of this enormous flow component. He could not explain it, and stated it "had no physical significance" since it powered nothing. Lorentz originated a little integration trick that discarded it neatly from all accountability.

72. If the energy input to an inert power system generator were what powered the attached external circuit, then only the Poynting component would be emitted from the terminals of the generator. In that case, Heaviside's discovery of the additional nondiverged component would be wrong, and Lorentz was also wrong in recognizing it by stating it had no *physical* significance. It also means that a dipole formed between the terminals can have no broken symmetry in its active vacuum flux exchange, which is falsified by particle physics {14, 73,}. Also, no charge could pour out energy and create fields and potentials in surrounding space, and neither could a dipole. That is easily falsified by actual experimental measurement. Our reinterpretation of Whittaker's wave decomposition of the scalar potential would also be wrong, as would Mandl's and Shaw's argument {19} that a combined pairing of a scalar

photon and a longitudinal photon are observable, producing the instantaneous scalar potential.

73. T. D. Lee, *Particle Physics and Introduction to Field Theory*, Harwood, New York, 1981, *passim*. In 1957, Lee and Yang received the Nobel Prize for their work in predicting broken symmetry. This included the broken symmetry of opposite charges — and hence of a dipole.

The very definition of broken symmetry, applied to the source dipole once it is formed in the generator, reveals that the dipole itself receives virtual photon energy from the seething vacuum, transduces it, and outputs it as real observable EM energy pouring out of the generator terminals and out through 3-space surrounding the entire power line. This is the source of the tremendous energy flow from the terminals, including a large component missing the circuit (as discovered by Heaviside in the 1880s). This large nondiverged component of the energy flow was discarded arbitrarily by Lorentz because there was absolutely no explanation of its source, and because it was thought to have "no physical significance" (Lorentz's term) since it powered nothing.

74. Wu et al. {14} experimentally showed that the weak interaction violates parity (spatial reflection) and thus exhibits broken symmetry.

75. T. D. Lee is noted for his broken symmetry work with charges, and for establishing the broken symmetry of separated charges of unlike sign. In 1957, Lee and Yang were awarded the Nobel Prize in Physics for their investigations of weak interactions between elementary particles.

76. John D. Kraus, *Electromagnetics*, Fourth Edition, McGraw-Hill, New York, 1992, p. 578.

77. We strongly feel that anyone interested in logic must read Morris Kline, *Mathematics: The Loss of Certainty*, Oxford University Press, New York, 1980. Contrary to popular opinion and the impression projected by mathematicians, mathematics is not a body of unshakable truths about the physical world, and mathematical reasoning is not exact and fallible.

78. One also needs to be aware of Godel's proof. See Kurt Godel, "Uber formal unentscheidbare Satze der *Principia Mathematica* und verwandter Systeme" ("On Formally Indeterminable Propositions of the *Principia Mathematica* and Related Systems," in *Monatshefte fur Mathematik und Physik*, Vol. 38, 1931. This is the publication in which Godel's Proof first appeared, which states that within any logical

mathematical system there are propositions or questions that cannot be proved or disproved on the basis of the axioms within that system. Therefore, it is uncertain whether or not the axioms or arithmetic will give rise to contradictions, since they can.

79. A critical reference for the longitudinal EM interferometry weapons is M. W. Evans, P. K. Anastovski, T. E. Bearden *et al.*, "On Whittaker's Representation of the Electromagnetic Entity in Vacuo, Part V: The Production of Transverse Fields and Energy by Scalar Interferometry," *J. New Energy*, 4(3), Winter, 1999, p. 76-78. This paper is a short but rigorous proof of a scalar interferometer's ability to produce EM fields and energy in the distant interference zone. Either diverging (heating) energy or converging (cooling) energy — in the normal sense, extraction of energy — can be created in a distant interference zone. By pulsing and controlling the circuit ground bias of the transmitters, one produced distant hot explosions or cold explosions. In a military target in that distant zone, the effects arise from the local spacetime, thus from everywhere within the targeted vehicle. At least eight nations now have such weapons, which were apparently the weapons that Defense Secretary Cohen {89} referred to in 1997.

80. Jackson {22}, p. 249.

81. Bunge, {3}, p. 182.

82. Roger Penrose, "Foreword," in T. W. Barrett and D. M. Grimes [Eds.], *Advanced Electromagnetism: Foundations, Theory, & Applications*, World Scientific, (Singapore, New Jersey, London, and Hong Kong), 1995.

83. Myron Evans, President of Alpha Institute's Institute for Advanced Study, private communication, 1999. Dr. Evans is the author of over 600 scientific papers, the prestigious editor of several scientific book series, and a noted foundations scientist. He is the co-discoverer and proponent of the Vigier-Evans B(3) magnetic field and a proponent of the proposed fundamental extension of U(1) electrodynamics to O(3) electrodynamics. O(3) electrodynamics has now been revealed as an important subset of Sachs' unified field theory.

84. Robert H. Romer, "Heat is not a noun," *Am. J. Phys.*, 69(2), Feb. 2001, p. 107-109. The quotation is from footnote 24, p. 109.

85. E. T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," *Math. Ann.*, Vol. 57, 1903, p. 333-355.

86. But see Chapter 2 for a reinterpretation and correction of Whittaker's decomposition of the scalar potential. His harmonic set of bidirectional phase conjugate longitudinal EM wavepairs in 3-space is replaced with a harmonic half-set of longitudinal EM waves converging in the time domain upon the dipolarity; absorption and transduction by the charges; and re-emission as the other harmonic half-set of longitudinal EM waves diverging out from the source dipolarity in all directions in 3-space. The correction allows a very novel solution to the long-vexing problem of the source charge and its associated fields and potentials and their energy {12}.

87. (a) G. Johnstone Stoney, "Microscopic Vision," *Phil. Mag.*, Vol 42, Oct. 1896, p. 332; (b) — "On the Generality of a New Theorem," *Ibid.*, Vol.43, 1897, p. 139-142; (c) — Discussion of a New Theorem in Wave Propagation," *ibid.*, Vol. 43, 1897, p. 273-280; (d) — "On a Supposed Proof of a Theorem in Wave-motion," *ibid.*, Vol. 43, 1897, p. 368-373.

88. Some Russian scientists refer to the hidden internal electrodynamics as the "information content of the field".

89. Secretary of Defense William Cohen at an April 1997 counterterrorism conference sponsored by former Senator Sam Nunn. Quoted from DoD News Briefing, Secretary of Defense William S. Cohen, Q&A at the Conference on Terrorism, Weapons of Mass Destruction, and U.S. Strategy, University of Georgia, Athens, Apr. 28, 1997.

90. For a basic discussion of these photon polarizations, see (a) Richard Feynman, *Quantum Electrodynamics*, 1961, 1963. Quantum field theory recognizes four polarizations of the photon, to include x- and y-transverse polarizations in 3-space, longitudinal or z- polarization in 3-space, and the time-polarized photon (which may be taken to be a longitudinally-polarized photon in the time axis). Existence of these four modes of polarization or energy vibration in photons implies the existence of four correspondingly polarized EM waves. Among other things, Feynman discusses the "sum over four polarizations" of photons and such. The term "Gupta-Bleuler" theory is the formalism that has grown up around this problem. For a deeper discussion, see (b) Lewis H. Ryder, *Quantum Field Theory*, Second Edition, Cambridge University Press, 1996, p. 147 *et seq.* For an even more advanced discussion, see (c) F.

Mandl and G. Shaw {19}. For discovery of the coupling of time-polarized and 3-space longitudinally polarized EM waves as the higher EM energy flow symmetry resolving the source charge problem, and thereby reinterpreting Whittaker's decomposition of the scalar potential {85}, see (d) Bearden {12}. We point out that the latter reinterpretation can also be "cranked through" the superpotential theory of Whittaker, to involve all EM potentials, fields, and waves.

91. (a) E. T. Whittaker, "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," *Proc. Lond. Math. Soc.*, Series 2, Vol. 1, 1904, p. 367-372. The paper initialed what today is called *superpotential* theory. It was published in 1904 and orally delivered in 1903. For a sampling of other superpotential work, see (b) W. H. McCrea, *Proc. Roy. Soc. Lond. A*, Vol. 240, 1957, p. 447; (c) A. Nisbet, *Physica*, Vol. 21, 1955, p. 99; (d) P. Debye, *Ann. Phys., Leipzig*, Vol. 30, 1909, p. 57. For an excellent overview discussion of superpotentials and related things, see (e) Melba Phillips, "Classical Electrodynamics," in *Principles of Electrodynamics and Relativity*, Vol. IV of *Encyclopedia of Physics*, edited by S. Flugge, Springer-Verlag, 1962.

92. (a) See Evans et al. {79} for proof that scalar interferometry can produce all normal transverse EM fields, waves, and patterns. The paper appears in (b) P. K. Anastasovski; T. E. Bearden, C. Ciubotariu, W. T. Coffey, L. B. Crowell, G. J. Evans, Myron W. Evans, R. Flower, S. Jeffers, A. Labounsky, B. Lehnert, M. Meszaros, P. R. Molnar, J.-P. Vigier, and S. Roy, "The New Maxwell Electrodynamics Equations: New Tools for New Technologies," *J. New Energy*, 4(3), Special Issue of AIAS papers. Winter 1999. The volume consists of some 60 papers by the Alpha Foundation's Institute for Advanced Study (AIAS), advancing electrodynamicsto a non-Abelian, gauge theoretic higher topology theory in $O(3)$ internal symmetry. Some ten of the papers directly address Whittaker's work and extend it.

93. (a) W. A. Rodrigues, Jr. and J.-Y. Lu, "On the existence of undistorted progressive waves (UPWs) of arbitrary speeds $0 < v < \infty$ in nature," *Found. Phys.*, 27(3), 1997, p. 435-508 show that Maxwell's equations do possess superluminal solutions. A slightly corrected version is downloadable as hep-th/9606171 on the Los Alamos National Laboratory web site. Also see (b) W. A. Rodrigues, Jr. and J. Vaz Jr., "Subluminal and Superluminal Solutions in Vacuum of the Maxwell

Equations and the Massless Dirac Equation," *Adv. Appl. Clifford Algebras*, Vol. 7(S), 1997, p. 457-466.

In classified Russian weapons labs, this internal longitudinal wave (both time-domain and 3-space domain) structuring of all normal (transverse) EM potentials, fields, and waves is euphemistically called the *information content of the field*. For decades there has been a successful disinformation campaign to lead scientists of other countries into believing that the phrase means *standard spectral analysis*. It doesn't. It is also possible to communicate at superluminal speed, using longitudinal EM waves inside this infolded "inner" electrodynamics. Since mass is mostly empty space filled with a particle here and there — together with EM potentials, fields, and waves — then mass is a vast "superhighway" for direct superluminal communication using longitudinal EM waves.

94. Romer, {84}.

95. See E. T. Whittaker, *A History of the Theories of the Aether and Electricity*, two vols., Nelson, London, 1951, 1953. Reprinted by Dover.

96. Note that we have just resolved the age-old problem of change, which can be summarized in the query stated so long ago by Heraclitus: "For a thing to change, it must turn into something else. But how can a thing be itself and something else also?" We have explained the enigma by pointing out that the "thing" has no persistence in time, and is continually changing into yet another thing, either a replica (in which case we sense "no change" and hence "persistence" by memory comparison), or a partial replica with some differences (in which case we sense that "the object has changed itself in some way"), or a thing with little or no replication (in which case we sense a "different thing"). It is the unseen nature of the d/dt observation process that has deluded us into such irresolvable logical conflicts — and into an incomplete Aristotelian logic based on observation alone, which does not contain the resolutions to such problems because a higher-order logic is required.

97. Whittaker, {85}

98. See Chapter 2 for a discussion of the substitution of effect for cause, and of the nature of observation.

99. *Wu et al.*, {14}.

100. Sen, {68}.

101. Also see Mandl and Shaw {19}.

102. William G. Harter, John Evans, Roberto Vega, and Sanford Wilson, "Galloping waves and their relativistic properties," *Am. J. Phys.*, 53(7), July 1985, p. 671-679. A relativistic example is given in which the source frame observes a very nonuniformly-galloping wave whose velocity varies between $0.01\ c$ and $100\ c$, even though its average velocity is c . Relativistic properties of interfering electromagnetic plane waves are discussed.

103. We point out, but do not further pursue, that this situation is reversed when time is reversed. This has very interesting applications in our little "time reversal zones" that we found were so important in the electrolyte experiments of the cold fusion researchers, and which accounted for a new class of nuclear interactions previously unknown. This does reverse the conventional law of attraction and repulsion of charged particles. It also directly affects the quarks and gluons, partially or even nearly dissolving the gluon forces holding the quarks in place, so that the quarks are nearly freed and are easily flipped.

104. Simultaneously accompanied by *separately broken* time-energy flow symmetry and *separately broken* 3-spatial energy flow symmetry.

105. Evans et al., {38b, 38c}.

106. Oliver Heaviside, *Electrical Papers*, Vol. 2, 1887, p. 94.

107. Kraus, {76}.

107. E.g., see (a) Jackson {22}, p. 237. Jackson points out that "...the Poynting vector is arbitrary to the extent that the curl of any vector field can be added to it. Such an added term can, however, have no physical consequences." The first sentence is true, but the second sentence is a non sequitur. Poynting only considered the small component of the overall energy flow that enters the circuit — in short, that strikes the surface charges in the conductors and is diverged into the wires to power the Drude electrons. That is the diverged part of the energy flow. All the rest of the flow that misses the circuit is obviously not diverged or collected in the circuit, and so it has zero divergence. It is elementary vector algebra that the curl of any vector field has zero divergence. So the extra nondiverged Heaviside energy flow component — filling all space around the conductors in a power line, e.g., but missing the power system entirely and just wasted — can indeed be expressed as the curl of a vector field. That energy flow is real, however, and if intercepted and collected, it then does become divergent. In that case, it does have highly significant

consequences, since the total energy flow in that component may be a trillion times the energy flow in the Poynting component alone.

For a rigorous experiment demonstrating the reality and significance of that "physically insignificant energy flow" that "can have no physical consequences", see (b) Bohren {24}. Under nonlinear conditions, a particle can absorb more energy than is in the light incident on it by normal calculations. Electrodynamacists do *not* calculate the magnitude of an entire field or potential, e.g., but only the intensity of a *divergence from* it at a single point, as given by an intercepting unit point static charge. If that same charged particle is placed in particle resonance, it sweeps out a greater geometrical reaction cross section. Hence it intercepts and **collects** (diverges) more impinging energy — from that long-neglected otherwise nondiverged component of the flow or field that is not diverged by the *static* unit point charge assumed conventionally. Metallic particles at ultraviolet frequencies are one class of such particles and insulating particles at infrared frequencies are another. See also (c) Paul and Fischer, {25}, who replicated Bohren's experiment.

109. H. A. Lorentz, *Vorlesungen iiber Theoretische Physik an der Universidt Leiden*, Vol. V, *Die Maxwelhe Theorie (1900-1902)*, Akademische Verlagsgesellschaft M.B.H., Leipzig, 1931, "Die Energie im elektromagnetischen Feld," p. 179-186. The section is called "Der Poyntingsche Energiestrom," and begins on p. 183. See his Figure 25 on p. 185.

110. E.g., see W. K. H. Panofsky and M. Phillips, *Classical Electricity and Magnetism*, Addison-Wesley, Reading, MA, 1962, 2nd edition, p. 181,

111. Bearden, {12}.

112. A simple way to see this is to note that the back-potential across the half-loop internal to the dipole is precisely equal to the forward potential externally between the ends of the dipole but across the **external** circuit half-loop. Since the same current q runs through both these potentials, then by Vq the same amount of energy is dissipated upon **the** charges of the dipole — to scatter them and destroy the dipole — as is dissipated in the external circuit in its losses and the load. Thus **more** energy is used to destroy the dipole than is used to power the load. We have to input at least as much shaft energy to restore the dipole as was used to destroy it. Hence the $COP < 1.0$.

113. See to (a) M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al*, "Classical Electrodynamics without the Lorentz Condition: Extracting Energy from the Vacuum," *Physica Scripta*, 61 (5). May 2000, p. 513-5 17 in addition to that paper previously quoted. See also (b) "Runaway Solutions of the Lehnert Equations: The Possibility of Extracting Energy from the Vacuum," *Optik*, 111(9), 2000, p. 407-409.

114. Robert Bruce Lindsay and Henry Margenau, *Foundations of Physics*, Dover, New York, 1963, p. 25.

115. *Ibid.*, p. 213.

116. *Ibid.*, p. 217.

117. M. Faraday, *Experimental Researches in Electricity and Magnetism*, Vol. 1, Taylor and Francis, London, 1839, Vol. 2, Richard & John E. Taylor, London, 1844; Vol. 3, Taylor and Francis, London, 1855. A 1965 reprint of all three volumes is available from Dover, New York.

118. We also acknowledge the independent contributions of Joseph Henry. In 1830, Henry independently discovered magnetic induction, anticipating Faraday's own discovery of it. Faraday, however, published first. Two years later, Henry discovered self-induction. He died in 1878, and the unit of inductance, the *henry*, was named for him in 1893.

119. (a) Maxwell, {20}. Also see (b) James Clerk Maxwell, *A Treatise on Electricity and Magnetism*, Oxford University Press, Oxford, 1873, Third Edition, Volumes 1 and 2, unabridged, Dover Publications, New York, 1954. This standard citation widely used in the literature is in fact confusing; the First Edition was published in 1873, a second rather substantially altered edition was later published after Maxwell's 1879 death of stomach cancer, and a third edition, slightly altered from the second edition, was published even later. So controversial were quaternions at the publication of Maxwell's first edition in 1873, that part of what was to become the second edition — published after Maxwell's 1879 death — was truncated by Maxwell himself prior to his death and prior to the posthumous publication of the second edition. Thus there is considerable difference between the first and second editions, and first and third editions, of Maxwell's *Treatise*, compared to his original 1865 paper {20}. "Maxwell's theory" is actually his 1865 paper; everything else is a later truncation of Maxwell's theory.

120. Maxwell's letter to P. G. Tait in 1871, *Archives*, Cavendish Laboratory, Cambridge.
121. For a discussion, see (a) A. M. Bork, "Vectors versus quaternions - the letters in *Nature*," in *Am. J. Phys.*, Vol. 34, Mar. 1966, p. 202-211. For a cogent presentation of what might have been discovered much earlier in physics if quaternions had not been cast aside in favor of the much more limited vectors, see (b) James D. Edmonds Jr., "Quaternion quantum theory: New physics or number mysticism?", *Am. J. Phys.*, 42(3), Mar. 1974, p. 220-223.
122. Edmonds, {121b}. Edmonds presents a cogent argument showing the significant impedance of the rate of discovery in physics, that **resulted** from the ill-advised casting aside of the far more comprehensive quaternion theory in favor of the much more limited vector theory.
123. Heaviside, {5a, 5b}.
124. T. W. Barrett, "Tesla's Nonlinear Oscillator-Shuttle-Circuit (OSC) Theory," *Annales de la Fondation Louis de Broglie*, 16(1), 1991, p. 23-41, Barrett later extended some of the energy-shuttling techniques shown by Tesla and obtained U.S. Patents 5,486,833 and 5,493,691.
125. (a) A. A. Michelson and E. W. Morley, "Influence of motion of the medium on the velocity of light," *Am. J. Sci.*, Vol. 31, Series 3, 1886, p. 377-386; (b) — "The relative motion of the earth and the luminiferous aether," *Am. J. Sci.*, 34(3), 1887, p. 333; (c) — "On the relative motion of the earth and the luminiferous aether," *Phil. Mag.* 24(4), 1887, p. 449. See also (d) A. A. Michelson, "The relative motion of the earth and the ether," *Am. J. Sci.*, (4), 3, 1897, p. 475.
126. (a) Mendel Sachs, *General Relativity and Matter: A Spinor Field Theory from Fermis to Light-Years (Fundamental Theories of Physics)*, Reidel, 1982. Sachs provides a great generalization of general relativity and electrodynamics reaching from the quarks and gluons to the entire universe. See also (b) Mendel Sachs, "Symmetry in Electrodynamics: From Special to General Relativity, Macro to Quantum Domains," in M. W. Evans, Editor, *Modern Nonlinear Optics*, Second Edition, Wiley, New York, 2001, Part 1, p. 677-706.
127. Myron W. Evans, Director of the Alpha Foundation's Institute for Advanced Study, private communication, 2001.
128. Jackson, {22}, p. 249.

129. Jackson, {22}, p. 28.

130. Feynman, {7}, Vol. 1, p. 2-4.

131. Physicists often speak of spacetime as "space", since in Minkowski geometry the time portion is modeled along a separate spatial axis used in addition to the ordinary three spatial axes. So Feynman's "distortion" is actually Riemannian spacetime curvature.

132. As an aside, note that Feynman also utilized a dipolarity. There is always a scalar potential between the poles of any dipole. Further, this "dipole potential" decomposes according to Whittaker's 1903 decomposition{85}, as re-interpreted by Bearden's giant negentropy approach {12} in 2000, and as relates to Mandl and Shaw's 1984/1993 argument {19} that only the associated time-polarized photon and longitudinal photon together are observable, and then as the instantaneous scalar potential. If we accept Mandl and Shaw's powerful argument, then the Whittaker 1903 decomposition must be reinterpreted to be in accordance. That is what was done by the present author {12} to resolve the source charge problem as well as the source dipole problem. In addition, the resolution must be in accord with the theoretical and experimental findings of particle physics, to include the broken symmetry of the opposite charges on the ends of a dipole. The giant negentropy process uncovered by Bearden {12} fulfills all the necessary requirements. It also places the theme of this book — *Energy from the Vacuum:*

Concepts and Principles — on a solid theoretical and experimental basis.

133. Feynman, {7}, vol. II, p. 1-3.

134. Jackson, {22}, p. 811-812.

135. We have previously postulated this feature where one second is equal to spatial EM energy compressed by the factor c^2 , so that time is just extremely compressed EM spatial energy. See Bearden, {17}.

136. (a) Harter et al., {102}. It may well be that galloping due to time-density variation may provide an alternative explanation to quantum tunneling, which can readily occur at superluminal speed. E.g., see (b) A Enders and G. Nimtz, *Phys. Rev. Lett.*, Vol. 48, 1993, p. 632. Their superluminal tunneling experiments transmitted 8.7 GHz microwaves (free space wavelength 3.4 cm) traveling in a rectangular waveguide that contains a "barrier" section of reduced dimensions. Mozart's 40th Symphony was transmitted through the barrier waveguide as frequency

modulated microwaves, at an FTL group velocity of $4.7c$, receiving audibly recognizable music from the microwave photons that survived their barrier passage.

137. (a) M. W. Evans, "The Link Between the Sachs and $0(3)$ Theories of Electrodynamics," in M. W. Evans, editor, *Modern Nonlinear Optics*, Second Edition, Wiley, New York, 2001, Part 2, p. 469-494; (b) — " $0(3)$ Electrodynamics," in M. W. Evans, editor, *Modern Nonlinear Optics*, Second Edition, Wiley, New York, 2001, Part 2, p. 79-267.

138. E.g., Ryder, {90b}, p. 147 *et seq.*

139. Rodrigues and Lu, {93a}.

140. Rodrigues and Vaz, {93b}.

141. The reader should recall that to this day there is no satisfactory resolution of the wave-particle duality principle. Physicists finally just shook hands and agreed to quit fighting, since the hullabaloo was getting them nowhere. The problem does have a probable resolution, but not in Aristotelian logic.

142. Bearden, {12} discusses the relation between time-energy and 3-spatial energy, and reveals a more fundamental 4-symmetry between time energy flow and spatial energy flow. In this 4-symmetry EM flow, time symmetry in energy flow is broken and simultaneously 3-space symmetry in energy flow is broken, but 4-symmetry in energy flow is maintained. The basic transduction of time-energy into 3-space energy and vice versa is accomplished by the interacting charge.

143. Bearden, {15}, p. 11. In the paper we also gave a force-free definition of mass, in terms of the transduction of angular momentum across the 3-spatial boundaries of a mass particle.

144. Rigorously, *mass* does not and cannot emit a photon; *masstime* does. But an observable mass m can be absorbing and emitting **enormous** numbers of virtual photons while not yet having absorbed another observable photon and decayed to emit an observable photons. Differential (virtual) pieces of a "frozen" observable mass m are **indeed** changing continually into *masstime* and back into mass, by absorbing and emitting virtual photons per equation [14b], while the observable mass m has not yet completed its absorption and emission of an observable **photon**. This "knitting" together of observable and virtual state interactions is one of the great centralizing features of physics.

145. The problem is due to the hoary old erroneous notion in mechanics that a separate force acts upon a separate mass to move it.

146. There appears to be no paper or textbook which calculates the actual "energy magnitude" of an entire potential or an entire field, including over all space occupied by it. All texts advance the "local intensity" indicator calculation, and then call that the "magnitude of the potential". That is a non sequitur of first rank. A skilled electrodynamicist will call it the intensity of the potential.

147. It appears that the only region where this statement is in dispute is in various models attempting to explain the creation of the universe. Since that is *a priori* a creation event, then physicists struggle with explaining how something (the existing universe) was created out of nothing (the absence of any slightest bit of the existing universe). We will leave that debate to the astrophysicists and cosmologists. The "accursed identity of opposites" has been the bane of philosophers for more than 3,000 years.

148. Ibrahim Semiz, "Black hole as the ultimate energy source," *Am. J. Phys.*, 63(2), Feb. 1995, p. 151.

149. David Halliday and Robert Resnick, *Fundamentals of Physics*, Third Edition Extended, Wiley, New York, 1988, Vol. 1, p. 518.

150. Stanley W. Angrist, "Perpetual Motion Machines," *Sci. Am.*, Vol. 218, Jan. 1968, p. 114-122.

151. Stanley W. Angrist, "Perpetual Motion," *Encyclopaedia Britannica*, Bicentennial Edition, Macropaedia Vol. 14, 1976, p. 102-105.

152. Lindsay and Margenau, {114}, p. 217.

153. Heaviside, {106}, p. 94.

154. Kraus, {76}, Figure 12-59, p. 578.

155. Bohren, {24}.

156. Paul and Fischer, {25}.

157. (a) V. S. Letokhov, "Laser Maxwell's Demon," *Contemp. Phys.*, 36(4), 1995, p. 235-243; (b) — "Generation of light by a scattering medium with negative resonance absorption," *Zh. Eksp. Teor. Fiz.*, Vol. 53, 1967, p. 1442 (English translation is in *Sov. Phys. JETP*, 26(4), Apr. 1968, p. 835-839); (c) "Stimulated emission of an ensemble of scattering particles with negative absorption," *ZhETF Plasma*, 5(8), Apr.

15, 1967, p. 262-265; (d) — "Double y - and optical resonance," *Phys. Lett. A*, Vol. 43, 1973, p. 179-180.

158. It is Heaviside's equations that are usually taught in University as "Maxwell's Equations," and labeled as Maxwell's equations in most undergraduate texts. In addition to Heaviside's work, similar changes were made by Gibbs in the United States and by Hertz in Europe. Every sophomore physics student and electrical engineering student should be given a short treatise on the background development of electrodynamics, and how, when, and by whom Maxwell's 20 quaternion equations were modified into the present four vector equations. The treatise should also point out what was omitted from Maxwell's theory in its truncations. It should be made very clear to every student that his elementary EM subject errs dramatically from physical reality when it assumes a flat local spacetime and an inert local vacuum. *By discarding the physically active environment of all Maxwellian systems*, only a highly limited subset of nature's electrodynamics is captured in the standard electrical engineering model. Specifically, systems far from equilibrium in their exchange with that environment are arbitrarily discarded. Those are precisely the Maxwellian systems permitted to exhibit coefficient of performance greater than unity. In short, the truncation of Maxwell's theory arbitrarily discarded all electrical windmills turning — or partially turning — in a free electrical wind.

159. As we pointed out, there are *tin electromagnetic systems at all* in that first class — and never have been — if we account for the arbitrarily-ignored Heaviside energy flow pouring from the source dipole and the energy flow pouring from every charge, and consider the situation prior to self-enforced implementation of Lorenz/Lorentz symmetrical regauging (by the closed current loop circuit). The remarks — pertaining to EM systems supposedly in equilibrium with the active vacuum — only apply if we neglect that Heaviside component and also neglect the source **charge** problem, and even then only if the circuit self-enforces that equilibrium in its exchange with the active vacuum. But since it has been so long **and** ubiquitously neglected, we will continue to speak of the "two classes" of EM systems from that "conventional" view. It is rather like our concession to electrical engineering, where the word "power" is universally **misused**. However, the reader should be aware of what we are doing and why.

160. See (a) Ilya Prigogine, *Nonequilibrium Statistical Mechanics*, Wiley-Interscience, New York, 1962; (b) — *From Being to **Becoming***:

Time and Complexity in the Physical Sciences, W. H. Freeman and Company, San Francisco, 1980; (c) D. Kondepudi and Ilya Prigogine, *Modern Thermodynamics: From Heat Engines to Dissipative Structures*, Wiley, Chichester, 1998; (d) G. Nicolis and I. Prigogine, *Self-Organization in Non-Equilibrium Systems: From Dissipative Structures to Order through Fluctuations*, Wiley, New York, 1977. For a good educated layperson's overview, see (e) Gregoire Nicolis, "Physics of far-from-equilibrium systems and self-organization," Chapter 11 in {f} Paul Davies, Ed., *The New Physics*, Cambridge University Press, Cambridge, 1989, p. 316-347.

161. Actually, Ludvig Valentin Lorenz first performed the equivalent of symmetrical regauging of Maxwell's equations, only two years after Maxwell's seminal paper was published in 1865. See (a) Ludvig Valentin Lorenz, "On the identity of the vibrations of light with electrical currents," *Phil. Mag.*, Vol. 34, 1867, p. 287-301. Not much attention was paid to Lorenz's work, however, and the later symmetrical regauging of the Maxwell-Heaviside equations by H. A. Lorentz is what "stuck" and came to be used. For a proper historical discussion, see (b) J. D. Jackson and L. B. Okun, "Historical roots of gauge invariance," *Rev. Mod. Phys.*, Vol. 73, July 2001, p. 663-680.

162. This point is important. See Gabriel Kron, "The Frustrating Search for a Geometrical Model of Electrodynamical Networks," circa 1962. General Electric publication, p. 11-128. Quoting p. 114: "...the missing concept of 'open-paths' (the dual of 'closed-paths') was discovered, in which currents could be made to flow in branches that lie between any set of **two** nodes. (Previously -following Maxwell - engineers tied all of their open-paths to a single datum-point, the 'ground'). That discovery of open-paths established a second rectangular transformation matrix... which created 'lamellar' currents... " "A network with the simultaneous presence of both closed and open paths was the answer to the author's years-long search."

When we design and build a circuit or system in compliance with the Lorenz/Lorentz-regauged equations, it follows that *the circuit itself must contain some feature and function that self-enforces the Lorenz/Lorentz condition — at least during the excitation discharge of the energy that has been freely caught by the circuit. The Lorenz/Lorentz condition is not a law of nature, nor is it automatically applied without a specific circuit cause and function physically applying it.* That function is automatically applied by the standard closed current loop circuit.

As Kron stated, his long search for a true negative resistance finally succeeded when he discovered the "open path". Actually Kron had discovered that any two points in the universe at different potentials (charged to different intensities) produced a flow of EM energy. In other words, he had discovered in more classical EM terms the broken symmetry of opposite charges of differing charges, such as on the ends of any dipole or across any dipolarity.

163. Superconducting *sections* in a system may be loss-free, but the entire superconducting *system* has losses and exhibits only $COP < 1.0$ overall, if the refrigeration burden is accounted. In the superconducting section alone, without accounting for the cooling overhead, the $COP = 1.0$ and the efficiency is 100% also.

164. After Jackson, {22}, p. 219-221; 811-812.

165. See Whittaker, {85}. Whittaker mathematically decomposes the scalar potential into a hidden "bidirectional" series of EM wavepairs in a harmonic sequence. Each wavepair consists of the wave and its phase conjugate. Thus any A_d (as across the terminals of a dipolar electrical power source) *a priori* involves an ordered, hidden, bidirectional EM wave flow. I.e., $d(fi)$ *identically is* such a hidden bidirectional EM energy flow.

166. But see Bearden, {12}. In the paper we conceptually re-interpreted Whittaker's 3-space (observation assumed, hence effect waves) bidirectional wavepairs. Our reinterpretation yields a correlated harmonic half-set of converging *unobserved* causal EM longitudinal waves (time-polarized EM waves) in the time domain prior to interaction with charge so as to prepare for being observed, and a harmonic half-set of diverging EM longitudinal waves (after observation due to the convergent time-polarized EM waves interacting with the observable charges) in 3-space in all directions. We strongly stress that observation does not occur without the absorption of a scalar photon and the follow-on emission of a longitudinal photon. In a time-reversed situation (phase conjugate charge condition), to the observer it appears to have happened in the other direction.

167. Particularly see Mandl and Shaw, {19}.

168. However, Mandl and Shaw fail to totally identify the "combining mechanism". They do not account the detailed interaction of the detecting/observing unit point charge, and thus fail to clearly account for the absorption of the incoming time-polarized wave or photon, the

transduction of that excitation energy of the charge into longitudinal EM wave/photon energy, and the subsequent emission of that excitation energy in 3-space in all directions as longitudinal EM waves/photons. So Mandl and Shaw do not clearly account for *photon (or wave) polarization transduction by the ubiquitously assumed charge*. The "causal" time-polarized EM wave or photon comes in and is absorbed by the detecting charge or dipole, then the absorbed energy is transduced and re-emitted in 3-space as the longitudinally polarized EM wave or photon in 3-space. (Actually, since all space is charged, what is really emitted into 3-space is the giant circulation of EM energy between time and 3-space, which is a more rigorous statement of what "propagation of EM energy through 3-space actually is). Recognition of these missing interactions and transductions allowed a solution at last to the long-vexing problem of the source charge, often called the greatest problem in both quantum and classical electrodynamics, as given initially in Bearden, {12}. Now, of course, a greater problem has reared its head: the notion that EM energy continuously propagates in 3-space is a total non sequitur, along the lines objected to by Romer {84}. We therefore have some very fundamental rethinking to do for all of classical physics. This is really where the problem of wave-particle duality has pointed since the beginning.

169. Asymmetrical self-regauging collects just a tiny bit more of the enormous energy that is flowing outside the conductors and usually wasted. E.g., if the self-regauging EM system collects as $j\phi$ some 10^{-12} of the energy flow instead of the more usual 10^{-13} , the system can have a COP = 10, *if it* does not then expend half the collected energy to destroy the source dipole faster and require its reconstitution more energetically. And so on.

170. Jackson, {22}, p. 220-223.

171. So-called "canceling" opposing EM fields are actually produced, which sum to a *vector zero system* with respect to translation, which the electrodynamicists erroneously discard by assumption. We point out, but do not further pursue, that the locally produced *field energies* of the opposing fields in a zero-summed vector system remain and add, even though the fields offset each other *translationally*. The local energy of the field is proportional to the square of the local magnitude, and that is always positive regardless of field orientation. Thus "trapped" and structured EM stress energy has been localized in spacetime in the symmetrical regauging of CEM. This rigorously is a gravitational change

and therefore a local curvature of spacetime *a priori*. Indeed, the field energy remains in a zero-vector summation system, and has been changed into stress potential energy. It represents continuous internal work being performed on the system to stress it, by energy continuously fed in from the active vacuum environment but only in appositive fields of equal magnitude. The discarding of the zero vector summation system thus is a discarding of an available stress potential and its energy, a rotation of the system frame out of the laboratory frame, and a continuous exchange of energy from the vacuum that performs internal work upon the system but no external work in the load. The energy is not translational, but it is there nonetheless, and it causes a spacetime curvature change. The electrodynamicists have largely ignored the fact that gauge symmetry transformations are accompanied by local gravitational (spacetime curvature) changes that violate the prevailing flat local spacetime assumption of classical electrodynamics.

172. See (a) H. J. Josephs, "The Heaviside papers found at Paignton in 1957," *IEE Monograph No. 319*, Jan. 1959, p. 70-76. See also (b) E. R. Laithwaite, "Oliver Heaviside — Establishment Shaker," *Elec. Rev.*, 211(16), Nov. 12, 1982, p. 44-45. Heaviside became aware of this gravitational relationship, and worked out a draft theory of electrogravitation based on his energy-flow theory (which added nondiverged closed-loop circulations of energy which vectorially summed to net zero). Those "trapped EM energy flow loops" were *gravitational*, in Heaviside's concept. His hand-written notes on his electrogravitation theory were found long after his death, beneath the floorboards of his little garret apartment. In honor of Heaviside, we have nominated his huge nondiverged energy flow component — erroneously discarded by Lorentz — as the source of the extra gravity in the arms of the spiral galaxies, holding them together. In short, we have proposed that as the solution to the so-called "dark matter" problem.

173. Physicists love symmetry, turn to it at every opportunity, and will do almost any mathematical manipulation to obtain it, because they regard it as "beautiful." And so it is. Performing work, however, requires breaking symmetry to produce excess energy, which interacts with mass to produce a force, and then requires using that force to do the work. If we wish to build a system that produces more work output than the work that we ourselves have to do upon it to run it, then *a priori* that system must be *asymmetrical* and — to many physicists — *ugly*. Let us all drink a toast to more efficient *ugly* asymmetrical systems that also do not require **energy**.

input by the operator, but only by the active environment! Give us "ugly" electrical windmills that turn freely in electrical winds, rather than the inane "beautiful" present systems which destroy their energy winds faster than they power their loads.

174. While Lorentz appears to have done it earlier, one can see his use of the surface integration in (a) Lorentz, {109}. In 1896 he also included it, using a more general theorem by Volterra, so that Poynting's theorem arises as a special case; see (b) H. A. Lorentz, *Versl. K. Akad. W. Amsterdam*, Vol. 4, 1896, p. 176.

175. This is usually performed by the source dipole.

176. Thus the long and tedious effort of my colleagues and I to create circuits that asymmetrically self-regauge their potential difference (source voltage) without allowing all the spent load current to pass back through the primary power source dipole and do work upon it to scatter the charges and destroy its dipolarity.

177. Again we strongly stress that asymmetrically regauging a potential in the system also regauges the local vacuum potential and the intensity of the vacuum potential's bidirectional EM energy exchange with the system. It alters the local curvature of spacetime. It directly alters the stored **energy** of the system and of the supersystem. See again Whittaker, {85}, to see this clearly. See particularly our use of the *supersystem* concept in Chapter 8, and as mentioned in Chapter 1 and the present Chapter 2.

178. Circuits and electrical power systems universally and routinely break Lorentz symmetry for *excitation* (potentialization) of the system at the initial onset. Just to potentialize a system in theory costs nothing, although it freely changes the potential energy of the system. The gauge freedom axiom of quantum field theory also guarantees that such change of the potential energy of the system is essentially "for free". It conclusively proves that (i) asymmetrical self-regauging exists and is done in electrical circuits, since the source dipole in the power supply accomplishes that initial self-regauging of the external circuit completely for free once the dipole is made, and (ii) the Maxwell-Heaviside equations do permit asymmetrical self-regauging, in violation of Lorentz's arbitrary condition prohibiting it.

179. This is the patent-pending Bedini process, which is processing through the U.S. Patent Office as we go to press.

180. Lee, {73}, p. 184.
181. B. P. Kosyakov, "Radiation in electrodynamics and in Yang-Mills theory," *Soviet. Phys. Usp.*, 35(2), Feb. 1992, p. 135-142. Quotes are from p. 135 and p. 141. Our proposed solution to the problem posed by Kosyakov (which is actually the broken symmetry of a charge) is that negative charges pour out positive energy and positive charges absorb positive energy. We "see" the positive charge as pouring out "reversed direction positive field energy" after we interact the energy with a laboratory charge to "observe". Considering the well-known polarization of the vacuum by any charge, one realizes that a 4-symmetry circulation of the EM energy is what is "emitted" and spreads throughout all space, since the vacuum polarization is also spreading. The actual energy flow is between the time domain and 3-space and return, at any elemental dipole in the polarization of the vacuum that is spreading.
182. Oliver Heaviside, *Electrical Papers*, Vol. 2, 1887, p. 94.
183. Prof. William Keel, quoted in James McWilliams, "Through a Galaxy, Darkly," *Huntsville (Alabama) Times*, May 14, 2000, p. A-18.
184. Charles Seife, "Peering Backward to the Cosmos's Fiery Birth," *Science*, vol. 292, June 22, 2001, p. 2238.
185. M. P. Silverman, *And Yet It Moves: Strange Systems and Subtle Questions in Physics*, Cambridge University Press, Cambridge, 1993, p. 127.
186. Matthew Colless, Australian National University, one of the survey team leaders in the project leading the world in mapping galaxies, Mar. 2001.
187. (a) Lee, {13a}; (b) Lee, Oehme and Yang, {13b};
188. Wu et al., {14}.
189. Bearden, {12}.
190. Mandl and Shaw, {19, 168}.
191. Whittaker, {85}.
192. Gabriel Kron, "Invisible dual (n-1) networks induced by electric 1-networks," *IEEE Trans. on Circuit Theory*, CT-12(4), Dec. 1965, p. 464-470.

193. Kron, {162}. The quote is from p. 114.

194. Steven Weinberg, *Dreams of a Final Theory*, Vintage Books, Random House, 1993, p. 109-110.

195. See Josephs, {172a}. Heaviside's hand-written notes contained his theory of electro-gravitation, based on his theory of energy flow. The papers were found beneath the floorboards in his little garret apartment.

196. Laithwaite, {172b}. Laithwaite feels that Heaviside's postulation that a flux of gravitational energy combines with the (ExH) electromagnetic energy flux, could shake the foundations of physics. Extracting from Laithwaite; *"Heaviside had originally written the energy flow as $S = (ExH) + G$, where G is a circuital flux. Poynting had only written $S = (ExH)$. Taking p to be the density of matter and e the intensity of a gravitational force, Heaviside found that the circuital flux G can be expressed as $pu - ce$, where u represents the velocity of p and c is a constant."*

197. Hence the title of cited reference {12} above.

198. Melvin H. Miles and Benjamin F. Bush, "Radiation measurements at China Lake: Real or Artifacts?", *Proc ICCF-7 (International Conference on Cold Fusion — 7*, Vancouver, BC, Canada, Apr. 1998, p. 101.

199. Bearden, {17}.

200. See P. V. Elyutin, "The Quantum Chaos Problem," *Sov. Phys. Usp.*, Vol. 31, No. 7, 1988, p. 597-622. Elyutin discusses the crisis in quantum mechanics because of the missing chaos (hidden order). Quantum mechanics is known to be wrong unless this order can be found, because otherwise it does not predict the ordered macroscopic universe. Thus any proposed solution to the quantum chaos problem is worthy of Investigation, even if it turns out to be in error.

201. Unfortunately, entropy is one of those concepts in physics for which there are several differing major views. We consider entropy to be comparable to a positive resistor: organized energy goes in, disorganized energy comes out. Entropy is usually taken to be a measure of the disordering of energy. It does not *eliminate* the energy; it just makes it more difficult to *use* it. For our work in energy from the vacuum, we take the very simple view that a negentropic process is like a negative resistor: it receives energy in a form unusable to us, transforms it, and outputs it in

a form that is usable. In short, a negative resistor receives disordered energy and reorders it, so to speak. So it exhibits negentropy. We completely avoid the various notions of "information" and attempts to equate information and energy. We do point out, however, that a time-reversal process in one form or another is usually involved. In that sense, e.g., Newton's third law would be a negentropic process and involve time reversal in the mechanism generating the reaction-causing agent.

202. H. E. Puthoff, "Source of Vacuum Electromagnetic Zero-Point Energy," *Phys. Rev. A*, 40(9), Nov. 1, 1989, p. 4857-4862.

203. Whittaker, {91}. The paper was published in 1904 and orally delivered in 1903. This paper initiated superpotential theory.

204. As Whittaker showed in 1903, {85}, the scalar potential is actually a harmonic set of bidirectional EM longitudinal EM wavepairs, where each pair is composed of a longitudinal EM wave and its phase conjugate replica. Only because classical electrodynamicists have erroneously defined the field and potential as their own reaction cross sections with a unit point static charge, has the "static" potential been misidentified as a *scalar* entity, which it is not. The energy diverged from a uniform potential, around a fixed static point unit charge, is actually the set of divergences around the intercepting charge of the energy flows of all those EM waves comprising the potential. The sum total of all these individual wave divergences indeed has a scalar magnitude, but the magnitude of the total energy divergence from the potential is neither the potential itself nor its magnitude.

205. We point out the obvious: A "scalar" mass in 3-space actually ~~him~~ a time-vector since it moves through time continually, just to continue to exist. Further, it involves a special form of energy (energy compressed by c^2) which time is taken to be. Since we may choose any form of energy we wish by simple transduction, we may take it as compressed EM energy. So the mere continued existence of any mass proves conclusively that EM energy can and does ubiquitously flow to, from, and through the time dimension. The combined continued existence of numerous masses **proves** conclusively that the flow of time can have a myriad internal electromagnetic energy flows. An equilibrium between (i) an inflow of EM energy to a transducer from the time dimension, and (ii) an **outflow of** EM energy in 3-space from the transducer, will be seen as a discrete excitation (potential energy) associated with the transducer. Hence **the** notion of the charge. Every charge in the universe may be said to pour out

energy (negative charge pours out positive energy; positive charge absorbs positive energy — the equivalent of pouring out negative energy — and any charge results in a polarization of the vacuum. Hence what we call "spacetime" or "vacuum" is in fact a giant circulation of energy from the time domain to 3-space, and back to the time-domain. In short, a giant negentropy process continually sustains the active universe and all its components and processes.

206. Evans et al., {79}.

207. Semiz, {148}.

208. Weinberg, {194}, p. 286.

209. The available internal energy of a generator is the transduced shaft energy we input to it, say by turning the generator shaft with a steam turbine or hydro turbine. The shaft mechanical energy input is transduced into internal magnetic field energy once the rotor rotates. This internal magnetic energy is then dissipated on the internal charges inside the generator, forcing the positive charges in one direction and the negative charges in the other, thereby making the source dipole between the **terminals** of the generator. The available internal energy of a battery is the chemical energy possessed by it at any given time, and available for performing work on the internal charges to force them apart to form a dipole between the plates (and the battery terminals).

210. Kraus, {76}. Figure 12-60, a and b, p. 578 shows a good drawing of the Poynting (intercepted) energy flow being withdrawn into the conductors from the surrounding space. It does not show the Heaviside nondiverged component remaining, which is even larger, not diverged into the conductors, and wasted. The reason for the remaining Heaviside nondiverged component is that the electrons precess laterally across the conductor, thus withdrawing into the conductor only a small nearby section of the fields of the surface electrons — the ones (plus their fields extending into space) which intercept the impinging energy flow. Because of the short distance radially across the conductor's cross section, a surface electron has very limited "field and field energy withdrawal" length.

211. (a) J. D. Jackson, "Surface charges on circuit wires and resistors play three roles," *Am. J. Phys.*, 64(7), July 1996, p. 855-870. See also (b) Mark A. Heald, "Energy flow in circuits with Faraday emf," *Am. J. Phys.*, Vol. 56, 1988, p. 540-547; (c) — "Electric fields and charges in elementary circuits," *Am. J. Phys.*, 52(6), June 1984, p. 522-526. The

surface charges in the conductors of a circuit are of enormous importance to the powering of the circuit.

212. See T. E. Bearden, "Energy Flow, Collection, and Dissipation in Overunity EM Devices," *Proc. 4th Internat. Energy Conf.*, Academy for New Energy, Denver, CO, May 23-27, 1997, p. 5-51. In Figure 5, p. 16 the fraction of the Poynting energy flow that is intercepted and collected by the circuit is roughly shown to be on the order of 10^{-13} of the entire Poynting energy flow available. That number is based on a very crude estimating procedure, but even if off by several orders of magnitude, it shows that the Heaviside nondiverged energy flow component is orders of magnitude greater than the diverged Poynting component, for single-pass of the energy and collection only once.

213. Rigorously, there is no *power* in an EM energy flow, regardless of how great in magnitude, if it is not altered in form or diverged. That is because "power" is rigorously the time rate of doing work (time rate of *changing the form* of energy), not the time rate of energy flow per se. Exactly, the Heaviside dark energy flow component was some 10 trillion joules per second in magnitude, but it had zero watts of power. Unfortunately, electrical engineers just loosely refer to nondiverged **energy** flow as "power", regardless of the non sequitur. Hence inane terms **widely** used in electrical engineering (and texts) such as "draw power from **the** source", etc. Rigorously, *the power* (rate at which energy is changed in form) is developed locally in each component having losses or performing work — i.e., changing the form of the energy.

214. (a) T. E. Bearden, "On the Principles of Permissible Over **Unity** EM Power Systems," *J. New Energy*, 4(2), Fall 1999, p. 16-39; (b) Bearden, {17}; (c) — "Use of Asymmetrical Regauging and Multivalued Potentials to Achieve Overunity Electromagnetic Engines," *J. New Energy*, 1(2), Summer 1996, p. 60-78; (d) — "Regauging and **Multivalued** Magnetic Scalar Potential: Master Overunity Mechanisms," *Explore*, 7(1), 1996, p. 51-58; (e) — "The Master Principle of EM Overunity and the Japanese Overunity Engines," *Infinite Energy*, 1(5&6), Nov. **1995-Feb**, 1996, p. 38-55; (f) — "Use of Regauging and multivalued Potentials to Achieve Overunity EM Engines: Concepts and Specific Engine Examples," *Proc. Internat. Sci. Conf. "New Ideas in Natural Sciences"*, "St. Petersburg, Russia, June 17-22, 1996, Part I: Problems of Modern Physics", 1996, p. 277-297.

215. In an oblique kind of sense, this is even "recognized" to some extent by leading electrodynamicists. E.g., quoting Jackson, {22}, p. 237: "...the Poynting vector is arbitrary to the extent that the curl of any vector field can be added to it. Such an added term can, however, have no physical consequences." So Jackson follows Lorentz's lead that any additional non-intercepted and uncollected energy flow permissibly accompanying the Poynting intercepted and collected component, has no physical significance. Both Lorentz and Jackson err as to the *finality* of the statement. The accompanying Heaviside component can have no physical significance *unless it is intercepted and collected by means other than the single circuit or mechanism considered, and the single pass of the entire energy flow onto and past the receiving entity (circuit, charge, etc.)*.

216. E.g., see Poynting, {4a. 4b}.

217. Heaviside, {5a}.

218. Heaviside, {5b}.

219. Heaviside, {5c}. Heaviside discusses the Faraday-Maxwell ether medium, outlines his vector algebra for analysis of vectors without quaternions, discusses magnetism, gives the EM equations in a moving medium, and gives the EM flux of energy in a stationary medium. On p. 443, he credits Poynting with being first to discover the formula for energy flow, with Heaviside himself independently discovering and interpreting this flow a little later by himself in an extended form.

220. J. H. Poynting, "On the connexion between electric current and the electric and magnetic inductions in the surrounding field," *Proc. Roy. Soc. Lond.* Vol. 38, 1884-85, p. 168.

221. Oliver Heaviside, *Electrical Papers*, Vol. 2, 1887, p. 94.

222 (a) T. E. Bearden, "On Extracting Electromagnetic Energy from the Vacuum," *Proc. IC-2000*, *ibid.*, 2000; (b) Bearden, {38a}.

223. Lorentz is believed to have done this earlier (perhaps circa 1890s). In 1902 he published the method in a book, which strongly implies it was first done in an earlier paper. See Lorentz, {109}. Figure 25 on p. 185 shows the Lorentz concept of integrating the Poynting vector around a closed cylindrical surface surrounding a volumetric element. Many thanks to Marcus Reid for furnishing a copy of the actual Lorentz reference from a library in Leipzig, Germany.

224. E.g., see (a) Panofsky and Phillips, {110}; (b) W. Gough and J. P. G. Richards, *European J. Phys.*, Vol. 7, 1986, p. 195.
225. Panofsky and Phillips, {110}, p. 180.
226. D. S. Jones, *The Theory of Electromagnetism*, Pergamon Press, Oxford, 1964, p. 52.
227. Jackson, {22}, p. 237.
228. W. M. Schwarz, *Intermediate Electromagnetic Theory*, John Wiley & Sons, New York, 1964, p. 280-281.
229. Jones, {226}, p. 53.
230. For typical references, see (a) J. Slepian, *Am. J. Phys.*, 19, 87 (1951); (b) Mario Iona, *ibid.*, 31, 398 (1963); (c) Udo Backhaus and Klaus Schafer, *ibid.*, 54, 279 (1986); (d) C. J. Carpenter, *IEE Proc. A (UK)*, 136A(2), Mar. 1989, p. 55-65; (e) J. A. Ferreira, *IEEE Trans. Edit.*, 31 (4), 1988, p. 257-264; (f) Mark A. Heald, *Am. J. Phys.*, 56(6), 1988, p. 540-547. The debate has also appeared in many other leading journals, e.g., (G) T. H. Boyer, *Phys. Rev. D*, 25, 3246 (1982). Interestingly, (h) M. Abraham and R. Becker, *The Classical Theory of Electricity and Magnetism*, Blackie, London, 1932, p. 146 and p. 194 give two examples of the controversy over the Poynting vector. Finally, see (i) D. F. Nelson *Phys. Rev. Lett.*, 76(25), June 17, 1996, p. 4713-4716 for advanced work requiring a greater generalization of the Poynting vector.
231. Sweet and Bearden, {29a}. Sweet's device produced 500 watts lit a 33 microwatt input, which is approximately a $COP = 1.5 \times 10^6$. By steadily increasing the COP to 3×10^6 , the weight of the Sweet unit was reduced smoothly, reaching 90% reduction. The results of this highly successful anti-gravity experiment are reported in the paper. Unfortunately, Sweet later died and never fully revealed the activation secret by which barium ferrite magnetic materials could be triggered into strong self-oscillation at 60 Hertz or other ELF frequency.
232. Weaker self-oscillation of such permanent magnetic materials at higher frequency is known. E.g., see (a) V. S. L'vov, *Non-Linear Spin Waves*, Moscow, 1987; (b) L'vov, {29c}. See also (c) A. G. Gurevich, and G. A. Melkov, *Magnetization Oscillations and Waves*, CRC Press, Boca Raton, Florida, 1996. The latter authors give hundreds of additional references.

233. E.g., (a) M. W. Evans, P. K. Anastasovski, T. E. Bearden *et al*, "Derivation of the B(3) Field and Concomitant Vacuum Energy Density from the Sachs Theory of Electrodynamics," *Found. Phys. Lett.*, 14(6), Dec. 2001, p. 589-593; (b) — "Anti-Gravity Effects in the Sachs Theory of Electrodynamics," *Found. Phys. Lett.*, 14(6), Dec. 2001, p. 601-605; (c) Evans *et al.*, {38b}; (d) Evans *et al.*, {38c}; (e) -- "Operator Derivation of the Gauge Invariant Proca and Eehmert Equation: Elimination of the Lorentz Condition," *Found. Phys.*, 39(7), 2000, p. 1123-1130; (f) - "O(3) Electrodynamics from the Irreducible Representations of the Einstein Group," 2001, *Found. Phys. Lett.*, 15(2), Apr. 2002, p. 179-187.; (g) - "Effect of Vacuum Energy on the Atomic Spectra," *Found. Phys. Lett.*, 13(3), June 2000, p. 289-296; (h) Evans *et al.*, {113b}; (i) Evans *et al.*, {113a}; (j) - "On the Representation of the Maxwell-Heaviside Equations in Terms of the Barut Field Four-Vector," *Optik* 111(6), 2000, p. 246-248; — "Derivation of the B(3) Field and Concomitant Vacuum Energy Density from the Sachs Theory of Electrodynamics," *Found. Phys. Lett.*, (in press); (k) — "The New Maxwell Electrodynamics Equations: New Tools for New Technologies. A Collection of 60 papers from the Alpha Foundation's Institute for Advanced Study. Published as a Special Issue of the *J. New Energy*, 4(3), Winter 1999. See also (l) Bearden, {222b}; (m) Bearden, {38a}; (n) Bearden, {43d}; (o) Bearden, {43a}; (p) Bearden, {30}; (q) Bearden, {40}; (r) Bearden {214}; (s) Bearden, {1214e}; (t) - "The Final Secret of Free Energy," *Magnets*, 7(5), May 1993, p. 4-26; (u) Bearden, {214f}.

234. Bearden, {40}.

235. Terence W. Barrett and Dale M. Grimes, (a) Preface, p. vii-viii, in (b) *Advanced Electromagnetism: Foundations, Theory, and Applications*, Terence W. Barrett and Dale M. Grimes (eds.), World Scientific, Singapore, 1995.

236. I. Prigogine, "Irreversibility as a symmetry-breaking process." *Nature*, Vol. 246, Nov. 9, 1973, p. 67-71.

237. Paul Davies, *Superforce: The Search for a Grand Unified Theory of Nature*, Simon and Schuster, New York, 1984, p. 105.

238. Clarke, {55}, p. 38.

239. T. D. Lee, *Symmetries, Asymmetries, and the World of Particles*, U. Wash. Press, Seattle, 1988, p. 11.

240. That is, it does not exist *openly* in the open literature. Several inventors do have working laboratory $COP > 1.0$ experiments, and at least three of them have models which could rapidly be developed into production systems — say, in one year or less. However, the exact and detailed construction details are understandably maintained as deeply proprietary by the inventors, until their intellectual property rights can be secured, including foreign patent rights. On the other hand, many other inventors mistakenly believe they have $COP > 1.0$ systems, but do not because of instrumental error, considering nonsinusoidal waves as measurable with RMS meters, or effects covered in Chapter 6 which they do not comprehend. In addition, there have been those more interested in selling stock than in producing a working system.

241. But see Kawai, {31}. The only available *open* details approaching the "kit of parts and instructions" point is the Kawai process, and it will work just as in the patent if carefully built. If very efficient photon-coupled switching of the flux path is used for build-ups, and if very high efficiency (0.7 to 0.8) magnetic motors are modified with the Kawai process, one can expect the COP of the modified motors to be double the conventional efficiency of the original base motor. So one can obtain $COP = 1.4$ to 1.6 , e.g., by using the necessary and available Hitachi high efficiency motors (one at 0.7 and the other at 0.8) to start with. Hitachi engineers physically tested two high efficiency Hitachi motors modified by Kawai, at $COP = 1.4$ and $COP = 1.6$ respectively. Unfortunately, the Kawai process, engines, and company have been seized by what can **only** be described as the Yakuza (Japanese Mafia) and are being held off **the** market. The seizure was accomplished here in Huntsville, Alabama, witnessed by the CTEC board of directors and I, when Kawai and **CTEC** were in final negotiations to rapidly develop and market the Kawai **system**. Several other $COP > 1.0$ Japanese engines have also been seized and withheld by the Yakuza.

242. Jed Z. Buchwald, *From Maxwell to Microphysics*, University of Chicago Press, Chicago and London, 1985, p. 44.

243. Whittaker, {85}.

244. Bearden, {12}.

245. Mandl and Shaw, {19}.

246. Whittaker, {91a}.

247. To see how arduous a search Kron himself made prior to achieving a proper model for an electrical circuit, see Kron, {162}. The quote is from p. 114.

248. For example, Kron, {192}.

249. P. A. M. Dirac, "A theory of electrons and protons," *Proc. Roy. Soc. Lond. A*, 126(801), Jan. 1, 1930, p. 360-365. Here Dirac introduced the vacuum energy — the electron sea filled with electrons occupying negative energy states. The holes are treated today as the positive electrons. This concept is now referred to as the "Dirac Sea," and the concept has been expanded to include negative energy "holes" for other kinds of particles. Dirac first attempted to identify these holes with protons, until later the positron was discovered.

250. Evans, {137b}.

251. (a) Evans, {137a}; (b) — "The Link Between the Topological Theory of Ranada and Trueba, the Sachs Theory, and $0(3)$ Electrodynamics," *ibid.*, vol. 2, p. 495-499.

252. (a) Sachs, {126a}. The Sachs theory provides a great generalization of general relativity and electrodynamics reaching from the quarks and gluons to the entire universe. See also (b) Sachs, {126b}.

253. Indeed, the symmetrizing of Maxwell's equations was first accomplished by Lorenz. See (a) Lorenz, {161a}. In this paper Lorenz gave essentially what today is called the Lorentz symmetrical regauging. AS pointed out by Barrett, the Lorenz paper gave $f(t-r/c)$ functions. Fitzgerald said that Lorenz's functions were essentially the same as his, and Fitzgerald became a leading proponent of "retarded potentials". But it is believed that Fitzgerald was unaware of Lorenz's work until the 1880's, so he is given credit for parallel development. Some people speak of Fitzgerald-Lorenz functions. This is a regauging, but the term "gauge" (inspired by railroad gauges) was first introduced by Hermann Weyl in the 1900s. He used it for a change in length and was quickly countered by Einstein - Weyl's theory was not relativistic. The idea resurfaced in the 1920s when quantum theory was being formulated, but this time it meant "change in phase" and not "change in length". At any rate, when the renowned H. A. Lorentz performed the symmetrizing of the Maxwell-Heaviside equations in the 1880s, it was adopted immediately and has been rather universally applied since then. See also (b) Jackson and Okun {161b} for a history of gauge invariance.

254. (a) Prigogine, {160a}; (b) G. Nicolis and I. Prigogine, {160d}; (c) T. Petrosky and I. Prigogine, "Quantum Chaos, Complex Spectral Representation and Time-Symmetry Breaking," *Chaos, Solitons, and Fractals*, Vol. 4, 1994, p. 311-359; (d) D. Kondepudi and I. Prigogine, "Thermodynamics, Nonequilibrium," *Encyclopedia of Applied Physics*, Vol. 21, 1997, p. 311-337; (e) D. Kondepudi and I. Prigogine, *Modern Thermodynamics: From Heat Engines to Dissipative Structures*, Wiley, Chichester, 1998; (f) T. Petrosky and I. Prigogine, "Laws of Nature, Probability and Time Symmetry Breaking," *Physica A*, Vol. 263, 1999, p. 528-539.
255. (a) G. Nicolis, and I. Prigogine, *Exploring Complexity*, Piper, Munich. 1987; (b) — *Exploring Complexity: An Introduction*, Freeman, New York, 1989; (c) G. Nicolis, {160e}.
256. Letokhov, {157a-157d}.
257. Bohren, {24}.
258. Paul and Fischer, {25}.
259. E.g., see (a) Patrick et al., {37}. For rigorous explanations of **how** the energy is extracted from the vacuum, see (b) Evans et al., {38b}; (c) Evans et al., {38c}. The vacuum can and will furnish an electromagnetic "wind" from which useful EM energy can be extracted. Indeed, every source charge and dipole already extracts and continuously pours out EM energy from the vacuum, thereby establishing its fields and potentials (**and** their energy) across the universe.
260. A relationship between gamma bursters and a big bang is suggested from some recent observations. On Jan. 23, 1999 the Hubble Space Telescope caught an optical flash simultaneous with an initial gamma burst. When calculated, this burst was second in energy only to the big bang itself, and generated about 3.4×10^{54} ergs, which is the equivalent of converting two solar masses instantaneously into energy. There was also no polarization of the afterglow, which has been taken as evidence of beaming. However, such beaming could also be due to the beaming involved in the intense iterative phase conjugate reflections of the asymmetrical self-regauging process in intensely scattering, optically active, energy-amplifying media.
261. Heaviside, {5a-5c}.
262. Josepfs, {172a}; Laithwaite, {172b}.

263. (a) Diederik Wiersma and Ad Lagendijk, "Laser Action in Very White Paint," *Physics World*, Jan. 1997, p. 33-37; (b) K. Totsuka, G. van Soest, T. Ito, A. Lagendijk, and M. Tomita, "Amplification and diffusion of spontaneous emission in strongly scattering medium," *J. Appl. Phys.*, Vol. 87, 2000, p. 7623-7628.

264. (a) A. Lagendijk, J. Gomez Rivas, A. Imhof, and R. Sprik, "Propagation of light in disordered semiconductor materials," in *Photonic Crystals and Light Localization in the 21st Century*, edited by C. M. Soukoulis, Kluwer, Dordrecht, 2001, p. 447-473; (b) H. Cao *et al*, "Spatial Confinement of Laser Light in Active Random Media," *Phys. Rev. Lett.*, 84(24), 12 Jun. 2000, p. 5584-5587.

265. We also point out the possibility of the accumulator at each end being an intensely scattering, photoreactive, energy-amplifying material, a subject discussed a bit later in this chapter.

266. (a) Werner Triftshauser *et al*, *Phys. Rev. Lett.*, Vol. 87, 2001. An overview is given by (b) Philip Ball, "The Positron Probe," *Nature*, Vol. 412, Aug. 23, 2001, p. 764.

267. For example, see Letokhov, {157a-157d}.

268. Jackson, {22}, p. 363, third footnote.

269. Kraus, {10}, p. 4.

270. Marconi's patent is Guglielmo Marconi, "Transmitting Electrical Signals," U.S. Patent 586,193, July 2, 1897. Filed Dec. 7, 1896, with 56 claims. This patent was overturned in 1943 by the U.S. Supreme Court, and prior work by Nikola Tesla for transmission of EM signals was upheld. Most textbooks and journals, etc. to this day continue to falsely credit Marconi with discovery of the transmission of EM signals and thus the discovery of radio. This is not to discredit the important work that Marconi did; without him, signal transmission would have been much longer in coming.

271. *United States Reports: Cases Adjudged in the Supreme Court of the United States*, Vol. 320, Marconi Wireless Telegraph Co. of America vs. United States, June 21, 1943, p. 1-80. The U.S. Supreme Court ruled that Tesla's fundamental radio patents had anticipated all other contenders, including Marconi.

272. *Dictionary of Scientific and Technical Terms*, Daniel N. Lapedes (editor in chief), McGraw-Hill, New York, 1974, p. 300. On page 517 of the second and expanded edition (1978), the same definition of electric field appears and is unchanged.
273. H. J. Gray and Alan Isaacs, *A New Dictionary of Physics*, Longman, London, second edition, second impression, 1976.
274. Feynman, {7}, p. 2-4.
275. Feynman, {7}, p. 12-2.
276. P. K. L. Drude, *Ann. Physik*, Vol. 1, p. 566; Vol. 3, 1900, p. 370, 869. Here Drude first develops a theory of conductivity in a metal based on the assumption that there is a gas of free electrons in the metal. This gas of conduction electrons is often referred to as the "Drude gas." Note that this was shortly after J. J. Thomson's discovery of the electron in 1897.
277. E.g., see Jackson, {211a}.
278. Romer, {84}, endnote 24, p. 109.
279. H. Winfield Secor, "Tesla Maps Our Electrical Future."
280. Nikola Tesla, "Pioneer Radio Engineer Gives Views on Power," *New York Herald Tribune*, Sep. 11, 1932.
281. Nikola Tesla, "The True Wireless, *Electrical Experimenter*, May 1919.
282. Burford and Verner, {35a}. Quote is from p. 281.
283. That is, it does not exist *openly* in the open literature. Several inventors do have working laboratory COP>1.0 experiments, and at **least** three of them have models which could rapidly be developed into production systems — say, in one year or less.
284. But see Kawai, {31}.
285. Barrett, {124}.
286. (a) Terence W. Barrett, "Active Signalling [sic] Systems," U.S. Patent No. 5,486,833, Jan. 23, 1996; (b) — "Oscillator-Shuttle-Circuit (OSC) Networks for Conditioning Energy in Higher-Order Symmetry Algebraic Topological Forms and RF Phase Conjugation," U.S. Patent No. 5,493,691, Feb. 20, 1996.

287. No proper scientific treatise on the Moray device has ever been published, to our knowledge, nor has a proper theory of its operation been developed. Anecdotal material and some technical material is contained in (a) T. H. Moray, *The Sea of Energy*, 5th Edn., Salt Lake City, 1978 (foreword by T. E. Bearden). The fourth edition of the book, titled (b) *The Sea of Energy in Which the Earth Floats*, contains additional material but is long out of print. Additional information is given in (c) Keith Tutt, *The Search for Free Energy*, Simon & Schuster, 2001, p. 33-68. (d) Paul Brown's study of the Moray work is "The Moray Energy Device: Operational Parameters, Design Criteria, and Considerations," date unknown. Researcher and inventor Bruce Perreault has based much of his own work with his radiant energy valve on Moray's work. Perreault proposes a different interpretation. In the present book we have tried to point out the various aspects of the Moray device that resemble other presently known effects — most of which were still unknown in the 1920s and 1930s when Moray's fundamental work was accomplished.

288. Moray, {34b} "Electrotherapeutic Apparatus," U.S. Patent No. 2,460,707, Feb. 1, 1949. This patent clearly shows the complexity of the various special tubes containing his pellets that Moray developed.

289. H. C. Dake and Jack DeMent, *Fluorescent Light and Its Applications*, Chemical Publishing Company, Inc., Brooklyn, New York, 1941, p. 51-52 gives a succinct discussion of Stokes emission and anti-Stokes emission.

290. Sir G. G. Stokes, "On the Change of Refrangibility of Light," a memoir, 1852.

291 For example, in 1935 Prileshajewa showed that there is an energy difference involving as much as 1.1 V between the exciting light and the fluorescence of aniline vapor.

292. V. S. Letokhov, {157a-157d}.

293. Letokhov, *ibid*.

294. E.g., (a) R. N. Bhargava and D. Gallagher, "Optical Properties of Manganese-Doped Nanocrystals of ZnS," *The Am- Phys. Soc.*, 72(3), Jan. 17, 1994; (b) I. A. Izmailov et al., "Generation of Stimulated Noncoherent Radiation in Light-Scattering Media Exhibiting Chemical Reactions," *Sov. J. Quantum Electronics*, 12(5), May. 1982, p. 588-594; (c) R. Pappalardo and A. Lempicki, "Brillouin and Rayleigh Scattering in Aprotic Laser

Solutions Containing neodymium," *J. Appl. Phys.*, Apr. 1992, p. 1699-1708.

295. (a) Nabil M. Lawandy *et al.*, "Laser action in strongly scattering media," *Nature*, Vol. 368, Mar. 31, 1994, p. 436-438. For a good lay article with color pictures, see (b) Ivars Peterson, "Boosted light: Laser action in white paint," *Science News*, 145(15), Apr. 9, 1994, p. 228-229. See also (c) P. Mandel, "Lasing without inversion: A useful concept?," *Contemp. Phys.*, Vol. 34, 1993, p. 335; (d) O Kocharovskaya, "Amplification and lasing without inversion," *Physics Reports*, Vol. 219, 1992, p. 175.

296. Some useful papers are: (a) Diederik S. Wiersma and Ad Lagendijk, "Light diffusion with gain and random lasers," *Phys. Rev. E*, 54(4), Oct. 1996, p. 4256-4265. The authors discuss experimental considerations for a medium that both multiply scatters and amplifies light, and distinguish three regimes; (b) H. Cao *et al.*, "Random Laser Action in Semiconductor Powder," *Phys. Rev. Lett.*, 82(11), 15 Mar. 1999, p. 2278-2281. The authors observed random laser emission in all directions, with coherent feedback, in semiconductor powder, (c) Diederik S. Wiersma, Meint P. van Albada and Ad Lagendijk, "Coherent Backscattering of Light from Amplifying Random Media," *Phys. Rev. Lett.*, 75(9), 28 Aug., 1995, p. 1739-1742. (d) D. S. Wiersma, P. Bartolini, A. Lagendijk, and R. Righini, *Nature*, Vol. 390, 1997, p. 671. The authors report Anderson localization of photons in GaAs powder, (e) Ad Lagendijk *et al.*, "Microscopic Approach to the Lorentz Cavity in Dielectrics," *Phys. Rev. Lett.*, 79(4), 28 July 1997, p. 657-660. (f) Pedro de Vries and Ad Lagendijk, "Resonant Scattering and Spontaneous Emission in **Dielectrics** Microscopic Derivation of Local-Field Effects," *Phys. Rev. Lett.*, 81(7), 17 Aug. 1998, p. 1381-1384. (g) Gijs van Soest, Makoto Tomita, and Ad Lagendijk, "Amplifying volume in scattering media," *Opt. Lett.*, 24(5), Mar. 1, 1999, p. 306-308.

297. S. Itoh *et al.*, "Simulation and experimental studies on anomalous reflectivity of phase conjugate wave," *Ferroelectrics*, vol. 170, 1995, p. 209-217.

298. See (a) D. P. Hand and P. St. J. Russell, "Solitary thermal shock waves and optical damage in optical fibers," *IEE Colloquium on 'Non Linear Optical Waveguides'*, *LEE Digest* No. 88, London, England, 1988, p. 101-103; (b) — "Soliton-like thermal shock-waves in optical fibres: origin of periodic damage tracks," *Fourteenth European Conference on*

Optical Communication (ECOC 1988), Sep. 11-15, 1988, Publication No. 292, 1(2), 1988, p. 111-114; (c) — "Solitary thermal shock waves and optical damage in optical fibers: the fiber fuse," *Opt. Lett.*, 13(9), Sep. 1988, p. 767-769; (d) D. P. Hand and T. A. Birks, "Single-mode tapers as 'fibre fuse' damage circuit-breakers," *Electronics Lett.*, 25(1), Jan. 5, 1989, p.33-34. For an excellent lay description with photographs, see (e) Ivars Peterson, "Fibers with Flare," *Sci. News*, 140(13), Sep. 8, 1991, p. 200-201

299. P. St. J. Russell, "Power Conservation and Field Structures in Uniform Dielectric Gratings," *J. Opt. Soc. America A.*, 1(3), Mar. 3, 1984, p. 293-299. Russell is referring to apparent violation of local conservation of energy. It is true in the conventional flawed energy flow analysis considering only the Poynting component, because the fuse produces more work output (melting the holes) than the original operator's input of Poynting energy to initiate the fuse effect. It does not produce more work output than the total of the energy input by the operator in both the accounted Poynting component and the unaccounted Heaviside component. It merely shows that the extra fiber fuse ignition actions do absorb extra energy from the Heaviside component, perhaps by particle resonance (Bohren effect) of the melt and vapor particles. Also, intense heating produces intense ionization and thus intense dipoles, thus producing broken symmetry in the fierce exchange with the active vacuum. Multiple retroreflections of the EM energy flow also occur in the nmelt and vapor particles, leading to multiple collections in the ping-pong of a joule of energy between two particles as phase conjugate mirrors.

300. E.g., see (a) H. Kogelnik, "Coupled wave theory for thick hologram gratings," *Bell Systems Technical Journal*, Vol. 48, 1969, p. 2909-2947; (b) Z. Zylbergberg and E. Marom, "Rigorous coupled-wave analysis of pure reflection gratings," *J. Opt. Soc. Am.*, Vol. 71, 1981, p. 811-818; (c) — "Rigorous coupled-wave analysis of grating diffraction — E- mode polarization and losses," *ibid.*, Vol. 73, 1983, p. 451-455; (d) - "Comments on analyses of reflection gratings," *ibid.*, Vol. 73, 1983, p. 399-401.

301. Bohren, {24J.

302. Justin Mullins, "Superpowerful Explosive Arrives with a Bang." *New Scientist*, Aug. 4, 2001.

303. Romano M. DeSantis *et al.*, "On the Analysis of Feedback Systems With a Multipower Open Loop Chain," Oct. 1973, AD 773188, available through the Defense Technical Information Center or the National Technical Information Center. The paper clearly shows that such systems can produce overunity coefficient of performance.

304. See (a) J. H. Andreatta, "High Power Switching Amplifier Wherein Energy is Transferred to a Tuned Circuit During Both Half Cycles," U.S. Patent No. 3,239,771, Mar. 8, 1966; (b) Tom L. Dennis Jr., "Highly Efficient Semiconductor Switching Amplifier," U.S. Patent No. 3,239,772, Mar. 8, 1966; (c) Heber J. Morrison, "Square Wave Driven Power Amplifier," U.S. Patent No. 3,815,030, June 4, 1974.

305. For a good but conventional coverage of many differential negative resistors and negative conductors, see Adolf Fritz Schwarz, "Negative Resistors and Negative Conductors," Doctoral Thesis, Technische Hogeschool, Delft (Netherlands), Feb. 1969, available from the U.S. National Technical Information Service (NTIS), Springfield, VA. True negative resistors are dismissed as impossible in Schwarz's opening remarks. And they *are* impossible in equilibrium systems not receiving and using any net excess energy asymmetrically from their environment, which are the only systems conventionally considered by electrical engineers and electrodynamicists.

306. Gabriel Kron, "Numerical solution of ordinary and partial differential equations by means of equivalent circuits." *J. Appl. Phys.*, Vol. 16, Mar. 1945a, p. 173.

307. Kron, {32}, p. 39.

308. Bearden, {12}.

309. E.g., see Gabriel Kron, "Equivalent Circuits for Oscillating Systems and the Riemann-Christoffel Curvature Tensor," *General Electric Review*, Jan. 1943, p. 25-31.

310. See (a) S. Austen Stigant, "Gabriel Kron on Tensor Analysis, A bibliographical record," *BEAMA Journal*, Aug. 1948, for a full bibliography of Kron's publications up to 1948. Also useful are (b) Gabriel Kron, "A Method to Solve Very Large Physical Systems in Easy Methods," *IRE Transactions on Circuit Theory*, 2(1), Dec. 1953, p. 71-90; (c) P. L. Alger, editor, *The Life and Times of Gabriel Kron, or Walking Around the World, and Tensors*, Mohawk Development Services, Inc.,

Schenectady, NY, 1969; (d) Banesh Hoffman, "Cron's Non-Riemannian Electrodynamics," *Rev. Mod. Phys.*, 21(3), 1949, x 535-540; (e) K. Kondo and Y. Ishizuka, "Recapitulation of the Geometrical Aspects of Gabriel Kron's Non-Riemannian Electrodynamics," Research Association of Applied Geometry, *Memoirs of the Unifying Study of Basic Problems in Engineering and Physical Sciences by Means of Geometry*, Gakujutsu Bunkai Fukyu-kai, Tokyo, Vol. I, 1955, p. 185-239 [particularly see footnote 1, p. 222];

311. Wang and Chung, {33}.

312. Deborah D. L. Chung, "Superconductor-metal laminates and method of making," U.S. patent no. 5,059,582, issued Oct. 22, 1991. A superconducting laminate having at least one layer of metal and at least one layer of superconducting material. The metal layer and the superconducting layer are bonded. The layer may also include carbon fibers from various precursors. The superconductor may be a composite material. The invention also includes a method of making the laminates. Assigned to The Research Foundation of State University of NY, Albany, NY.

313. Jean-Louis Naudin, website <http://jnaudin.free.fr/cnr/>.

314. Fogal, {36a, 36b}.

315. As one example, Fogal's device has to be able to manipulate Dirac holes in the vacuum itself, at least to some extent. Once the erroneous flat spacetime assumption of classical electrodynamics is removed and curved local spacetime considered, we can and will have Dirac holes in the local vacuum itself, especially in COP»1.0 systems. In a COP»1.0 system, not all the Dirac holes have interacted with orbital electrons in atoms to "eat" an electron and produce a positive ion — with a "lattice hole" or "lattice positron" where the electron had been. There is a vast difference between a Dirac hole positron (which has a negative mass equal in magnitude to one electron-mass) and a lattice hole (which is attached to the relatively huge positive mass of the ionized atom. Hence the mobility and phenomenology of Dirac positrons and lattice positrons are very different. There presently are no books on the dynamics of the Dirac negative energy electron holes in COP»1.0 EM circuits and systems.

316. Mandl and Shaw, {19}.

317. Whittaker, {91a}. The paper was published in 1904 and orally delivered in 1903. Note: On p. 368 midpage, Whittaker's equation for the y-component of vector-potential "a" is missing the exponent "2" on the ~~del~~ operator.
318. Rodrigues and Lu, {93a}.
319. Rodrigues and Vaz, {93b}.
320. It is certainly not lacking in the secret military weapons game. Some 10 nations of the world have weaponized longitudinal EM wave weapons over the past few decades, and almost every major weapons laboratory in the world has now "discovered" longitudinal EM waves. Even the Yakuza (Japanese Mafia) has acquired its own portable longitudinal EM interferometry weapons.
321. Evans et al., {79}.
322. (a) V. I. Arkhipov, *et al.*, "Negative transient currents in amorphous semiconductors." *Internat. J. Electronics* (UK), 51(6), 1981, p, 735-742; (b) — and A. I. Rudenko, "Negative currents caused by injection-controlled polarization," *Solid. St. Commun.*, 28, 1978, p. 675-676.
323. Jackson, {22}, p. 222.
324. Jackson, {22}, p. 223.
325. O. L. Brill and B. Goodman, *Am. J. Phys.*, vol. 35, 1967, p. 832.
326. For example, see Jackson, {22}, p. 219-221.
327. We stress that electrodynamicists, conventional theory, and quantum field theory all assume the principle of *gauge freedom*, the **total** freedom to change the gauge (and therefore any potential) in a Maxwellian system at any time, without cost or work. In the real world one may have to pay a little switching costs, but by simply regauging one can freely change the EM energy physically present at a point in 3-space **occupied by** the Fogal "freed" instantaneous scalar potential, once the electrons are pinned. In short, the Fogal process is able to directly "gate" the instantaneous transduction of EM energy existing at multiple points **in** space, simultaneously. There is nothing in the gauge freedom **principle** that restricts (i) regauging the instantaneous scalar potential at will, **or** (ii) using these changes at a distance to produce force fields upon electrons, thereby moving them — so long as one employs a Fogal semiconductor in

the "distant receiver" in order to be able to produce the back-transition from the field-free state to the force-field state by removing the anomalous pinning restriction. To the advanced theorists, we leave the debates over causality considerations for this demonstrated process!

328. Whittaker, {85}.

329. (a) W. Heitman and G. Nimtz, "On Causality Proofs of Superluminal Barrier Transversal of Frequency Band Limited Wave Packets," *Phys. Lett. A196*, 1994, p. 154-158; (b) Enders and Nimtz, {136b}.

330. The reader should recall that the Lorenz/Lorentz condition, which limits the circuit to $COP < 1.0$, is self-applied by the circuit when it rams all "spent" electrons in the ground return line back through the emf of the circuit. One need not do that, and need not produce that force field that destroys the primary source dipole and its extraction of EM energy from the vacuum via its broken symmetry. As the reader has undoubtedly now observed, the "back-emf" and "back mmf" are those aspects in an electrical circuit and magnetic circuit respectively, that kill the dipole and physically self-apply and self-enforce Lorenz/Lorentz symmetrical regauging. Hence the intuitive concern of $COP > 1.0$ experimenters to try to discover how to avoid or lessen the "back emf" or the "back mmf" in their circuits and systems.

331. Philip Ball, "The positron probe," *Nature*, Vol. 412, 23 Aug. 2001, p. 764.

332. Werner Triftshauser et al., *Phys. Rev. Lett.*, 87, 067402 (2001).

333. Bearden, {30}.

334. For the chemistry and currents of the battery, see any good battery reference, such as Colin A. Vincent and Bruno Scrosati, *Modern Batteries: An Introduction to Electrochemical Power Sources*, Second Edition. Wiley, New York, 1997.

335. (a) J. O'M. Bockris, A. K. N. Reddy, and M. Gamboa-Aldeco, *Modern Electrochemistry: Fundamentals of Electrodics*, 2nd edition. Kluwer/Plenum, NY 2000; (b) J. O'M. Bockris and A. K. N. Reddy, *Modern Electrochemistry: Electrodics in Chemistry, Engineering, Biology, and Environmental Science*, 2nd edition, Kluwer/Plenum, NY 2000; (c) J. Koryta, J. Dvorak, and L. Kavan, *Principles of Electrochemistry*, 2nd ed.. Wiley, NY, 1993; (d) Wolfgang J. Lorenz and Waldfried Plieth,

Electrochemical Nanotechnology: In Situ Local Probe Techniques at Electrochemical Interfaces, Wiley, NY, 1998; (e) B. E. Conway, *Electrochemical Supercapacitors: Scientific Fundamentals and Technological Applications*, Plenum, NY, 1999; (f) Allen J. Bard and Larry R. Faulkner, *Electrochemical Methods: Fundamentals and Applications*, Second Edition, Wiley, NY, 2001.

336. At this writing, a provisional patent application on the process has been filed by Bedini and the present author. By the time of publication, hopefully this will have been turned into a formal patent application, with foreign patents also applied for.

337. Edwin V. Gray, "Pulsed Capacitor Discharge Electric Engine," U.S. Patent #3,890,548, June 17, 1975.

338. (a) Per Whittaker, {85}. However, see (b) Bearden, {12} for a necessary correction of Whittaker's interpretation to accord with a quantum field theory view of the instantaneous scalar potential. After observation, the phase conjugate EM wave half of the Whittaker wavepair is indeed going in the opposite direction to the normal longitudinal EM wave half. But prior to observation, it exists in the time domain, and in the time domain it is precisely accompanying the 3-space longitudinal EM wave, with the absorbing and then emitting charge interacting in the middle between the two. See (c) Mandl and Shaw, {19}, to see that the combined scalar (time-polarized) photon and longitudinal photon are observable as the instantaneous scalar potential. This means that the corrected Whittaker decomposition produces an associated time-polarized EM wave in the time domain and longitudinal EM wave in 3-space. That is the corrected interpretation of Whittaker's phase conjugate longitudinal EM wavepair.

339. (a) J. O'M. Bockris, "Overpotential: a lacuna in scientific knowledge," *J. Chem. Edu.*, 48(6), June 1971, p. 352-358. This is a simplified introduction to overpotential theory. The energy density that exists at minute "double layers" in contact, which act as tiny capacitors with extremely small separation of plates, is enormous and far greater **than** what the power engineer meets in his normal engineering practice. **See** also (b) Bockris and Reddy, {335b}, particularly Chapter I which deals with the overpotential. See also (c) Bockris et al, {335a}.

340. E.g. see (a) L. Bertalot *et al.*, "Study of deuterium charging in palladium by the electrolysis of heavy water: heat excess production", *Nuovo Cimento*, Vol. 15 D, 1993, p. 1435; (b) J. O'M Bockris *et al.*, "Cold

fusion as a consequence of high fugacity among hydrogen isotopes," *Intl. J. Hydrogen Energy*, Vol. 17, 1992, p. 445.

341. Peter Lindemann, *The Free Energy Secrets of Cold Electricity*, Clear Tech Inc., Metaline Falls, WA, 2001.

342. Particularly see Kenneth S. Deffeyes, *Hubbert's Peak: The Impending World Oil Shortage*, Princeton University Press, Princeton, NJ, **2001**.

Quoting: "Deffeyes finds that world oil production will peak within five wars and that there isn't anything we can do to stop it. New exploration and production technologies can't save us, and plans to open the Arctic National Wildlife Refuge and other areas to drilling offer no more than a small and soon-to-be-forgotten blip on the production curve. While long-term solutions exist in the form of conservation and alternative energy sources, they probably cannot — and almost certainly will not — be enacted in time to evade a short-term catastrophe of shortages, soaring prices, and global economic, agricultural, and possibly political disturbance. " In short, Deffeyes rigorously demonstrates that a world energy crisis of staggering proportions is just around the corner.

343. D. J. Bohm and B. J. Hiley, "On the intuitive understanding of nonlocality as implied by quantum theory," *Found. Phys.*, 5(1), Mar. 1975, p. 93-109. Quote is from p. 107.

344. (a) Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," *Phys. Rev.*, Second Series, 115(3), Aug. 1, 1959, p. 485; (b) — "Further Considerations on Electromagnetics In the Quantum Theory," *Phys. Rev.*, 123(4), Aug. 15, 1961, p. 1511-1524.

345. Terence W. Barrett, "Electromagnetic Phenomena Not Explained by Maxwell's Equations," A. Lakhtakia, ed., *Essays on the Formal Aspects of Electromagnetics Theory*, World Scientific Publishing, River Edge, NJ, **1993**, p. 11 and generally p. 6-86.]

346. Davies, {237}, p. 105.

347. David J. Bohm, "A Suggested Interpretation of the Quantum Theory in Terms of 'Hidden' Variables, I and II." *Phys. Rev.*, 85(2), Jan. 15, 1952, p. 166-179 (Part I); 180-193 (Part II).

348. Jackson, {22}, p. 223.

349. Lamb and Retherford, {23}.

350. (a) Casimir, {26}. This paper is an extrapolation to two attracting plates of the more detailed paper of (b) H. B. G. Casimir and D. Polder, "The influence of retardation on the London-van der Waals Forces," *Phys Rev.* 73(4), Feb. 15, 1948, p. 360-372. Casimir's paper was an extension of earlier work by Verwey and Overbeek on the stability of colloidal systems, including the interaction of electric double layers; see (c) E. J. W Verwey, J. T. G. Overbeek, and K. van Nes, *Theory of the Stability of Lyophobic Colloids*, Elsevier, Amsterdam, 1948.

351. Lamoreaux, {27}.

352. Mead and Nachamkin, {28}.

353. E.g., see (a) P. W. Milonni. R. J. Cook and M. E. Goggin, "Radiation pressure from the vacuum: Physical interpretation of the Casimir force," *Phys. Rev. A*, Vol. 38, 1988, p. 1621; (b) C. E. Carlson, T. Goldman and J. Peres-Mercader, "Gamma-ray bursts, neutron star quakes, and the Casimir effect," *Europhys. Lett.*, Vol. 36, 1996, p. 637; (c) M. Chaichian *et al*, "Quantum theories on noncommutative spaces with nontrivial topology: Aharonov-Bohm and Casimir effects," *Nucl Phys B*. Vol. 611, 2001, p. 383-402; (d) V. Dodonov, "Nonstationary Casimir Effect and Analytical Solutions for Quantum Fields in Cavities with Moving Boundaries," in *Modern Nonlinear Optics*, 2nd Edn., 3 vols., Wiley, 2001, Vol. 1, p. 309-384.

354. Bohm, {347}.

355. See T. E. Bearden, *Gravitobiology: A New Biophysics*, Tesla Book Co., Chula Vista, CA, 1991.

356. One should not be nonplussed at the notion of infinite velocity. A pure longitudinal EM wave is — at least in theory — capable of moving at infinite velocity, and is a proper solution to Maxwell's equations. See (a) Rodrigues and Lu, {93a}. Also, the ordinary potential in the Coulomb gauge does indeed move at infinite velocity; see Jackson, {22}, p. 223. In addition, Bohm's interpretation of quantum mechanics {347} uses the quantum potential, which instantaneously appears everywhere it will have magnitude.

357. Enders and Nimtz, {329b}.

358. R. Chen, "Cancellation of Internal Forces," *Am. J. Phys.*, 49(4), Apr. 1981, p. 372.

359. Whittaker, {85}.

360. R. L. Davis, "Non-Inductive Electrical Resistor," U.S. Patent No. 3,267,406, Aug. 16, 1966. Davis uses a Mobius-loop capacitor as an inductance-free resistor. Our comment is that, more rigorously, the resistor is *not* noninductive. It is "equally and oppositely inductive," which is quite a different thing altogether when one considers the difference between internal energy and external energy. We hypothesize that the "resistor" — or some version of it — produces an artificial scalar potential stress in spacetime — apparently varying the stress energy tensor itself— even though it produces a *net* zero reactance.

361. These are Brazil, Russia, China, and two other nations friendly to the U.S. The dominant weapons on earth today are quantum potential weapons, not nuclear weapons. The second most dominant weapons are probably the negative energy EMP weapons deployed by several nations, including China.

362. E.g., see (a) L. I. Mandelstam and N. D. Papaleksi, "On the parametric excitation of electric oscillations," *Zhurnal Tekhnicheskoy Fiziki*, 4(1), 1934, p. 5-29; (b) — "On resonance phenomena with frequency distribution." *Z.f. Phys.*, No. 72, 1931, p. 223; (c) — "Concerning asynchronous excitation of oscillations," *Zhurnal Tekhnicheskoi Fiziki*, 4(1), 1934; (d) — "Concerning asynchronous excitation of oscillations," *Zhurnal Tekhnicheskoi Fiziki*, 4(1), 1934; (e) — "Concerning nonstationary processes occurring in the case of resonance phenomena of the second class," *Zhurnal Tekhnicheskoi Fiziki*, 4(1), 1934. See also (f) A. Andronov, "The limiting cycles of Poincare and the theory of self-maintained oscillations," *Comptes-Rendus*, Vol. 189, 1929, p. 559; (g) — and A. Witt, "On the mathematical theory of self-excitations," *Comptes-Rendus*, Vol. 190, 1930, p. 256; (h) — "On the mathematical theory of self-excitation systems with two degrees of freedom," *Zhurnal Tekhnicheskioi Fiziki*, 4(1), 193; (i) — "Discontinuous periodic movements and theory of multivibrators of Abraham and Bloch," *Bull. De l'Acad. Ed Sc. De l'URSS*, vol. 189, 1930. See (j) S. Chaikin, "Continuous and 'discontinuous' oscillations," *Zhurnal Prikladnoi Fiziki*, Vol. 7, 1930. p. 6; (k) — and A. Witt, "Drift in a case of small amplitudes," *Zhurnal Tekhnicheskoi Fiziki*, 1(5), 1931, p. 428; (l) — and N. Kaidanowski, "Mechanical relaxation oscillations," *Zhurnal Tekhnicheskoi Fiziki*, Vol. 3, 1933, p. 1.

363. L. Mandelstam [L. T. Mendel'shtam], N. Papalexi, A. Andronov, S. Chaikin and A. Witt, "Report on Recent Research on Nonlinear Oscillations," Translation of "Expose Des Recherches Recentes Sur Les Oscillations Non Lineaires," *Technical Physics of the USSR*, Leningrad, Vol. 2, 1935, p. 81-134 [NASA Translation Doc. TTF-12,678, Nov. 1969].
364. In Alexander L. Fradkov and Alexander Yu. Pogromsky, *Introduction to Control of Oscillations and Chaos*, World Scientific Series on Nonlinear Science E, Series Editor Leon O. Chua, World Scientific, New Jersey, 1998 — as a typical example — I found no mention of the Dirac hole current decay mechanism or of the active external environment (the active vacuum and its dynamics, and the active local curvatures of spacetime and their dynamics).
365. Richard E. Prange and Peter Strance, "The Semiconducting Vacuum," *Am. J. Phys.*, 52(1), Jan. 1984, p. 19-21.
366. John F. Lindner *et al.*, "Noise Enhanced Propagation," *Phys. Rev. Lett.*, 81(23), 7 Dec. 1998, p. 5048-5051. Lindner suggests that the mechanism appears to be general, in which case it could supply the mechanism that coherently "locks together" the barium nuclei self-oscillations in Sweet's activated barium ferrite magnets.
367. Owen Flynn, "Parametric arrays: A new concept for sonar," *Electronic Warfare Magazine*, June 1977, p. 107-112. Any two sine-wave frequencies as simultaneous drivers combine to produce a sine-wave difference frequency propagating in an isotropic nonlinear medium, essentially without sidebands or reverberations. Its pattern has a main lobe approximately equal to that of the high frequency drive, but devoid of sidelobes. The level of the propagating difference frequency is proportional to both the product of the two fundamental drive levels and to the square of the desired value of difference frequency.
368. M. I. Dykman *et al.*, "Noise-enhanced heterodyning in bistable systems." *Phys. Rev. E*, 49(3), Mar. 1994, p. 1935-1942
369. (a) V. S. L'vov and L. A. Prozorova, "Spin Waves Above the Threshold of Parametric Excitation," in (b) A. S. Borovik-Romanov and S. K. Sinha, Eds., *Spin Waves and Magnetic Excitations*, North-Holland, Amsterdam, 1988.

370. Gurevich and Melkov, {232c}. The authors treat high **frequency** processes, i.e., oscillations and waves, in magnetically ordered substances, including ferromagnetic and antiferromagnetic resonances, spin waves, nonlinear processes, and high frequency manifestations of **interactions** between the magnetic system and other systems of magnetically **ordered** substances (crystal lattice, charge carriers). The treatment is classical except that a quantum mechanical approach is used in the study of relaxation processes, which determine the energy losses of magnetic oscillations and waves. Experimental results but not techniques are included. Self-oscillation and self-oscillation criteria are on p. 279.

371. (a) G. S. Kandaurova and A. E. Sviderskii, "Observation of autowave state and stable dynamic structures in multidomain magnetic films," *Sov. Tech. Phys. Lett.*, 14(5), May 1988, p. 346-347; (b) V. S. L'vov, {29c}.

372. Richard T. Hammond, "New fields in general relativity," *Contemp. Phys.*, 36(2), 1995, p. 103-114.

373. (a) J. Baugh et al., *Science*, Vol. 294, 16 Nov. 2001, p. 1505. For a simpler synopsis of the paper, see (b) Warren S. Warren, "Multidimensional Symmetry in a Three-Dimensional World," *Science*, Vol. 294, 16 Nov. 2001, p. 1475-1476.

374. E.g., see Howard R. Johnson, "Permanent Magnet Motor." U.S. Patent No. 4.151.431. Apr. 24. 1979.

375. Howard Johnson, private communication, January 2002.

376. In magnetics, multi-valued potentials (and hence the possibility **for** nonconservative fields) arise naturally in the theory, but are considered a nuisance to be eliminated or "averaged away" by magnetics engineers. E.g., see (a) Z. Ren, "A 3D vector potential formulation using edge element for electrostatic field computation," *IEEE Trans, on Magnetics*, **31(3)**, May 1995, p. 1520-1523; (b) — "New technique for solving three-dimensional multiply connected eddy-current problems." *IEEProc*, 137A(3), May 1990, p. 135-140; (c) J. C. Verite, "Calculation of multivalued potentials in exterior regions," *IEEE Trans, on Magnetics*, **Vol. MAG-23(3)**, May 1987, p. 1881-1887. Amazingly, these and other similar methods are directed into converting the multivalued potential into single-valued regions by a process of multiple, highly selected cuts. In other words, the real attempt is to eliminate the multivalued aspect, in which case the theorists are in fact simply eliminating the asymmetrical

self-regauging provided by the multivalued potential and hence are discarding the ability to use multivalued potentials in true overunity processes.

377. (a) Z. Badics, "Transient eddy current field of current forced three-dimensional conductors," *IEEE Trans, on Magnetics*, 28(2), Mar. 1992, p. 1232-1234; (b) R. Albanese and G. Rubinacci, "Magnetostatic field computations in terms of two component vector potentials," *Int. J. for Numerical Methods in Engineering*, Vol. 29, 1990, p. 515-532; (c) Bearden, {214f}: (d) P. Hammond and T. D. Ssiboukis, "Dual finite-element calculations for static electric and magnetic fields," *IEEProc. A*, 130(3), 1983, p. 105-111; (e) P. R. Kotiuga, "On making cuts for magnetic scalar potentials in multiply connected regions," *J. Appl. Phys.*, 61(8), 1987, p. 3916-3918; (f) J. Penman and J. R. Fraser, "Complementary and dual energy finite element principles in magnetostatics," *IEEE Trans, on Magnetics*, 18(2), 1982, p. 319-323; (g) E. A. Tolkachev and Ya. M. Shnir, "Non-trivial topology effects in the interaction of a monopole with a line current," *Phys. Lett. A*, 155(8, 9), May 27, 1991, p. 464-466.

378. (a) Feynman, {7}, Vol. II, Chapter 37; (b) T. Ambrose, R. L. Sommer, and C. L. Chien, "Angular Dependence of Exchange Coupling in Ferromagnetic/Antimagnetic Bilayers," *Phys. Rev. B*, Vol. 56, 1997, p. 83; (c) H. Sang, Y. W. Du, and C. L. Chien, "Exchange Coupling in $\text{Fe}_{50}\text{Mn}_{50}/\text{Ni}_{81}\text{Fe}_{19}$ Bilayers: Dependence on Antiferromagnetic Layer Thickness," *J. Appl. Phys.*, Vol. 85, 1999, p. 4931.

379. V. A. Tulin, "Nuclear Spin Waves in Magnets," *Fiz. Niskikh Temp.*, Vol. 5, 1979, p. 965-993 [in Russian].

380. Sweet and Bearden, {29a}.

381. (a) Kenneth R. Shoulders, U.S. Patent # 5,153,901; (b) — "Energy Conversion Using High Charge Density," U.S. Patent # 5,018,180, May 21, 1991; (c) — "Energy Conversion using High Charge Density," U.S. Patent No. 5,123,039, 1992; (d) — U.S. Patents 5,054,046 and 5,054,047, 1991; (e) — "Circuits Responsive To and Controlling Charged Particles," U.S. Patent 5,148,461, 1992; (f) — and Steve Shoulders, "Observations on the Role of Charge Clusters in Nuclear Cluster Reactions," *J. New Energy*, 1(3), Fall 1996, p. 111-121.

382. (a) Paulo N. Correa and Alexandra N. Correa, "Pulsed Abnormal Glow Discharge Technology," *Infinite Energy*, 2(7), Mar./Apr. 1996, p.

18-21; (b) — "Other Applications of the PAGD Technology Besides Energy Conversion," *ibid.*, p. 22-27; (c) — "Electrochemical Transduction of Plasma Pulses," U.S. Patent No. 5,416,391, May 16, 1995; (d) "Energy Conversion Systems," U.S. Patent No. 5,449,989, Sept. 12, 1995; (e) — "Direct Current Energized Pulse Generator Utilizing Autogenous Cyclical Pulsed Abnormal Glow Discharges," U.S. Patent 5,502,354, Mar. 26, 1996.

383. In 1935, Prileshajewa showed that there is an energy difference as much as 1.1 v between the exciting light and the fluorescence of aniline vapor. This added energy is attributed to additions from the internal energy of the molecule. Thus, anti-Stokes emission has been validated as a COP>1.0 mechanism since at least 1935. For our purposes, replenishment of the internal energy of the molecule must be obtained from the local active vacuum; else one simply has the standard optical cooling process which cools the gas.

384. E.g., see J. K. Brasseur et al., "Coherent Anti-Stokes Emission in a Continuous Wave Raman Laser in H₂," carried on website location <http://www.physics.montana.edu/optics/jlc/Anti-Stokes.pdf>.

385. For a typical study, see J. Silver et al., "Studies on anti-Stokes emission from metal oxides (doped with Er³⁺ and Yb³⁺) stimulated by 632.8 nm laser excitation," *6th Int. Conf. Phosphors and Display Tech.*, San Diego, California, 2000.

386. For a typical paper of hundreds on the subject, see C. Zander and K. H. Drexhage, "Cooling of a Dye Solution by Anti-Stokes Fluorescence," in *Advances in Photochemistry*, edited by D. C. Neckers, D. H. Volman, and G. von Bulau; Wiley, New York, 1995.

387. (a) Antoine Priore, "Method of producing radiations for penetrating living cells," U.S. Patent No. 3,280,816, Oct. 25, 1966; (b) — "Apparatus for producing radiations penetrating living cells," U.S. Patent No. 3,368,155, Feb. 6, 1968. For an explanation, see (c) T. E. Bearden, "The Porthole Briefing," <http://www.cheniere.org>.

388. Thomas Valone, "Future Energy Technologies," *J. New Energy*, 5(2), Fall 2000, p. 41-46; summary is quoted from p. 44-45.

389. Shang-Xiang Jin and Hal Fox, "Characteristics of High-Density Charge Clusters: A Theoretical Model," *J. New Energy*, 1(4), Winter 1996, p. 5-20.

390. Shoulders, {381a-381e}.
391. Ken Shoulders, "Permittivity transitions," *J. New Energy*, 5(2), Fall 2000, p. 121-137.
392. *Ibid*, p. 122.
393. *Ibid*, p. 122.
394. K. Shoulders and S. Shoulders, {381 f}.
395. Harold L. Fox, "Energy for the Future: High-Density Charge Clusters," *Modern Nonlinear Optics*, Second Edition, edited by M. W. Evans, Wiley, New York, 2001, Part III, p. 623-653.
396. See (a) Art Rosenblum, "Randell Mills — New Energy and the Cosmic Hydrino Sea," *Infinite Energy*, 3(17), Dec. 1997-1998, p. 21-34. Also see (b) Randell Lee Mills, "Energy/Matter Conversion Methods and Structures," Australian Patent No. 668678, Nov. 20, 1991. Particularly see (c) Eugene Mallove, "Dr. Randell Mills and the Power of BlackLight," *Infinite Energy*, 2(12), Jan.-Feb. 1997, p. 21, 35, 41.
397. Randell Mills *et al.*, "Lower-Energy Hydrogen Methods and Structure," U.S. Patent No. 6,024,935, Feb. 15, 2000. Some 60 pages, and an astounding 499 claims. For the patent, an independent verification was performed by Johannes Conrads, Institute for Low Temperature Plasma Physics at the Ernst Moritz Arndt University in Greifswald, Germany.
398. Randell L. Mills, "The Grand Unified Theory of Classical Quantum Mechanics," www.blacklightpower.com/book/shtml.
399. (a) Randell L. Mills *et al.*, "Identification of Compounds Containing Novel Hydride Ions by Nuclear magnetic Resonance Spectroscopy"; (b) — "Spectroscopic Identification of Novel Catalytic-Reaction of Atomic Hydrogen and the Hydride Ion Products"; (c) — "Black Light Power Technology: A New Clean Energy Source with the Potential for Direct Conversion to Electricity," presented to the Intl. Conf. On Global Warming and Energy Policy, Nov. 26-28, 2000 and to the National Hydrogen Association Meeting, March 6-8, 2001; (d) — Plasma Power Source Based on a Catalytic Reaction of Atomic Hydrogen"; (e) R. M. Mayo and R. L. Mills, "Direct Plasmadynamic Conversion of **Plasma** Thermal Power to Electricity for Microdistributed Power Applications," *40th Ann. Power Sources Conf. Proc*, June 10-13, 2002; (f) R. Mills *et al.*, "Novel Catalytic Reaction as a Potential New Energy Source," 223rd

ACS National Meeting, Orlando, Florida, Apr. 6-11, 2002; (g) — "Novel alkali and Alkaline Earth Hydrides for High Voltage and High Energy Density Batteries," *Proc. 17th Ann. Battery Conf. On Appl. And Advances, Calif. State Univ., Long Beach, CA, Jan. 15-18* (in press); (h) - "Synthesis of Diamond Films from Solid Carbon"; (i) Mills and Ray, "Spectral Emission of Fractional Quantum Energy Levels of Atomic Hydrogen from a Helium-Hydrogen Plasma and the Implications for Dark Matter," *Int. J. Hydrogen Energy*, 27(3), 2002, p. 301-322.

400. Peter D. Zimmerman, "An Analysis of Theoretical Flaws in So-Called Classical Quantum Mechanics and of Experimental Evidence against CQM," 2001.

401. Bearden, {222b}, p. 674.

402. E.g., it yields the excess deuterium, tritium, and alpha particles; see Bearden, {17}.

403. (a) Bearden, {222b}; Bearden, {15}.

404. (a) "Ion Cyclotron and Converter and Radio Power Microwave Generator," International Pub. No. WO 01/21300 A2, 29 March 2001; (b) "Ion Cyclotron Power Converter and Radio and Microwave Generator," International Pub. No. WO 01/22472, 29 March 2001. Both filed with World Intellectual Property Organization.

405. But see Samuel D. Harper. "The energy dissipated in a switch," *Am. J. Phys.*, 56(10), Oct. 1988, p. 866-889. Unless special attention and effort is paid, switches can indeed consume a great deal of energy! As Harper points out, it can be a substantial fraction of the energy transfer in the circuit. In a capacitive loaded circuit this is especially true. One should consider very efficient switching such as optically coupled switching arrangements.

406. (a) F. Heinrich, "Entropy change when charging a capacitor: A demonstration experiment," *Am. J. Phys.*, 54(8), 1986, p. 742-44. For an expanded discussion, see (b) I. Fundaun, C. Reese, and H. H. Soonpaa, "Charging a capacitor," *Am. J. Phys.*, 60(11), Nov. 1992, p. 1047-1048. Also see (c) Tyler A. Abbott and David J. Griffiths, "Acceleration without radiation," *Am. J. Phys.*, 53(12), Dec. 1985, p. 1203-1211. An extended charge can accelerate without radiating, under specified conditions.

407. (a) Davis, {360}. It would appear that a sine wave across this resistor may generate a **rhythmic** variation in what is called "internal

energy"; i.e., stress energy inside the system, hence stress energy in the associated vacuum. Since this is analogous to a sound wave consisting of rarefaction and expansion, it is a method of generating a longitudinal EM wave. This may also be involved also in the Fogal semiconductor. For a discussion of internal forces, which occur in equal and opposite pairs and are quite different from the resultant of forces, see (b) Chen, {358}, p. 372 and passim.

408. See Hsu-Chieh Yeh, "Remark on the second law of thermodynamics," *Am. J. Phys.*, 52(8), Aug. 1984, p. 720-723. As an example, from the common charge or dipole at constant temperature, we can indeed receive and take electrical energy because the charge (as a set of composite dipoles) and the dipole are not in 3-space energy flow equilibrium. Instead, they constantly receive virtual EM energy from the active vacuum, transduce it into 3-space EM energy, and continuously emit **that** energy in all directions — all at constant temperature. When we consider the supersystem of the charge-system and its environment, it is in disequilibrium and hence exhibits the effect pointed out by Yeh.

409. Yeh, {408}. Particularly see the illustration on p. 721.

410. Gabriel Laufer, "Work and heat in the light of (thermal and **laser**) light," *Am. J. Phys.*, Vol. 51, 1983, p. 42.

411. (a) Paulo N. Correa and Alexandra N. Correa, "A Modified Orgone Accumulator (HYBORAC) as a Drive for a Low Delta-T **Stirling** Engine, Part 1," *Infinite Energy*, 7(41), 2002, p. 23-29; (b) — "Orgone Accumulator Drive (HYBORAC) for Low Delta Stirling Motors, video presentation, ABRI Media Production.

412. Paulo N. Correa and Alexandra N. Correa, *Introduction to Experimental Aetherometry*, Vols. 1 and 2, 2001. Summaries of these **two** volumes may be freely downloaded from <http://www.aetherometry.com>

413. Paulo N. Correa and Alexandra N. Correa, "A Modified Orgone Accumulator (HYBORAC) as a Drive for a Low Delta-T Stirling **Engine** Part II." *Infinite Energy*, 7(42), 2002 (in press)

414. Eugene F. Mallove, "Demonstrating Aether Energy," *Infinite Energy*, 7(41), 2002, p. 6-8.

415. As quoted by Mallove, *ibid.*, p. 7.

416. Feynman, {7}, Vol. II, p. 1-3. Emphasis in original.

417. Mallove, {414}, p. 7.
418. J. M. Aguirregabiria, A. Hernandez, and M. Rivas, "Surface charges and energy flow in a ring rotating in a magnetic field." *Am. J. Phys.*, 64(7), July 1996, p. 892-895.
419. F. Herrmann, "The unexpected path of the energy in a moving capacitor," *Am. J. Phys.*, 61(2), Feb. 1993, p. 119-121.
420. Wang and Chung, {33}.
421. Mike LaPointe, "Antimatter Production at a Potential Boundary," presented at the AIAA Joint Propulsion Conference, Breakthrough Propulsion Physics Session #1, July 9, 2001.
422. E.g., (a) Charles Kittel, *Introduction to Solid State Physics*, Seventh Edition, Wiley, New York, 1996 in various chapters contains excellent introductions to a more in-depth view of magnetic phenomena. A very useful book, written with clarity is (b) B. D. Cullity, *Introduction to Magnetic Materials*, Addison-Wesley, Reading, MA, 1972. For nuclear effects, (c) A. Abraham, *Nuclear Magnetism*, Oxford. 1961 is still excellent and quite comprehensive.
423. (a) Particularly see the lay overview by Philip Ball, "Meet the spin doctors...", *Nature*, Vol. 404, 2000, p. 918-920. This article deals with spin-injection from magnetic semiconductors. In addition to up and down, electron spin also has an additional degree of freedom called "color"; see (b) "Colourful electrons solve puzzle of ferromagnetism," *Physics World*, 14(7), July 2001; (c) also see the accompanying article by Fu Chun Zhang.
424. Stanislaw Bednarek, "Self-powered magnetohydrodynamic motors," *Am. J. Phys.*, 64(1), Jan. 1996, p. 90-92.
425. In a true superconducting system, it is possible to keep the current moving around in a resistance-free conductor indefinitely. However, no net work can be produced by the system, and in fact when one counts the energy one inputs to maintain the extremely low temperature of the environment, then to maintain the supersystem in such **"indefinite current circulation"** one has to continuously input energy to cool the **system**. On the other hand, an electron in an atom, orbiting the nucleus, is in **net** equilibrium on its path, so it will maintain its orbit indefinitely until perturbed sufficiently to break loose.

426. (a) Badics, {377a};(b) P. Hammond and J. Penman, "Calculation of inductance and capacitance by means of dual energy principles," *IEE Proc.*, 123(6), 1976, p. 554-559; (c) Hammond and Ssiboukis, {377d}; (d) Yongzhong Huo, "A classification of thermodynamical potentials for two-variable transition systems," *Meccanica* [Netherlands], 30(5), Oct. 1995, p. 475.494; (e). Kotiuga, {377e}; (f) J. N. Murrell and S. Carter, "Approximate single-valued representations of multivalued potential energy surfaces," *J. Phys. Chem.*, 88(21), Oct. 11, 1984, p. 4887-4891; (g) Penman and Fraser, {377f}; (h) Ren, {376a}; (i) Z. Ren, "Solving 3D static field problems by dual formulations using potential variables," *2nd Int. Workshop on Elec. and Magn. Fields*, Leuven, Belgium, May 1994; (j) Ren, {376b}; (k) Verite, {376c}; (l) V. Vittal, "A generalized procedure to obtain first integrals for non-conservative dynamical systems: Application to power systems," *IEEE ISCAS '89*, 1989, p. 1984-1987.
427. G. W. O. Howe, "Effect of Torsion on a Longitudinally-Magnetized Iron Wire," *Wireless Engineer*, 29(344), May 1952, p. 115-117.
428. Harry E. Burke, *Handbook of Magnetic Phenomena*, Van Nostrand, New York, 1985. This is a one-of-a-kind handbook on a great number of magnetic effects and phenomena.
429. Cullity, {422b}.
430. As examples: (a) Barrett, {345}; (b) Gurevich and Melkov, {232c}; (c) William Weltner, Jr., *Magnetic Atoms and Molecules*, Dover, Mineola, NY, 1989; (d) Giorgio Bertotti, *Hysteresis in Magnetism*, Academic Press, New York, 1998; (e) L'vov, {29c}; (f) Sidney Platt, *Magnetic Amplifiers: Theory and Application*, Prentice Hall, Englewood Cliffs, N.J., 1958; (g) Maciej J. Ogorzalek, *Chaos and Complexity in Nonlinear Electronic Circuits*, World Scientific, New Jersey, 1997; (h) Jammer, {1b}; (i) Borovik-Romanov and Sinha, Eds, {369b}; (j) Paul Davies, ed., {160f}; (k) G. I. Shipov, *A Theory of Physical Vacuum: A New Paradigm*, Moscow, 1994; (l) Nicolis and Prigogine, {255b}; (m) Richard Feynman, *Quantum Electrodynamics*, 1961, 1963; (n) V. I. Fushchich and A. G. Nikitin, *Symmetries of Maxwell's Equations*, D, Reidel, 1987; (o) Mandl and Shaw, {19}; (p) M. W. Evans, Ed., *Modern Nonlinear Optics*, Second Edition, 3 vols., Wiley, 2001; (q) Robert C. O'Handley, *Modern Magnetic Materials: Principles and Applications*, Wiley, New York, 2000; (r) Sachs, {126a}.

431. As examples: (a) Lindsay and Margenau, {114}; (b) Richard P. Feynman, *The Character of Physical Law*, MIT Press, Cambridge, 1965; (c) Feynman, {7}; (d) Ilya Prigogine, *The End of Certainty: Time, Chaos, and the New Laws of Nature*, Free Press, New York, 1996, 1997; (e) Mendel Sachs, *Einstein Versus Bohr: The Continuing Controversies in Physics*, Open Court Publishing Company, 1988.
432. For those unfamiliar with magnetics and the exchange force(s), see H. J. Gray and Alan Isaacs, *A New Dictionary of Physics*, second edition, 1976 printing, *ibid.*, p. 194 for a precise definition. The force from the sudden exchange of charge is known as the *Heisenbergforce*. That due to the exchange of spin direction is known as the *Bartlettforce*. The force associated with exchange of both spin and charge is known as the *Majoramaforce*. Quoting: "These exchange forces may be interpreted as being due to the continual emission and absorption of virtual particles that carry the shared property from one particle to another. The exchange of virtual hadrons between interacting particles of the atomic nucleus is intimately involved in nuclear exchange forces.
433. Feynman, {7}, Vol. II, Chapter 37 covers magnetic materials including exchange forces, spins, and spin effects.
434. *The Encyclopedia of Physics*, Robert M. Besancon (editor), Second Edition, Van Nostrand Reinhold, New York, 1974, p. 518.
435. Cullity, {422b}. p. 132.
436. Kittel, {422a}, p. 443 (footnote 1).
437. Lindsay and Margenau, {114}, p. 216-217.
438. *Ibid.*, p. 213.
439. *Ibid.*, p. 215.
440. *Ibid.*, p. 214.
441. T. D. Lee, "Space Inversion, Time Reversal and Particle-Antiparticle Conjugation," *Physics Today*, 19(3), Mar. 1966, p. 23.
442. Lee, {73}, p. 187-188.
443. Romer, {84}.
444. Kenneth D. Moore, "Testing of a Johnson Magnetic Gate," *Explore*, 9(6), 2000, p. 70-75. Also available on www.cheniere.org.

445. (a) Raymond J. Radus and William G. Evans, "Apparatus Responsive to Direct Quantities," U.S. Patent #2,892,155, Jun. 23, 1959; (b) R. J. Radus, "Permanent-Magnet Circuit using a 'Flux-Transfer' principle," *Engineers' Digest*, 24(6), June 1963, p. 86; (c) (anon.), "On-Off Permanent Magnet with a Memory," *Electronic Equipment Engineering*, 11(4), Apr. 1963, p. 22, 26.
446. "Human fly has magnetic sole," *Electrical Engineering*, Apr. 1963, p. 294.
447. Malcolm McCaid, *Attraction and Repulsion*, Oliver and Boyd Ltd., 1967 has an entire chapter on switching magnets, and has two photos of an engineer hanging upside down and walking on the underside of an elevated steel beam, wearing the Radus magnetic boots.
448. For a description of "shuffler" boots, see A. W. Hangar and A. A. Rosener, "The use of permanent magnets in zero-gravity mobility and restraint 'footware' concept," *IEEE Trans, on Magnetics*, Vol. MAG-6, No. 3, Sep. 1970, p. 464-467. These crude shuffler boots are quite a contrast to the elegant Westinghouse/Radus stepping boots earlier developed and used.
449. Burke, {428}.
450. David Scott, "Magnetic "Wankel" for electric cars," *Popular Science*, June 1979, p. 90-91.
451. E.g., (a) John R. Wiegand, "Bistable Magnetic Device," U.S. Patent No. 3,820,090, June 25, 1974; (b) — "Asymmetric Bistable Magnetic Device," U.S. Patent No. 3,866,193, Feb. 11, 1975; (c) - "Pulse Generation by Changing Magnetic Field," U.S. Patent No. 4,309,628, Jan. 5, 1982; (d) — "Pulse Generator Using Read Head with Wiegand Wire," U.S. Patent No. 4,263,523, April 21, 1981; (e) - "Switchable Magnetic Device;" U.S. Patent No. 4,247,601, Jan. 27, 1981; (f) — "Method of Manufacturing Bistable Magnetic Device," U.S. Patent No. 3,892,118, July 1, 1975; (g) — "Multiple Pulse Generator;" U.S. Patent No. 3,793,532, Feb. 19, 1974; (h) — and John E. Opie, "Pulse Generator with Shaped Magnetic Field," U.S. Patent No. 4,484,090. Nov 20, 1984.
452. Kawai, {31}.
453. John C. Bedini, "Device and Method of a Back EMF Permanent Electromagnetic Motor Generator," U.S. Patent No. 6,392,370, May 21.

2002. Uses a regauging process for capturing available back **EMF** electromagnetic energy in the system. The available energy may be captured and used to re-energize the battery, and/or sent in another direction to be used as useful work, or dissipated in the system.

454. See {445c}, p. 22, 26. Quoting: "*The circuit differs from ordinary permanent magnets in three ways: (1) It exerts strong magnetic force at one end while exerting hardly any at the other, (2) the strong and weak magnetic poles can be switched end-for-end easily and at will, thus in effect turning the magnetism on and off, and (3) it remembers its direction of greatest magnetic pull indefinitely.* "

455. Burke, {428}, p. 250.

456. Deffeyes, {342}.

457. Stuart Young, *Nature*, Vol. 414, 29 Nov. 2001, p. 487.

458. Evans, {137b}, p. 84.

459. M. W. Evans and S. Jeffers, "The Present Status of the Quantum Theory of Light," in *Modern Nonlinear Optics*, Second Edition, 3 Vols., edited by M. W. Evans, Wiley, 2001, Vol. 3, p. 150.

460. Clarke, {55}, p. 38.

461. Patrick, Bearden, Hayes, Moore, and Kenny, {37}. A second patent is pending, and two more are in preparation.

462. Bearden, {222b}.

463. Evans et al, {38b, 38c}.

464. T. E. Bearden, James C. Hayes, James L. Kenny, Kenneth D. Moore, and Stephen L. Patrick, "The Motionless Electromagnetic Generator: Extracting Energy from a Permanent Magnet with Energy-Replenishing from the Active Vacuum," Sept. 2000, carried on restricted DoE website <http://www.ott.doe.gov/electromagnetic/>. A search on the internet will turn up other sources where the paper can be downloaded.

465. (a) Evans et al., "The Aharonov-Bohm Effect as the Basis of Electromagnetic Energy Inherent in the Vacuum," *Found. Phys. Lett.*, 2002, (in review); (b) — "Derivation of the B(3) Field and Concomitant Vacuum Energy Density from the Sachs Theory of Electrodynamics," *Found. Phys. Lett.*, 14(6), Dec. 2001, p. 589-593; (c) — "Operator Derivation of the **Gauge** Invariant **Proca** and Lehnert Equations:

Elimination of the Lorenz Condition," *Found. Phys.*, 30(7), 2000, p. 1123-1130; (d) — "Runaway Solutions of the Lehnert Equations: The Possibility of Extracting Energy from the Vacuum," *Optik*, 111(9), 2000, p. 407-409; (e) — "The Effect of Vacuum Energy on the Atomic Spectra," *Found. Phys. Lett.*, 13(3), June 2000, p. 289-296; (f) Evans et al., {113}; (g) — "Derivation of the Lehnert Field Equations for Gauge Theory in Vacuum: Space Charge and Current," *Found. Phys. Lett.*, 13(2), Apr. 2000, p. 179-184; (h) Bearden, {222b}.

466. Details are on Jean-Louis Naudin's website, in the section dealing with the MEG, which is <http://jnaudin.free.fr/html/megv21.htm#megstat>.

467. For an introduction to the field and its literature, see J. Anandan, J. Christian, and K. Wanelik, "Resource letter GPP-1: Geometric phases in physics," *Am. J. Phys.*, Vol. 65, 1977, p. 180-185.

468. A discussion by Feynman of the Aharonov-Bohm effect is given in Feynman, {7}, "15-5: The vector potential and quantum mechanics," p. 15-8 to 15-14.

469. A similar phase change also is induced outside the localized presence of an electrostatic scalar potential ϕ . See Feynman, {7}, p. 15-10. Quoting: "...the effect of an electrostatic field is to produce a phase change given by the negative of the time integral of the scalar potential ϕ "

470. Ya. M. Blanter, C. Bruder, R. Fazio, and H. Schoeller, "Aharonov Bohm-type Oscillations of Thermopower in a Quantum-dot Ring," *Phys Rev. B*, Vol. 55, 1997, p. 4069 typify the kind of "power" considerations that have been analyzed in the past. Only a minuscule thermopower treatment is considered.

471. S. Pancharatnam, "Generalized theory of interference, and its applications," *Proc. Indian Acad. Sci.*, Vol. A44, 1956, p. 247-262.

472. See Nahin, {62}, p. 225. Quoting: "J. J. Waterston's paper on the kinetic theory of gases, in 1845, was rejected by the Royal Society of London. One of the referees declared it to be 'nothing but nonsense, **unfit** even for reading before the Society.'... 'Waterston's dusty manuscript was finally exhumed from its archival tomb forty years later, because of the efforts of Lord Rayleigh...'"

473. Aharonov and Bohm, {344a, 344b}.

474. R. G. Chambers, "Shift of an electron interference **pattern** by enclosed magnetic flux," *Phys. Rev. Lett.*, Vol. 5, July 1960, p. 3-5.
475. A. Tonomura *et al.*, "Observation of Aharonov-Bohm effect by electron holography," *Phys. Rev. Lett.*, Vol. 48, 1982, p. 1443-1446.
476. A. Tonomura *et al.*, "Evidence for Aharonov-Bohm effect with magnetic field completely shielded from electron wave," *Phys. Rev. Lett.*, Vol. 56, 1986, p. 792-795. In the latter paper, the magnetic fields were completely and painstakingly shielded from the electron wave in a very careful experiment. The experiment demonstrated the expected relative phase shift as well as direct evidence for flux quantization. This was a definitive experiment clearly proving the Aharonov-Bohm effect. In 1999, Tonomura was awarded the Franklin Institute Award for this definitive proof of the Aharonov-Bohm effect.
477. M. V. Berry, *Proc. R. Soc. Lond. A*, Vol. 392, 1984, p. 45.
478. R. A. Webb, S. Washburn, C. P. Umbach, and R. B. Laibowitz, "Observation of h/e Aharonov-Bohm oscillations in normal-metal rings," *Phys. Rev. Lett.*, Vol. 54, 1985, p. 2696-2695.
479. B. Schwarzschild, "Currents in Normal-Metal Rings Exhibit Aharonov-Bohm Effect," *Phys. Today*, Vol. 39, Jan. 1986, p. 17-20.
480. Y. Aharonov and J. Anandan, "Phase change during a cyclic quantum evolution," *Phys. Rev. Lett.*, Vol. 58, 1987, p. 1593-1596.
481. (a) V. Chandrasekhar *et al.*, *Phys. Rev. Lett.*, Vol. 55, 1985, p. 1610; (b) S. Datta *et al.*, *Phys. Rev. Lett.*, Vol. 55, 1985, p. 2344; (c) S. N. M. Ruijsenaars, "The Aharonov-Bohm Effect and Scattering Theory," *Ann. Phys.*, Vol. 146, 1983, p. 1-34.
482. S. Olariu and I. Iovitzu Popescu, "The Quantum Effects of Electromagnetic Fluxes," *Rev. Mod. Phys.*, 57(2), Apr. 1985, p. 339-436.
483. (a) R. Bhandari, "Polarization of light and topological phases," *Phys. Reps.*, Vol. 281, 1997, p. 1-64; (b) — and J. Samuel, "Observation of topological phase by use of a laser interferometer," *Phys. Rev. Lett.*, Vol. 60, 1988, p. 1211-1213; (c) R. Y. Chiao *et al.*, "Observation of a topological phase by means of a Mach-Zehnder interferometer," *Phys. Rev. Lett.*, Vol. 60, 1988, p. 1214-1217; (d) T. Bitter and D. Dubbers, "Manifestation of Berry topological phase in neutron spin rotation," *Phys. Rev. Lett.*, Vol. 59, 1987, p. 251-254; (e) Y. Hasegawa *et al.*, "Geometric

phase in coupled neutron interference loops," *Phys. Rev. A*, Vol. 53, 1996, p. 2486-2492; (f) A. G. Wagh *et al.*, "Experimental separation of geometric and dynamical phases using neutron interferometry," *Phys. Rev. Lett.*, Vol. 78, 1997, p. 755-759; (g) D. Suter, K. T. Mueller, and A. Pines, "Study of the Aharonov-Anandan quantum phase by NMR interferometry," *Phys. Rev. Lett.*, Vol. 60, 1988, p. 1218-1220; (h) D. Loss and P. M. Goldbart, "Persistent currents from Berry's phase in Mesoscopic systems," *Phys. Rev. B*, Vol. 45, 1992, p. 13544-13561; (i) C. A. Mead, "The geometric phase in molecular systems," *Rev. Mod. Phys.*, Vol. 64, 1992, p. 51-85; (j) J. H. Hannay, "Angle variable holonomy in adiabatic excursion of an integrable Hamiltonian," *J. Phys. A*, Vol. 18, 1985, p. 221-230; (k) Y. Aharonov *et al.*, "Aharonov-Bohm Type Forces Between Magnetic Fluxons," Hewlett Packard Report HPL-BRIMS-97-24, Oct. 1997.

484. (a) F. V. Gubarev and V. I. Zakharov, "The Berry Phase and Monopoles in Non-Abelian Gauge Theories," *Internat. J. Mod. Phys. A*, Vol. 17, 2002, p. 157-174; (b) J. M. Robbins, "Topological Phase Effects," Hewlett-Packard Labs Technical Report HPL-BRIMS-97-03, Jan. 31, 1997; (c) E. Sjoqvist, "Anandan-Aharonov-Casher oscillations in a simply connected region," *Phys. Lett. A*, Vol. 270, 2000, p. 10; (d) E. Sjoqvist *et al.*, "Geometric phases for mixed states in interferometry," *Phys. Rev. Lett.*, Vol. 85, 2000, p. 2845; (e) D. J. Thouless, *Topological Quantum Numbers in Nonrelativistic Physics*, World Scientific, Singapore, 1998; (f) J. Mickelsson, "Vacuum Polarization and the Geometric Phase: Gauge Invariance," *J. Math. Phys.*, Vol. 39, 1998, p. 831-837; (g) W. T. Lee *et al.*, "Scalar Aharonov-Bohm Effect with Longitudinally Polarized Neutrons," *Physica B*, Vol. 241-243, 1998, p. 216; (h) A. Cimmino *et al.*, "High Precision Measurement of the Topological Aharonov-Casher Effect with Neutrons," *Nuclear Instr. and Methods A*, Vol. 440, 2000, p. 579; (i) Ali Mostafazadeh, *Dynamical Invariants, Adiabatic Approximation and the Geometric Phase*, Nova Science, 2001.

485. E.g., see (a) M. W. Evans and L. B. Crowell, *Classical and Quantum Electrodynamics and the B(3) Field*, World Scientific, Singapore, 2001; (b) M. W. Evans, *0(3) Electrodynamics*, Vol. V of *The Enigmatic Photon*, Kluwer, Dordrecht, 1999.

486. Bearden, {12}.

487. Fradkov and Pogromsky, {364}. The quote is from p. 359-360.

488. (a) Bearden, {38a}, (b) Bearden *et al.*, {464}, (c) Evans *et al.*, {38b}, (d) Evans *et al.*, {38c},
489. Seife, {184}.
490. I. J. R. Aitchison, "Nothing's Plenty: The Vacuum in Modern Quantum Field Theory," *Contemp. Phys.*, 26(4), 1985, p. 339, 360.
491. *Ibid.*, p. 372.
492. Robert Neill Boyd, "Black Holes and Negative Energy", carried on Internet website <http://www.rialian.com/rnboyd/blackholcs-negative.htm>.
493. Roger Penrose, *The Emperor's New Mind*. Penguin Books, 1991, p. 210.
494. Stephen Hawking, per Zebrowski, {2}.
495. Isaac Newton, *Philosophiae Naturalis Principia Mathematica*, 1687.
496. Quoted from D. W. G. Ballentine and D. R. Lovett, *A Dictionary of Named Effects and Laws in Chemistry, Physics, and Mathematics*, Fourth Edition, Chapman and Hall, New York, 1980. p. 227.
497. Dirac, {249}.
498. See also (a) P.A.M. Dirac. "The quantun theory of the electron," *Proc. Roy. Soc. Lond. A*, 117(777), Jan. 2, 1928. p. 610-624; (b) — "The quantum theory of the electron, Part II," *ibid.*, 118 (779), Mar. 1, 1928, p. 351-361.
499. Georg Friedrich Bernhard Riemann, "Foundat ions of a general theory of functions of a single complex variabable." Doctoral Thesis, 1851. In H. Weber, ed., *B. Riemann: Gesammelte Mathematische Werke*, 2nd Ed., paperback reprint, Dover, New York, 1953.
500. As pointed out by Charles W. Misner, Kip S Thorne and John Archibald Wheeler, *Gravitation*, W. H. Freeman and Company, San Francisco, 1973, p. 220.
501. Josephs, {172}.
502. Laithwaite, {172b}.
503. Ernst Mach, *The Science of Mechanics*. 1912, Chapter 2, section 6.

504. This statement of Mach's principle is quoted from Ballentine and Lovett, {496}, p. 201.
505. Albert Einstein, "Die Grundlage der Allgemeinen Relativitätstheorie," ["The Foundation of the General Theory of Relativity,"] *Annalen der Physik*, Vol. 49, 1916, p. 769-822. (English translation in *The Principle of Relativity*, Methuen, NY, 1923.).
506. Misner, Thorne and Wheeler, {500}, p. 543.
507. A. Einstein, Appendix V to his *Relativity, The Special and the General Theory*, translated by Robert W. Lawson, Crown Publishers, New York, 1961, p. 155.
508. Theodor Kaluza, *Sitz. Preuss. Akad. Wiss.*, Vol. K1, 1921, p. 966. English translation, "On the Unification Problem of Physics," is in Lochlainn O'Raifeartaigh, *The Dawning of Gauge Theory*, Princeton University Press, Princeton, 1997, p. 53-58. Einstein had held Kaluza's paper since 1919 before recommending it for publication by the journal.
509. {a} Oskar Klein, *Zeit. f. Physik*. Vol. 37, 1926, p. 895. An English translation, "Quantum Theory and Five-Dimensional Relativity," is in Lochlainn O'Raifeartaigh, *The Dawning of Gauge Theory*, Princeton University Press, Princeton, 1997, p. 59-69. See also {b} Oskar Klein, *Nature*, Vol. 118, 1926, p. 319.
510. Sachs, {126a}.
511. Sachs, *ibid.*, quoted from the publisher's summation on the book jacket itself.
512. Mendel Sachs, "On Unification of Gravity and Electromagnetism and the Absence of Magnetic Monopoles," *IL Nuovo Cimento B*, Vol. **114**, 1999, p. 123.
513. (a) Evans et al., {233f}; (b) Evans et al., {233b}.
514. Misner, Thorne, and Wheeler, {500}.
515. Albert Einstein, *Relativity: the Special and General Theory*, translated by Robert W. Lawson, Crown Publishers, New York, 1961, fifteenth edition.
516. A. Einstein, H. A. Lorentz, H. Minkowski and H. Weyl, with **notes** by A. Sommerfeld, translations by W. Perrett and G. B. Jeffery, *The*

Principle of Relativity, Methuen and Company. Ltd., 1923. Also available in paperback from Dover.

517. (a) T. Townsend Brown, "A Method of and an Apparatus or Machine for producing Force or Motion, British Patent 300,311, Nov. 15, 1928; (b) — "Electrokinetic Apparatus," U.S. Patent # 2,949,550, Aug. 16, 1960; (c) — "Electrokinetic Transducer," U.S. Patent # 3,018,394, Jan. 23, 1962; (d) — "Electrokinetic Generator," U.S. Patent # 3,022,430, Feb. 20, 1962; (e) — "Electrokinetic Apparatus," U.S. Patent # 3,187,206, Jun. 1, 1965.

518. Jonathan W. Campbell, "Apparatus and Method for Generating Thrust Using a Two Dimensional, Asymmetrical Capacitor Module," U. S. Patent #6,317,310, Nov. 13, 2001.

519. (a) Norman L. Dean, "System for Converting Rotary Motion into Unidirectional Motion," U.S. Patent # 2,886,976, May 19, 1959. See also (b) John W. Campbell, Jr., "Report on the Dean Drive," *Analog*, Sept. 1960; (c) — "Instrumentation for the Dean Drive," *Analog*, Nov. 1960; (d) — "Final Report on the Dean Drive," *Analog*, Dec. 1960. Also (e) G. Harry Stine, "Detesters, Phasers, and Dean Drives," *Analog*, Jun. 1976.

520. (a) Henry Wallace, "Method and Apparatus for Generating a Secondary Gravitational Force Field," U.S. Patent # 3,626,605, Dec. 14, 1971; (b) — "Method and Apparatus for Generating a Dynamic Force," U.S. Patent # 3,626,606, Dec. 14, 1971.

521. J. F. Woodward, "Method for Transiently Altering the Mass of Objects to Facilitate their Transport or Change their Stationary Apparent Weights", U.S. Patent #5,280,864, Jan. 25, 1994.

522. (a) J. F. Woodward, "A New Experimental Approach to Mach's Principle and Relativistic Gravitation," *Found. Phys. Lett.*, 3(5), 1990, p. 497-506; (b) — "Corrigendum: A New Experimental Approach to Mach's Principle and Relativistic Gravitation," *Found. Phys. Lett.*, 4(3), 1991, p. 299; (c) — "Measurements of a Machian Transient Mass Fluctuation," *Found. Phys. Lett.*, 4(5), 1991, p. 407-423; (d) -- "A Stationary Apparent Weight Shift from a Transient Machian Mass Fluctuation," *Found. Phys. Lett.*, 5(5), 1992, p. 425-442; (e) — Maximal Acceleration, Mach's Principle, and the Mass of the Electron," *Found. Phys. Lett.*, 6(3), 1993, p. 233-244; (f) — "Making the Universe Safe for Historians: Time Travel and the Laws of Physics," *Found. Phys. Lett.*, 8(1), 1995, p. 1-39; (g) - "Erratum," *Found. Phys. Lett.*, 8(3), 1995, p. 303; (h) - "Killing Time."

Found. Phys. Lett., 9(1), 1996, p. 1-23; (i) — "Laboratory Test of Mach's Principle and Strong-Field Relativistic Gravity," *Found. Phys. Lett.*, 9(3), 1996, p. 247-293; (j) — "Twists of Fate: Can We Make Traversable Wormholes in Spacetime?", *Found. Phys. Lett.*, 10(2), 1997, p. 153-181; (k) — Mach's Principle and Impulse Engines: toward a Viable Physics of Star Trek?", presented at the NASA Breakthrough Propulsion Physics Workshop, Cleveland, Ohio, Aug. 12-14, 1997.

523. (a) Max Jammer, *Concepts of Mass, in Classical and Modern Physics*, Harvard University Press, Cambridge, MA, 1961. One also suggests the reading of Jammer, {1b}.

524. (a) Bearden, {15}, p. 11. One kilogram of mass represents 17.053×10^{50} switches per second of action $\text{quanta}h/(4\pi)$ across the boundary of the mass, in a flux exchange between the mass region and its external environment. The acceleration force can be derived from the difference in "inswitching" and "outswitching" of action quanta (as the masses m_i of the system iteratively change between mass and masstime states). The paper, albeit crudely, derives Newton's three laws of motion in relativistic form and the square law of gravitation. It also indicates the mechanism (reaction) upon a mass that generates the mass's rate of progression through time. For a somewhat expanded treatment, see (b) T. E. Bearden, "Vacuum Engines and Priore's Methodology: The True Science of Energy Medicine," Parts I and II, *Explore*, 6(1), 1995, p. 66-76; 6(2), 1995, p. 50-62.

525. Today we would also point out that to first order time and mass have essentially the same energy density — i.e., they are both spatial energy compressed by c^2 . So the "switches" of action quanta we used in 1973 may be taken to actually represent the time-charging and discharging, of a specific region of space. Rotation of time-energy from the time-domain into 3-space connection with a mass is a mass increase as well as a change of mass to masstime. Rotation of mass-energy out of 3-space back into the time domain (during photon emission) is a mass decrease, (a) Our paper, "Giant Negentropy..." {12}, proposing a solution to the source charge problem, argues that all 3-space EM energy comes from the time domain anyway and returns to it. The source charges normally absorb time-energy, and transduce it to 3-space EM energy or vice versa, but the 3-space energy radiated away is in expanded spatial energy form and not compressed into mass-energy. It is the very release of the c^2 compression of the time-energy that is the "transduction" process to provide the **radiated**

spatial EM energy. But if mere rotation in 4-space is used without **that** expansion/transduction, then the time energy appears as mass. This is consistent with the mechanism we advanced for the flow of a mass m through time. Note that when a photon is "absorbed", the spatial energy component of the photon is in fact compressed into mass energy, slightly changing the mass. But when it is re-radiated, it is radiated in expanded or "spatial" EM energy form. Without the expansion and transduction, pure rotation of the compressed EM energy between the time domain and the 3-space domain provides the notion of "time-charging" and "time discharging". Indeed, the very anomalous phenomena occurring in radiation detectors in electrolyte experiments at China Lake, already provide direct evidence for just such time-charging, as pointed out in (b) Bcardcn, {17}.

526. E. R. Laithwaite, "Rack and pinion motors," *Electronics and Power*, Vol. 16, 1970, p. 251-252.

527. Of interest: (a) E. R. Laithwaite, "Unexplained phenomenon at Savoy Place," *Electronics and Power*, Oct. 1972, p. 360-362 recounts the discovery of a free energy device violating the second law of equilibrium thermodynamics; (b) Laithwaite, {526}, gives some particulars of the device; (c) — *All Things Are Possible: An Engineer Looks at Research and Development*, I*PC Electrical-Electronic Press Ltd., Dorset House, London, 1976; (d) Laithwaite, {172b}; (e) — "Miles Walker — a pioneer at Met-Vick and UMIST," *Electrical Review*, 211(12), Oct. 15, 1982, p. 33-34; (f) — "Roll, Isaac, roll — Part I," *Electrical Review*, 204(7), Feb. 16, 1979, p. 38-41; (g) — "Roll, Isaac, roll — Part II," *Electrical Review*, 204(11), Mar. 16, 1979, p. 31-33; (h) — "The laws of science and of England," *Electrical Review*, 202(23), June 16, 1978, p. 27-28.

528. E. R. Laithwaite and W. R. C. Dawson, "Mass Transfer: An Introduction based on Experimental Work at the University of Sussex," Sep. 1994. A subtitle is: A system for the transfer of mass derived from the principle of conservation of momentum. On website <http://jnaudin.free.fr/html/IPEmain.htm>.

529. See WO95/30832, Nov. 16, 1995.

530. Eric Laithwaite and William Dawson, "Propulsion System," U.S. Patent Number 5,860,317, Jan. 19, 1999.

531. Sweet and **Bearden**, {29a}.

532. (a) Ning Li and D. G. Torr, *Phys. Rev.*, Vol. 43D, 1991, p. 457; (b) — *Phys. Rev.*, vol. 46B, 1992, p. 5489; (c) — *Bull. Am. Phys. Soc*, Vol. 37, 1992, p. 948. Also see (d) D. G. Torr and Ning Li, *Found. Phys. Lett.*, Vol.37, 1993, p. 948.
533. E. E. Podkletnov and R. Nieminen, *Physica C*, Vol. 203, 1992, p. 441-444.
534. Igor K. Kulikov, "Inertial and gravitational masses of bosons at finite temperatures," in NASA technical package sent in response to queries of "Study of Inertial and Gravitational Masses of a Boson," *NASA Tech Briefs*, 26(2), Feb. 2002, p. 56. The report by Dr. Kulikov of the Jet Propulsion Laboratory (JPL) is carried on the website as <http://nasatech.com/TSP/PDFTSP/NPO30325.pdf>. This is a theoretical study of the relationship between the inertial mass and gravitational mass of a self-interacting neutral scalar boson in a heat bath. The difference in the two masses was determined as a function of the temperature of the heat bath. The theory for distinguishing the difference is given. Since it is presented as an inventor's report, we assume that a patent is either pending by or to JPL or already granted to it.
535. Mike LaPointe, {421}.
536. Jim Corum, T. Keech, D. Gray, P. Pesavento, and M. Duncan, "The Electro-magnetic Stress-Tensor as a possible Space Drive Propulsion Concept, presented at the AIAA Joint Propulsion Conference, July 9, 2001.
537. Hector Serrano, "Propulsion Device and Method Employing Electric Fields for Producing Thrust," WO 00/58623, Oct. 5, 2000.
538. William B. Stein, "Electrokinetic Propulsion: The Ionic Wind Argument," Energy Conversion Laboratory, Purdue University, West Lafayette, Indiana 47906, Sep. 5, 2000. This is a Gravitec report. Results can be downloaded from <http://foldedspace.com/data.html>, and an even more rigorous future test is planned.
539. A motion picture of the Naudin's replica thruster in dynamic thrust performance is shown on <http://jnaudin.free.fr/html/liftbldr.htm>, along with information on many other successful "lifters". This website is a cornucopia of information on inertial propulsion and electrogravitation, including successful independent replication and tests.

540. Ryan Mahoney, "Huntsville Firm Developing New Propulsion Technology," Birmingham Business Journal, Birmingham, Alabama July 19,2001.
541. E.g., see J. Cameron, "An Asymmetric Gravitational Wave Propulsion System," presented in the Breakthrough Propulsion Physics session of the AIAA Joint Propulsion Conference, July 9, 2001.
542. Bearden, {40}.
543. Prange and Strance, {365
544. Privately, Sweet strongly affirmed to me that later he took the risk and pushed it a little further in output, actually levitating the system several times, including accelerating it upward, hovering it, and then letting it sink slowly down to come to rest on the bench.
545. Dirac, {249}.
546. Romer, {84}; see endnote 24, p. 109.
547. E.g., as by Giovanni Modanese, "On the theoretical interpretation of E. Podkletnov's experiment," Extract from report UTF-391/96, OANL gr-qc/9612022, presented to the *I.A.F. Congress 1997*, Number IAA-97-4.107.
548. Ling Ni and D. G. Torr, {532a-532d}.
549. Evans, {137b}; Evans, {485b}.
550. M. W. Evans, personal correspondence.
551. (a) Evans et al., {233b}; (b) — - "Development of the Sachs Theory of Electrodynamics," *Found. Phys. Lett.*, 14(6), Dec. 2001, p. 595-600; (c) Evans et al., {233a}.
552. As we point out in our discussion of cold fusion, use of this enormous time-energy density component in a time-reversal zone allows reducing the force of the gluons in a nucleon and nearly freeing the quarks. The time-reversal zone also reverses the law of attraction and repulsion of charges; now like charges attract. So the coulombic attraction of two H⁺ ions can attract them together so closely that each enters the strong force region of the other, forming a quasi-nucleus. As the other ions in solution move to negate the time-reversal zone, the zone decays, restoring the normal repulsion of the two protons in the quasi-nucleus. However, being exponential the strong force increases much more rapidly than the normal

coulombic repulsion grows. The result is to force the two protons even closer together, into a full nucleus with a full strong force between them. This forms a nucleus of deuterium, as one quark in one of the protons is flipped while still relatively free, to form a neutron. Different but similar reactions exist to produce the excess tritium shown in many cold fusion experiments, and a similar interaction — especially between two deuteron ions — forms an alpha particle.

553. Bearden, {17}.

554. Davies, {237}, p. 105.

555. Misner, Thorne, and Wheeler, {500}, p. 5.

556. Evans and Jeffers, {459}, p. 150.

557. Evans, {137a}, p. 477.

558. Banesh Hoffman, in Foreword to Yakov P. Terletski, *Paradoxes in the Theory of Relativity*, translated from the Russian, Plenum Press, New York, 1968, p. vi, viii.

559. Kron, {162}, p. 466.

560. T. D. Lee, {239}, p. 46-47.]

561. This is well known to modern theorists, but is especially accented by Sachs and by Evans. E.g., to even have an EM wave in space, the energy density of space has to be changing as the wave energy oscillates. This is an oscillating curvature of spacetime, a priori. So all EM waves move in a dynamically curving spacetime.

562. Sachs, {126b}.

563. These concepts are generally consistent with $0(3)$ electrodynamics. For rigorous exposition of $0(3)$ EM, see Evans, {137b}.

564. Felix Finster, "Definition of the Dirac Sea in the Presence of External Fields," *Adv. Theor. Math. Phys.*, Vol. 2, 1998, p. 963-985.

565. J. W. Lynn and R. A. Russell, "Kron's Wave Automaton," *Journal* unk, date unk, p. 131. We would appreciate any researcher furnishing us a completed citation for this reference. We have a copy of the paper, but without full citation details.

566. Kron, {162}. The quote is from p. 114.

567. Kron, {32}, p. 39.

568. Kron, {306}.

569. Kron, {32}, p. 41.

570. See Stigant, {310a} for a bibliography of Kron's **publications**.

571. Several overunity researchers have been assassinated by forces and parties unknown. Many very clever means are used to do the dirty work.

As an example, there is a standard EMF "shooter" which uses Venus modification of the wavefront, to produce a wave that instantly disrupts the control of the heart's beating. There are two versions at least; one about the size of a pocketbook and for close range (30 feet) only, and one about the size of a bazooka and with longer range (up to 100 yards). About 1 minute exposure to the beam of the small weapon will result in death of the targeted individual. I have personally been hit by the small version of that device (and I have a witness who was with me at the time, and also was exposed to it). We survived by instant recognition of what it was, and by bolting immediately out the nearby back door of a restaurant here in Huntsville. If the kill is successful, the autopsy will show that the person died of a heart attack.

Stan Meyer, an overunity researcher with numerous patents, rushed from a restaurant exclaiming "They're killing me!" and expired with just such a heart attack, possibly hit inside the restaurant by a close-range shooter.

Harry Mason's associate was killed in Australia in his apartment by a longer-range, bazooka-sized shooter. The assassin was spotted putting the shooter back inside the car below, and speeding away.

Sometimes a silenced rifle is used for sniping at long range. Sweet was fired at by one such would-be assassin — luckily just as he stumbled and fell on the steps of the foyer to his apartment complex. The bullet cracked right by his ear as he fell forward, passing where his head had just been the moment before.

Another "shooter" uses longitudinal EM wave peak power pulses. This type kill is instant and very permanent. This unit can be set to stun or render the targeted person unconscious, or set to kill. It can also disrupt and stop running automobile engines (there is another version for that also, using negative energy EMP weaponry). However, it time-charges the struck human body so that the body emits longitudinal EM waves for some time after the kill. Marinov was killed with such a shooter (apparently by

KGB-related foreign intelligence operatives) and his body then thrown off a rooftop to make it appear to be suicide. Where his body lay, the pavement glowed when the body was removed. Only one weapon on earth will kill a body so that it will induce luminescence in concrete or asphalt that it lies on for a period.

Another favorite weapon is an ice dart dipped in curare. I was threatened once and told I would be killed by such an ice dart weapon if I traveled in a 2-month period. Just four days past that period, and traveling and changing planes in Dallas-Fort Worth airport, a person was killed three feet from me in broad daylight, right inside the airport, with the exact symptoms of a curare ice dart kill. That was apparently just to teach me "they" were serious.

"They" is that set of cartels that Churchill called "the High Cabal". Bedini and I had severely offended the High Cabal by Bedini's successful transmutation of copper (and other things) into gold. John often makes his own power transistors for his amplifiers, and the slag in the electric oven turns into black ruby laced with gold and silver, confirmed by assay. We have had numerous other assassination attempts, too numerous to iterate. Suffice it to say that developing a good $COP > 1.0$ EM power system can be hazardous to one's health.

Any significant researcher should be wary of "meeting with a sudden suicide" on the way to the supermarket. Another thing to beware of, is a calibrated auto accident where your car is rammed from the rear, and you are shaken up considerably. An ambulance just happens to be passing by moments later, and it will take you to the hospital. If still conscious, the researcher must not get in the ambulance unless accompanied by a watchful friend who understands the situation and the danger. Otherwise, he can easily get a syringe of air into his veins, which will effectively turn him into a human vegetable. If he goes to the hospital safely, he must be guarded by friends day and night, for the same reason, else he runs a high risk of the "air syringe" assassination during the night.

Simply trying to do scientific work, I find it necessary to often carry (legally) a hidden weapon. Both my wife and I have gun permits, and we frequently and legally carry concealed weapons.

As early as the 1930s, T. Henry Moray — who built a successful $COP > 1.0$ power system outputting 50 kW from a 55 lb power unit - had to ride in a bulletproof car in Salt Lake City, Utah. He was repeatedly fired at by snipers from the buildings or sidewalk, with the bullets sometimes sticking in the glass. He was also shot by a would-be assassin in his own laboratory, but overpowered his assassin and recovered.

Over the years, probably as many as 50 or more overunity researchers and inventors have been assassinated for their efforts, and particularly for their success. Some have simply disappeared abruptly and never been heard from again.

These days the use of longitudinal wave shooters (such as killed Marinov) and such is growing, since no signature is left for a normal autopsy to discover. The Yakuza, e.g., uses such "shooters" in Japan to assassinate persons or politicians having incurred their displeasure. Others are subjected to the more traditional Yakuza assassination: Three or four assassins suddenly jump the unsuspecting target, stabbing him repeatedly and with extreme rapidity. His body may have 50 to 70 deep stab wounds — through the heart, the abdomen, liver, lungs, etc. — before the body strikes the pavement.

Other very sophisticated methods of legal entrapment, gaming, planting narcotics on one's premises and tipping off the drug enforcement agencies for a drug raid in the middle of the night, etc. are utilized.

Widely used is "gaming", which uses deep psychological profiling to select a "vulnerability". The supercomputer with the game prepares a "scenario" much like writing a movie script of predictable interactions among the players to be chosen. The game involves "agents of influence" (AOIs — persons who are dogmatic, perhaps even radical, and have knee-jerk responses easily triggered, and whose vector direction when they "jump" is along or near the desired response direction), and one or two agents to do the phone conversations with the AOIs and trigger them into action), as well as a game controller or director. The computer programs also use prediction and artificial intelligence, and will forecast the probability of success of the selected game. A very extensive database of deep psychological profiles on useful AOIs and all major COP>1.0 researchers is kept in the computer. When the controller selects the game, the computer spits out the most recommended AOI players. The controller accepts or changes and then accepts, and the game scenario is then prepared. The agents trigger the AOIs, and the unwitting target is suddenly besieged from every direction, along a direction he already has an affinity or "vulnerability" towards. The controller follows the course of the game and the outcomes of all interactions between the target and the AOIs. The agent or agents add "nudges" or additional actions to overcome delays, accomplish redirection when the direction goes awry. etc. Over the decades, these games have gotten very effective indeed, and are quite difficult to content with. I having survived about 200 of these games over the last two decades, I may yet write a book on some of the major ones that

have been used against overunity researchers. The games are not confined just to the overunity field, however, and sometimes are also used to directly intervene in politics and other key situations, {754}. Machiavelli's methods are not dead; they thrive and have been highly computerized.

572. More than a dozen potential mechanisms for overunity EM interactions and systems are given in Evans et al., {233i}. Many of these interactions are likely in highly energetic astronomical phenomena such as the gamma ray burster and the X-ray burster.

573. Evans et al., {38b, 38c}.

574. Bearden, {38a}.

575. Bearden, {30}.

576. Sweet and Bearden, {29a}.

577. (a) A. G. Reiss *et al.*, *Astron. J.*, Vol. 116, 1998, p. 1009; (b) S. Perlmutter *et al.*, *Astrophys. J.*, Vol. 517, 1999, p. 565.

578. A. Einstein, *Sitzungsber. Preuss. Akad. Wiss.*, Vol. 1917, 1917, p. 142. Einstein came to regret his introduction of the cosmological constant as his "greatest blunder". Ironically, this may yet turn out to be one of his greatest contributions.

579. Prange and Strance, {365}.

580. (a) R. Lieu, "The effect of Planck scale space time fluctuations on Lorentz invariance at extreme speeds," *Astrophys. J. Lett.*, 2002 (in press). A preprint is on <http://xxx.lanl.gov/abs/astro-ph/0202443>. See also (b) Philip Ball, "Time gives rays a break," <http://www.nature.com/nsu/020304/0209304-5.html> .

581. In 1998, experimental evidence of the accelerated expansion of the universe was provided by two groups of astronomers; see (a) Riess *et al.*, {577a}; Perlmutter *et al.*, {577b}. For an attempt to provide a new model for the negative antigravity, see (c) L. Parker and A. Raval, "A new look ill the accelerating universe," *Phys. Rev. Lett.*, Vol. 86, 2001, p. 749-752; (d) Philip Ball, "New model of expanding universe," *Nature News Service*, Science Update, Nov. 12, 2001. A good coverage for the educated layperson is (e) Mario Livio and Alan Sandage, *The Accelerating Universe: Infinite Expansion, the Cosmological Constant, and the Beauty of the Cosmos*,¹ Wiley, New York, Dec. 2000. See also (f) P. D.

Mannheim, "Implications of cosmic repulsion for gravitational **theory**." *Phys. Rev. D*, Nov. 15, 1998, p. 3511.

582. J. C. Bedini and T. E. Bearden, " Process For Transducing **Forms** of Electromagnetic Energy," U.S. Provisional Patent Application, 200 I. A formal U.S. Patent Application is in preparation as of this writing.

583. For a deep consideration of what is "meant" by mass, and how subtle the concept really is, the reader should refer to the scholarly work of Jammer {523a}. The more casual reader should be prepared for somewhat of a shock. Mass is not at all a "cut and dried" concept, as usually assumed. Indeed, the simple materialistic view of mass seems to be very much opposed by modern physics findings.

584. (a) Bearden, {12}. If we insert the absorption of a scalar (time-polarized) photon by the ubiquitously-assumed unit point charge and the subsequent re-emission of a longitudinal photon as the process for "combining" a scalar and longitudinal photon, then our solution is also consistent with (b) Mandl and Shaw, {19}. Mandl and Shaw argue that the longitudinal and scalar polarizations are not directly observable, but only in combination, where they manifest as the "instantaneous" Coulomb (i.e., electrostatic) potential. Our comment is that this argument, translated from particle terminology to wave terminology, then fits our re-interpretation of Whittaker's 1903 decomposition of the scalar potential in (c) Whittaker, {85}. It also strongly suggests the need for a complete reinterpretation of what is meant by "propagation of EM energy through 3-space".

585. E.g., see (a) V. I. Arkhipov *et al.*, "Negative transient currents in amorphous semiconductors." *Internal. J. Electronics* (UK), 51(6), 1981, p. 735-742; (b) — "An analysis of the dispersive charge transport in vitreous $0.55 \text{ As}_2\text{S}_3 : 0.45 \text{ Sb}_2\text{S}_3$," *Phys. Stat. Sol. (A)*, Vol. 54, 1979, p. 67-77; (c) — and Rudenko, A. I., "Negative currents caused by injection-controlled polarization." *Solid St. Commun.*, 28, 1978, p. 675-676.

586. Evans, {137a, 137b, 251}.

587. David Jones, *Vancouver Sun Times*, Weekend Magazine, Dec. 17, 1977, p. 17. Article on Sid Hurwich's Toronto gun-jamming demonstration, stopping of watches, and jamming of a gun.

588. For proof of production of ordinary EM fields and energy at a distance by scalar **interferometry**, see **Evans et al.**, {79}.

589. Miles and Bush, {198}, p. 101.
590. Bearden, {17}.
591. We point out, but do not further discuss, the obviously startling impact on the validity of the random statistical analyses normally used in scientific work if such "hidden variables" are present in the Earth's supersystem and interact with the experiment.
592. Kron, {192}, p. 466.
593. (a) Gabriel Kron, *Diakoptics: The Piecewise Solution to Large-Scale Systems*, MacDonald & Co., London, 1962. See also (b) Kron, {310b}.
594. Ilya Prigogine, Preface, (160b), p. xi.
595. Sir William Rowan Hamilton, 1837. Hamilton originated quaternion algebra, the Hamiltonian, etc. Hamilton's quaternion algebra has a higher group symmetry than either vectors or tensors. Since Maxwell's theory was first formulated in Hamilton's quaternion algebra and later reduced to vectors and then to tensors, ironically the first successful EM theory has been sharply curtailed rather than being further developed and extended.
596. (a) Aharonov and Bohm, {344a, 344b}.
597. Prigogine, {160b}, p. 104.
598. Lee, {441}, p. 23.
599. Jackson, {22}, p. 811-812.
600. Whittaker, {85}.
601. This is because time may be regarded as compressed spatial length, where the L compression factor is c. Since the energy of a wave is proportional to L^2 (where L is the wave amplitude), then the release of ST time-density as ST energy density provides nearly 9×10^{16} times as much effect per second as simple energy density curvature alone does per joule. For convenience, we refer to this as the " 10^{17} gain factor" one obtains by releasing the compressed length energy from its time-density ST curvature form.

602. T. Matsumoto, "Mechanisms of **Electro-Nuclear Collapse**," *Proc, ICCF-7 (International Conference on Cold Fusion - 7)*, Vancouver, BC, Canada, April 1998, p. 98.

603. Romer, {84}, endnote 24, p. 109.

604. See Harter et al., {102}. For a simple analogy, we may think of the longitudinal EM wave as a sort of velocity-modulated wave; i.e., it is rhythmically changing its velocity about some average value, where that value is usually taken to be c . Another way to visualize it is as an "accordion" wave, expanding and contracting along the line of travel.

605. There are several types (polarizations) of photons utilized in physics. E.g., see (a) Ryder, {90b}. On p. 147+, Ryder discusses four polarization states of the photon. Two of these are "transverse" —i.e., the well-known x- and y-polarizations of light; one is called "longitudinal," i.e., z-directed and related to Evans' B(3) field, and one is "scalar" or timelike.

The time-like (scalar) photon we are using in this paper seems to be yet another brand, something like a cross between the Ryder's third and fourth classifications. That is, our "scalar" photon is named such because when it is imperfect it propagates (i.e., in the 7 direction) at finite speed. When perfect, it just appears instantly everywhere it will be, without propagation through space in the usual sense. Hence it can be at an infinite number of points simultaneously - very close to the notion of the pure Coulomb gauge or of Bohm's quantum potential - or it can be impure and propagate at subluminal or superluminal speeds. The main notion we intend in our present use of the "scalar" photon for this treatise is that its oscillation is in the time domain and along the time axis. We use a model which produces the flow of time itself, and a time-component structuring of that flow — something which is still absent from physics. So our time-like (scalar) photon in one part very much resembles Ryder's discussion of the "scalar" photon, but is not just that alone. For instance, both our longitudinal photon and our scalar photon seem to have internal "photon" structures that we do not discuss in this treatise.

A still deeper discussion of photon polarization is in (b) Mandl and Shaw, {19}. The longitudinal and scalar polarizations are not directly observable, but only in combination, where they manifest as the "instantaneous" Coulomb (electrostatic) potential. So by this route one arrives at a well-established mathematical theory that allows a hidden substructure within **the photon itself**. Mandl and Shaw include the

photon's four polarization states as related to the four independent degrees of freedom available in the vector potential A . Suppression of the longitudinal and scalar polarizations is accomplished by "fixing the gauge". This reduces the independent degrees of freedom from 4 to 2, giving the conventional electrodynamics. However, when one raises serious foundations flaws in that resulting conventional electrodynamics, it is obvious that the entire structure is still on somewhat shaky ground. An even better mode might be to consider the fundamental photon entity as existing in all degrees of freedom, and the various "kinds" of photons existing due to restrictions or partial restrictions placed on one or more of these degrees of freedom. This of course opens the stage to interactions that change one (restricted) type of photon into a different (restricted) type. This is essentially the basis for my use of the notion of "photon transduction". It also leads to the transposition of time into energy and vice versa, which I use in my own approach, but which is still missing from nuclear physics. Since experimentally the cold fusion phenomena seem to require that characteristic, we have retained it.

We are indebted for much of the preceding discussion to private correspondence from Bob Flower, a fine scientist and knowledgeable in this area. Flower has pointed out that the conventional photon theory outlined by the cited authors is missing the possibility that nonlinear phase-conjugate optics could make the photon's longitudinal and scalar polarizations manifest in an experiment. Or put another way, if the instantaneous Coulomb potential could be decomposed into a time-like component and a longitudinal component, it would allow the two hidden polarization states to be controlled directly. This would result in anomalous modifications of the EM vector potential, leading to measurable electromagnetic or quantum effects. Flower's observation seems to be the closest to our own view, stated more simply in the present paper.

606. The result of our yet-unfinished struggle in these *very* swampy photon waters is not entirely consistent with the conventional view. Nonetheless, the new approach does seem to fit and explain most of the anomalous cold fusion phenomena, as well as a wide variety of other phenomena previously deemed beyond the pale of physics itself. E.g., by noting that *mind is time-like in its operations*, and therefore directly uses time-polarized (scalar) photons, waves, and electrodynamics, then mind operations become totally electromagnetic, but of a dramatically extended electrodynamic nature presently being approached in quantum field theory. That approach leads directly to a testable and engineerable theory of mind

on all its levels (conscious, subconscious, unconscious, species unconscious, biospheric or all-species unconscious, and so on). But since the mind can interact with the body and produce at least the initial spatial forces carrying out intent in the physical world, it follows that some process must exist whereby the "time-like" photon interacts with and changes one or more of the other photons in the conventional view. Our use of *transduction* in fact encompasses that, based on quantum field theory as described by Ryder {90b} and by Mandl and Shaw {19}. Further, the present author's transduction reinterpretation of Whittaker's 1903 and 1904 papers {85, 91a} means that Whittaker's work as reinterpreted strongly supports this approach mathematically. So the approach used directly incorporates *mind and matter interaction*, again on multiple levels. While this area of *engineerable* mind and matter interaction is well beyond the scope of this treatise, it has become possible to begin the physics of the living being — even of the entire living universe — and to foresee direct engineering of the various realms of mind itself. Indeed, Russian psychoenergetics - particularly the highly weaponized secret part of it - already is involved in just that capability in deployed operational equipment of great portent. Since real results and real explanations of diverse metabiological phenomena have arisen from the approach as well as a very deep "more ordinary" physics including the necessary corrections to electrodynamics, we have continued to follow it to see where it eventually leads. A future book is planned on the more positive and beneficial uses of such startling technology. A preliminary view can be had on the author's website, www.cheniere.org, in the "porthole concept" briefing. A patent application has in fact been filed on this startling new method of medical healing.

607. (a) Vlail Kaznacheyev and L. P. Mikhailova, *Ultraweak Radiation in Intercellular Interactions*, [in Russian], Novosibirsk, 1981 [an English exposition of much of the Kaznacheyev work is given in (b) Vlail Kaznacheyev, "Electromagnetic Bioinformation in Intercellular Interactions," *Psi Research*, 1(1), Mar. 1982, p. 47-76.] See also (c) Kaznacheyev *et al.*, "Distant intercellular interactions in a system of two tissue cultures," *Psychoenergetic Systems*, 1(3), Mar. 1976, p. 141-142. In the same issue, see (d) "A Comment" by William A. McGarey, p. 143; (e) "A Comment" by Arthur C. Hastings, p. 143-144. See also (i) Yu. A. Vladimirov, "Ultraweak luminescence of subcellular structures," *Ultraweak Luminescence in Biology: Proceedings of the Symposium*, Moscow, 1969 [In Russian], Robert Becker also showed in his healing of

otherwise intractable bone fractures that a simple scalar potential (now known to involve the direct transduction between scalar and longitudinal photons and vice versa), that cellular dedifferentiation and redifferentiation of red blood cells occurred in the scalar potential region across the damaged bone cells, and directly in such manner as to "eliminate the delta engine" in those damaged bone cells in the fracture. The red cells shucked their hemoglobin, turning back (time-reversing) to a more primitive cell (earlier state). Then they redifferentiated (time-forwarded) into the type cells that make cartilage. There is still a delta engine between cartilage and bone! So these cartilage-like cells redifferentiated again into the kind of cells that make bone. These latter cells were deposited in the fracture, healing it. This process is in fact used today in various medical hospitals, without any real understanding of the physics mechanism involved. In short, it has long been experimentally proven without understanding the actual mechanism by which it works. See (g) Robert O. Becker, "The direct current field: A primitive control and communication system related to growth processes," *Proc. XVII Internal. Congr. Zoology*, Washington, D.C., Vol. 3, 1963, p. 179-183; (h) — and Charles H. Bachman and Howard Friedman, "The direct current system: A link between the environment and the organism," *New York State J. Medicine*, Vol. 62, April 15, 1962, p. 1169-1176; (i) — and Joseph A. Spadaro, "Electrical stimulation of partial limb regeneration in mammals," *Bull. N.Y. Acad. Med.*, Second Series, 48(4), May 1972, p. 627-64. See also (j) C. A. L. Bassett; R. O. Becker, and R. J. Pawluk, "Effects of electric currents on bone *in vivo*," *Nature*, Vol. 204, Nov. 14, 1964, p. 652-654.

608. Puthoff, {202}.

609. See (a) A. Shapere and F. Wilczek, Eds., *Geometric Phases in Physics*, World Scientific, 1989. See also (a) M V. Berry and J. M. Robbins, "Indistinguishability for quantum particles: spin, statistics and the geometric phase," *Proc. Roy. Soc. LondA*, Vol. 453, 1997, p. 1771-1790.

610. See Mandl and Shaw, {19}, Chapter 5 and simply reinterpret the coupled scalar and longitudinal photon pair as a spin 2 graviton.

611. In fact, Sweet's vacuum triode amplifier probably used the domains and nuclei in a barium ferrite permanent magnet in such a graviton reaction manner. In an epochal experiment designed and conceived by the present author, Sweet reduced the weight of the device

on the lab bench, smoothly and efficiently, by 90 degrees. For **the** description, see Sweet and Bearden, {29a}.

612. Reginald I. Gray, *Unified Physics*, Naval Surface Warfare Center, Dahlgren, VA, 1988, p. 2-19.

613. For the basic explanation of a scalar interferometer, see Evans et al., {79}.

614. See Chapter 3, paragraph 3.1 through 3.5.

615. Bearden, {12}.

616. As an example, see Bunge, {3}, p. 179-180. Quoting: "*The most complete direct interparticle action theory of electromagnetism is WHEELER and FEYNMAN'S (1949). Its central postulate is Fokker's action principle for a collection of point charges.... from which the equations of motion for charged particles follow. As can be seen, only particle variables occur in this theory, which is an electrodynamics in AMPERE'S sense and therefore the opposite of a unitary field theory. (The theory is mathematically equivalent to an "adjunct" field theory, but this adjunct field, far from being free, is attached to the particles.) The theory has been abandoned by its creators because it is inconsistent with the quantum theory, in particular with the photon hypothesis. Yet it continues to appeal to many not only because it smacks of mechanism and operationalism, but also because no self-forces appear in it and consequently no infinite self-forces (and the corresponding self-accelerations) But this is too small an advantage compared with its shortcomings even at the classical level. Indeed, the theory makes use of special relativity - as is apparent from its central axiom.... yet it is inconsistent with it for SR borrows from CEM the assumption that e.m. signals propagate in a vacuum with a constant speed c and moreover lead an existence, which, while it lasts, is independent of both emitters and absorbers. In other words, by denying the existence of free radiation fields propagating in space, the action at a distance formulation of CEM contradicts its own basis: it is logically inconsistent.*"

Our comment is that the "photon" interaction itself must be re-examined in light of the demonstrated giant negentropy of every change and dipole in the universe. Allowing for the quantum field theoretic combination of the scalar and longitudinal photons as an observable "photon" that is actually a spin-2 graviton in 4-space rather than 3-space. the entire nature of "propagation of EM energy through space" changes. No photon has ever interacted in just 3-space; instead, it interacts in

4-space. In the strong interpretation of giant negentropy, there is really no such thing as a "single observable photon" in the universe. Instead, there is a combined scalar/longitudinal photon pair, which when interacting in matter causes transverse EM wave movement of the interacting/detecting charges which are restrained by (i) the inertia due to their own mass, and (ii) in circuits, the back repulsion of all other like charges longitudinally ahead of the excited charge that absorbs the "photon" (actually, the graviton). Considering the longitudinal wave "bunching and relaxing" actions resulting in galloping, then the conventional assumption of the constant speed of light c in vacuum is destroyed. What we perceive as "light propagating in space at speed c " already moves in a galloping and jerky motion *about* speed c — now moving superluminally, now moving subluminally — with only an *average* speed of c overall. In turn, anything which affects the performance and "galloping mechanism" exhibited by the longitudinal EM wave can in theory be used to change the speed c . With the coming advent of the Fogal semiconductor and direct superluminal communication, all such objections based on previous rather classical assumptions will simply fall by the wayside. We also stress that the speed of gravitational field is shown in astronomical events and effects to be extraordinarily superluminal by many orders of magnitude. Again, this greatly upsets many of the modeling assumptions in present physics. Physics is based on a set of models and a set of experiments and observed effects. If the experimental effects negate the theory, one has to change the theory or be guilty of abandoning scientific method altogether, thereby turning science into dogma.

617. Cohen, {89}.

618. See Rod Donnelly and Richard Ziolkowski, "Electromagnetic field generated by a moving point charge: A fields-only approach," *Am. J. Phys.*, 62(10), Oct. 1994, p. 916-922. In conventional language, both the transverse and longitudinal field components always try to be born initially, whenever an EM wave is being generated. Generation of the transverse component produces a function which zeroes the longitudinal component. The function appears in the spacetime representation of the transverse EM fields, obtained by Donnelly and Ziolkowski using special transforms. The phase conjugating and retroreflecting aspects of cold fusion experiments produce spacetime curvatures, directly affecting the "canceling function." The altered function becomes an "LW-reduction function" which is postulated to determine the mix of transverse and longitudinal field components that emerge in the interactions.

619. Whittaker, {85} shows that the scalar potential is **comprised of** bidirectional longitudinal EM wavepairs. Whillaker, {91a} shows **that all** fields and waves are comprised of two interfering scalar **potential** functions. Hence all fields and waves are comprised of **functions** of longitudinal and scalar wave interferometry.

620. Evans et al., {79}.

621. Usually the detecting GM tubes will detect the interferometry of the incident longitudinal EM waves with the weak LWs being emitted in the tube itself by time-decay of its time-charges. The resulting transverse wave EM energy ionizes the tube's gas, and the GM tube "reads." If little or no time-decay is occurring, then there will be little or no transduction into TWs, hence little or no ionization. In that case the instrument will not read.

622. Miles and Bush, {198}, p. 101.

623. *Ibid.*

624. (a) Evans, {137b}; (b) Evans et al., {233a, 233f}.

625. Rodrigues and Lu, {93a}.

626. Enders and Nimtz, {329b}.

627. (a) W. A. Rodrigues, Jr. and J. Vaz Jr., "Subluminal and Superluminal Electromagnetic Waves and the Lepton Mass Spectrum," *Kluwer Ac. Pub. Proceedings*, <hep-th/9607231> on Los Alamos web site; (b) P. Letelier and W. A. Rodrigues Jr. (Eds.), *Gravitation: The Spacetime Structure*, World Scientific Publishing Co., Singapore, 1994; (c) J. Vaz Jr. and W. A. Rodrigues Jr., "On the equivalence of Maxwell and Dirac Equations, and Quantum Mechanics," *Internal. J. Theor. Phys.*, Vol. 32, 1993, p. 945-958; (d) J. Vaz Jr. and W. A. Rodrigues Jr., "Maxwell and Dirac Theories as an Already Unified Theory," *Adv. Appl. Clifford Algebras*, Vol. 7 (S), 1997, p. 369-386; (e) W. A. Rodrigues Jr. and J. E. Maiorino, "A unified theory for construction of arbitrary speeds ($0 < v < \infty$) solutions of the relativistic wave equations." *Random Operators and Stochastic Equations*, Vol. 4, 1996, p. 355-400; (f) Rodrigues and Vaz, {93b}.

628. Torn Van Flandern, "The speed of gravity - What the experiments say," *Phys. Lett. A*, Vol. 250, 21 Dec. 1998, p. 1-11.

629. *Ibid.*, p. 9.

630. *Ibid.*, p. 10.

631. A. A. Vlasov and V. I. Denisov, "Einstein's formula for gravitational radiation is not a consequence of the general theory of relativity," *Theor. Math. Phys.*, 53(3), June 1983 (English translation), p. 1208-1216. Translated from *Teoreticheskaya i Matematicheskaya Fizika*, 53(3), Dec. 1982, p. 406-418 [in Russian].

632. D. Hilbert, *Göttingen Nachrichten*, Vol. 4, 1917, p. 21.

633. Sen, {68}, p. viii.

634. Mandl and Shaw, {19}.

635. Logunov, A. A. and Yu. M. Loskutov, "Nonuniqueness of the predictions of the general theory of relativity," *Sov. J. Part. Nucl.*, 18(3), May-June 1987, p. 179-187.

636. Whittaker, {85}

637. I.e., that spacetime == scalar potential == virtual particle flux == Whittaker biwave set. If that holds, then when we engineer the internal structure of the scalar potential, we also simultaneously engineer the internal structuring of the vacuum and spacetime itself, with deliberately formed spacetime curvature engines (vacuum engines). This is vacuum engineering — by different means — of the sort proposed by Nobelist T. D. Lee, {73}, p. 380-381. On p. 383, Lee points out that the microstructure of the scalar vacuum field (i.e., of vacuum charge, or — in our view — of the vacuum potential) has not been utilized. Particularly see Lee's own attempt to indicate the possibility of using vacuum engineering, in his "Chapter 25: Outlook: Possibility of Vacuum Engineering," p. 824-828.

638. Ingram Block and Horace Crater, "Lorentz-Invariant Potentials and the Nonrelativistic Limit," *Am. J. Phys.*, 49(1), Jan. 1981, p. 67.

639. Roderic Lakes, "Experimental Limits on the Photon Mass and Cosmic Magnetic Vector Potential," *Phys. Rev. Lett.*, 80(9), Mar. 2, 1998, p. 1826. Our critique is that the given equations define nothing at all, since no equation is a definition. If one replaces the "=" with "==" in the "definition" of the A-potential in terms of B, one then has $B == \text{curl } A$, which is actually the definition of B in terms of A. If A has no energy, then neither can B, which is just the swirl of the A-energy. If A has no curl, B vanishes. If A has no energy, B vanishes. Yet $dA/dt = -E$, whether

A has curl or not, and E has energy. Ergo, A must have energy if **any** operation upon it is to produce **E-field** energy, else one has **violated the** conservation of energy law and advocates creation of energy from **nothing**. Regardless of how one looks at $B = \text{curl } A$ and $B = \text{curl } A$, neither the equation nor the identity defines A in terms of B, because B is always, just one aspect of A and yet A can exist without any curl at all — without B as demonstrated in the Aharonov-Bohm effect. But in no fashion can B exist without A. Therefore A is primary and B is derived, and if A has no energy then B can have no energy. V has energy and energy density, since in fundamental units any point of the potential V is identically the joules of energy collected upon a unit point positive electrical charge assumed at that point. If it had no energy, then no joules could be collected from it.

640. Weinberg, {194}, p. 109-110.

641. Sen, {68}, p. viii.

642. (a) Lee, {13a}; (b) Wu et al., {14}; (c) Lee, {239}, p. 57-59; (d) Lee, {73}, p. 184.

643. Bearden, {12}

644. Whittaker, {85}.

645. The clustering of virtual charges around observable individual charges — due to the polarization of the vacuum — is well known in quantum electrodynamics. Macroscopically one sees the charge as partially shielded by the cluster, so the clustering charges are known to have macroscopic significance. At close enough distances, one sees the "bare" charge with reduced shielding.

646. Mandl and Shaw, {19}.

647. (a) Aharonov and Bohm, {344}; (b) R. G. Chambers, {474}.

648. E.g., see (a) Barrett, {345}; Barrett and Grimes [Eds.], {235b}.

649. (a) Evans *et al*, {113a}; (b) — "Self-Inconsistencies of the U(1) Theory of Electrodynamics: Michelson Interferometry," *Found. Phys. Lett.*, 12(6), Dec. 1999, p. 579-584; (c) — *J. New Energy*, Vol. 4, Winter 1999, p. 231-235; (d) — "Derivation of the Lehnert Field Equations from Gauge Theory in Vacuum: Space Charge and Current," *Found Phys Lett.*, 13(2), April 2000, p. 179-184; (e) Evans et al., {233g}; (f) Evans et al., {233e}; (g) — "Equations of the Yang-Mills Theory of Classical Electrodynamics," *Optik*, 111(2), 2000, p. 53-56; (h) Evans et al., {113b}.

Also (i) more than 100 papers on restricted U.S. Department of Energy Internet website <http://www.ott.doe.gov/electromagnetic/>.

650. Obviously we exclude active systems such as matter that decays in nuclear fashion. Those are not inert systems, but are "pre-excited" systems whose matter has had excess energy since its formation during the birth of the universe.

651. (a) Kondepudi and Prigogine, {160c}; (b) — "Thermodynamics, Nonequilibrium," *Ency. Appl. Phys.* Vol. 21, 1997. p. 311-337.

652. I.e., the known broken symmetry of the charge (regarded as a set of composite dipoles) in its vacuum energy exchange.

653. Kraus, {76}, p. 578, Figure 12-60, a and b.

654. James Croll, *Phil. Mag.*, Series 5, Vol. 2, 1876, p. 242-254.

655. Heaviside, {5a-5c}.

656. Poynting, {4a, 4b}.

657. Heaviside, {106}.

658. E.g., see Lorentz, {109}.

659. E.g., (a) Panofsky and Phillips, {110}; (b) Gough and Richards, {224b}. (c) Jackson {22}, p. 259, points out the arbitrary nature of the Poynting vector and disposes of any added nondivergent energy flow vector with the words "*Such an added term can, however, have no physical consequences.*"

660. Simply examine V_{qt} around the forward emf section (the external circuit between the generator terminals and the ends of the source dipole inside the generator), and $-V_{qt}$ across the generator terminals (and the source dipole).

661. Evans et al, {38b, 38c}.

662. Bohren, {24}. Independent replication is reported in the same journal issue; see (b) Paul and Fischer, {25}.

663. Bearden, {40}.

664. See Paragraph 8.3.16 in Chapter 8 for the explanation.

665. Olariu and Popescu, {482}.

666. Bertram Schwarzschild, "Currents in normal-metal rings **exhibit** Aharonov-Bohm effect," *Phys. Today*, 39(1). Jan 1986, p. 17-20.
667. Paul and Fischer, {25}.
668. One actually inputs far more electrical energy flow from **the** external electrical power supply than is conventionally accounted, if one accounts for the huge nondiverged Heaviside energy flow component that Lorentz arbitrarily discarded. That energy flow is actually present, but Is not accounted once Lorentz' integration trick is applied to integrate the entire energy flow vector around a closed surface assumed around any volume element of interest.
669. Evans et al., {113a}.
670. As is any EM system when the nondiverged very large Heaviside energy flow component is accounted in addition to the diverged Poynting energy flow component.
671. Bearden and Bedini, {582}.
672. As an example, two scalar potentials ϕ_1 and ϕ_2 may have precisely the same intensity magnitude, but different Whittaker internal bidirectional longitudinal EM wave structures. The effects of the two externally identical potentials — as in various chemical reactions — can be quite different. See Bearden, {17}.
673. Lee, {73}, p. 380-381.
674. Lee, {73}, p. 184.
675. For succinct summary of the major symmetries and broken symmetries in physics, see Lee, {239}, p. 57-59.
676. Wang and Chung, {33}.
677. Jean-Louis Naudin, "Chung's Negative Resistance Experiment", on website <http://jnaudin.free.fr/enr/enrexpl.htm>.
678. Burford and Verner, {35a}.
679. Early but sophisticated analogue simulator. E.g., see Kron, {306}, p. 173.
680. E.g., see (a) Kron, {32}, p. 39. Quoting: "*Although negative resistances are available **for** use with a network analyzer...*"; — "Numerical solution of ordinary and partial differential equations by

means of equivalent circuits." See also (b) Kron, *J. Appl. Phys.*, Vol. 16, Mar. 1945a, p. 173. Quoting "...since none or only a few negative resistances exist on practical network analyzers" (accent added). In the second quotation, arguably Kron was required to insert the underlined words. In the first quotation, the censors missed the clarity of the statement.

681. Kron, {192}.

682. Sweet and Bearden, {29a}.

683. Self-oscillation in such magnetic materials (which are also optically active) is well known. E.g., (a) L'vov, {29c}; (b) Borovik-Romanov and Sinha [Eds.], {369b}. See particularly (c) Gurevich and Melkov, {232c}.

684. Rosenthal publicly verified the results of his tests of the Sweet device to the 26th session of the Intersociety Energy Conversion Engineering Conference (IECEC '91), Boston, Massachusetts, 1991.

685. David M. Pepper, "Applications of Optical Phase Conjugation," 254(1), Jan. 1986, p. 83.

686. Bearden, {15}, p. 2-10.

687. Bearden, {17}.

688. Time-polarized photons are recognized in quantum field theory, implying the existence of time-polarized EM longitudinal waves. In coupling with spatial longitudinally polarized EM waves in wavepairs, the coupling is observable as scalar potential energy (stress energy), based on an argument by Mandl and Shaw {19}. Opposing time-polarized longitudinal EM waves therefore constitute "time-stress", "time-stress potential", and optical pumping in the time domain, which is hypothesized to reverse the normal "forward time" law of attraction and repulsion of charged particles.

689. Kenneth Shoulders and Steve Shoulders, {38If}.

690. U.S. patent numbers 5,018,180; 5,123,039; 5,054,046; 5,054,047.

691. Jain, {35b}.

692. Cao et al, {264b}.

693. Prange and Strance, {365}.

694. Roger Penrose, [82], p. v.
695. Bunge, [3], p. 176.
696. Albert Einstein, [1a], p. xi-xii. Appendix I.
697. Raymond A. Serway, *Physics for Scientists and Engineers with Modern Physics*, Third Edition, updated version, Saunders College Publishing, Philadelphia, 1990, p. 620.
698. Max Planck, *Treatise on Thermodynamics*, 3rd ed., Dover, New York, 1945.
699. Paul Davies, *Superforce: The Search for a Grand Unified Theory of Nature*, Simon and Schuster. New York, 1984, p. 105.
700. D. Hilbert, *Göttingen Nachrichten*, Vol. 4, 1917, p. 21.
701. A. A. Logunov and Yu. M. Loskutov, "Nonuniqueness of the predictions of the general theory of relativity," *Sov. J. Part. Nucl.*, 18(3), May-June 1987, p. 179.
702. David Whitehouse, "Beads of doubt," BBC News, July 18, 2002, <http://news.bbc.co.uk/1/hi/sci/tech/2135779.stm>.
703. Matthew Chalmers, "Second law of thermodynamics 'broken'," *New Scientist*, July 19, 2002, carried on New Scientist website at <http://www.newscientist.com/news/print.jsp?id=ns99992572>.
704. G. M. Wang, E. M. Sevick, Emil Mittag, Debra J. Searles, and Denis J. Evans, "Experimental Demonstration of Violations of the Second Law of Thermodynamics for Small Systems and Short Time Scales," *Phys. Rev. Lett.*, 89(5), July 29, 2002, 050601.
705. Elias P. Gyftopoulos and Gian Paolo Beretta, *Thermodynamics: Foundations and Applications*, MacMillan, 1991. This is an elaborate text developed over the years at MIT.
706. Dilip Kondepudi and Ilya Prigogine, *Modern Thermodynamics: From Heat Engines to Dissipative Structures*, Wiley, NY, 1999.
707. Valery Chalidze, *Entropy Demystified: Potential Order, Life and Money*, Upublish.com, 2000. Contains an excellent nonmathematical exposition of the second law.

708. J. S. Dugdale, *Entropy and Its Physical Meaning*, Taylor & Francis, 1996. This book is of a more mathematical bent, but a very thorough treatment.
709. Craig F. Bohren, *Am. J. Phys.*, 51(4), Apr. 1983, p. 323-327.
710. V. S. Letokhov, {157}, *ibid.*
711. (a) D. K. Sen, *Fields and/or Particles*, Academic Press, London and New York, 1968, p. viii. Thirty-two years later, we published the solution to that problem in (b) T. E. Bearden, "Giant Negentropy from the Common Dipole," *J. New Energy*, 5(1), Summer 2000, p. 11-23. Also carried on DoE restricted website <http://www.ott.doe.gov/electromagnetic/> and on www.cheniere.org.
712. T. E. Bearden, "EM Corrections Enabling a Practical Unified Field Theory with Emphasis on Time-Charging Interactions of Longitudinal EM Waves," *J. New Energy*, 3(2/3), 1998, p. 12-28.
713. Dilip Kondepudi and Ilya Prigogine, *Modern Thermodynamics*, *ibid.*, p. 459.
714. E.g., see D. Jou, *Extended Irreversible Thermodynamics*, Springer-Verlag, New York, 1996.
715. Sources for this table are: (a) Roy Porter, Consultant Editor, *The Biographical Dictionary of Scientists*, Second Edition, Oxford University Press, NY, 1994; (b) Kondepudi and Prigogine, {703}, *ibid.*; (c) Serway {697}, *ibid.*; (d) K. Martinas, L. Ropolyi, and P. Szegedi (eds.), *Thermodynamics: History and Philosophy*, World Scientific, London, 1991; (e) Stephen F. Mason, *A History of the Sciences*, New Revised Edition, Collier Books, NY, 1962; (f) E. T. Bell, *Men of Mathematics*, Simon & Schuster, NY, 1986; (g) Charles Singer, *A Short History of Scientific Ideas to 1900*, Oxford University Press, London, 1959; (h) William C. Reynolds, *Thermodynamics*, Second Edition, McGraw-Hill, NY, 1968; (i) Paul Edwards (Ed. in Chief), *The Encyclopedia of Philosophy*, Vols. 1-8, Macmillan, NY, 1967; (j) I. Asimov, *Asimov's Biographical Encyclopedia of Science and Technology*, Second Revised Edition, Doubleday, Garden City, NY, 1982; (k) Jeff Biggus, *Sketching the History of Statistical Mechanics and Thermodynamics*, 2002, <http://history.hyperjeff.net/statmech.html>, (l) J. B. Jones and G. A. Hawkins, *Engineering Thermodynamics*, Wiley, New York, 1986; (m) Kenneth Wark, *Thermodynamics*, Third Edition, McGraw-Hill, 1977.

716. Antoine Laurent Lavoisier, *Elementary Treatise on Chemistry*, 1798.
717. I. Asimov, *Asimov's Biographical Encyclopedia of Science and Technology*, Second Revised Edition, Doubleday. Garden City, NY, 1982.
718. Benjamin Thompson (Count Rumford), *Enquiry Concerning the Source of Heat which is Excited by Friction*, 1798.
719. Eugene F. Mallove, "The Mysteries and Myths of Heat: A Brief History of Hot and Cold," *Infinite Energy*, May-June 2001, issue #37.
720. Julius Robert Mayer, 1814-1878. In 1842, Mayer's classic paper on conservation of energy was published in *Annalen der Chemie*. He then published several papers himself. With no recognition and bitterly attacked, Mayer suffered a nervous breakdown and attempted suicide, being committed to institutions for several years. From 1858 he began to receive well-justified recognition. He was lauded by the scientific community and received the Royal Society's Copley Medal in 1871.
721. Rudolf Clausius, "On the Moving force of Heat and the Laws of Heat Which May be Deduced Therefrom," 1850.
722. Mallove, {719}.
723. James Clerk Maxwell, "A Dynamical Theory of the Electromagnetic Field," *Roy. Soc. Trans.*, Vol. CLV, 1865, p 459. Also in *The Scientific Papers of James Clerk Maxwell*, 2 vols. bound as one, edited by W. D. Niven, Dover, New York, 1952, Vol. 1, p. 526-597.
724. Actually, it is not *proven* that the energy of the universe is constant. With the recent experimental findings that the expansion of the universe is accelerating, the kinetic energy of the universe could be increasing. Whether this is offset by an appropriate change in the physical universe's supersystem remains to be seen.
725. Jeff Biggus, "Sketching the History of Statistical Mechanics and Thermodynamics," <http://history.hyperjeff.net/statmech.html>.
726. For a discussion of the modern death of matter and the death of materialism, see Paul Davies and John Gribbin, *The Matter Myth*, Simon & Schuster, NY, 1992. Quantum mechanics shook the foundations of materialism and the clockwork world, and chaos has **finished the** devastation. For a scholarly dissertation on mass, see Max **Jammer**,

Concepts of Mass, in Classical and Modern Physics, Harvard University Press, Cambridge, MA, 1961.

727. Dilip Kondepudi and Ilya Prigogine, *Modern Thermodynamics: From heat Engines to Dissipative Structures*, Wiley, New York, 1998, p. 3.

728. Serway, {697}, p. 507.

729. Serway, *ibid.*, p. 507.

730. Serway, *ibid.*, p. 508.

731. Serway, *ibid.*, p. 527.

732. Lindsay and Margenau, *Foundations of Physics*, Dover, New York, 1963, p. 214.

733. Robert H. Romer, "Heat is not a noun," *Am. J. Phys.*, 69(2), Feb. 2001, p. 107-109. This is an editorial discussion by the Editor of *Am. J. Phys.* of the concept of heat in thermodynamics, where heat is not a substance, not a thermodynamic function of state, and should not even be used as a noun.

734. Serway, *ibid.*, p. 527-528.

735. Serway, *ibid.*, p. 588.

736. T. E. Bearden, *Energetics: Extensions to Physics and Advanced Technology for Medical and Military Applications*, CTEC Proprietary, Mar. 21, 1998, 200+ page inclosure to CTEC Letter to Gen. (Ret.) Walter Busby, Deputy Secretary of Defense for Counterproliferation and Chemical and Biological Defense, March 21, 1998. This communication proposed a crash program to develop a portable suitcase-size treatment device based on this effect, for use in treating mass casualties after forthcoming terrorist attacks by weapons of mass destruction. Treatment of a patient would have required only five minutes. Copies were also sent to the U.S. Air Force, National Institutes of Health, and other key government agencies. Three and a half years later, the attack on the World Trade Center and the Pentagon — and a foiled attack on the White House — occurred on September 11, 2001. Today the nation is at war against international terrorism, and extensive changes in defense of the heartland are also under way. However, there still appears to be no real solution to the problem posed by mass casualties, particularly which professional

strikes can produce casualties in the hundreds of thousands or a few millions.

737. (a) A. J. Berteaud and A. M. Bottreau, "Analyse des **rayonnements** electromagnetiques emis par l'appareil Priore," [Analysis of **the** electromagnetic radiations emitted by the Priore apparatus], D.R.M.E., 1971, p. 3-12; (b) A. J. Berteaud, A. M. Bottreau, A. Priore, A. N. Pautrizel, F. Berlureau, and R. Pautrizel, "Essai de correlation **entre** l'evolution d'une affection par Trypanosoma equiperdum et l'action d'une onde electromagnetique pulsee et modulee," [Trial of the correlation between the evolution of a disease by Trypanosoma equiperdum and the action of a pulsating and modulated electromagnetic wave], *Compt. Rend. Acad. Sci.* (Paris), Vol. 272, 1971, p. 1003-1006; (c) R. Cambar, "Rapport general des travaux de la Commission de Controle constituee en vue de verifier l'un des effets biologiques obtenu par l'utilisation de l'appareillage de Priore A. Bordeaux," [General findings of the work of the control commission formed to verify one of the biological effects obtained by use of the apparatus of A. Priore at Bordeaux], 1969, I vol., (d) R. Courier, "Expose par M. le Professeur R. Courier, Secretaire Perpetuel de L'Academie des Sciences fait au cours d'une reunion a L'Institut sur les effets de la Machine de M. A. Priore le 26 Avril 1977," [Presentation by Professeur R. Courier, Perpetual Secretary of the Academy of Sciences, made at the meeting of the Academy on the effects of the machine of M. A. Priore.] (e) G. Delmon and J. Biraben, "La croissance du carcinome de Guerin sous l'action de champs electromagnetiques." [The growth of carcinoma treated by the action of electromagnetic fields], *Rev. Path. Comp.*, 3(2), 1966, p. 85-88. (f) G. Mayer, A. Priore, G. Mayer and R. Pautrizel, "Action de champs magnetiques associes a des ondes electromagnetiques sur l'orchite trypanosomienne du lapin," [Action of magnetic fields associated with electromagnetic waves on the trypanosomian orchitis of the rabbit], *Compt. Rend. Acad. Sci.* (Paris), Vol. 274, 1972, p. 3011-3014. Many more reports of the novel cures are in the French medical literature, particularly by Pautrizel (g) Priore's doctoral thesis (which was rejected when the project was suppressed) is: *Guerison de la Trypanosomiasis Experimentale Aigue et Chronique par L'action Combinee de Champs Magnetiques et D'Ondes Electromagnetiques Modules*. [Healing of intense and chronic experimental trypanosomiasis by the combined action of magnetic fields and modulated **electromagnetic** waves], thesis submitted in candidacy for the doctoral degree, 1973. (h) Antoine Priore, "Apparatus for producing radiations penetrating living

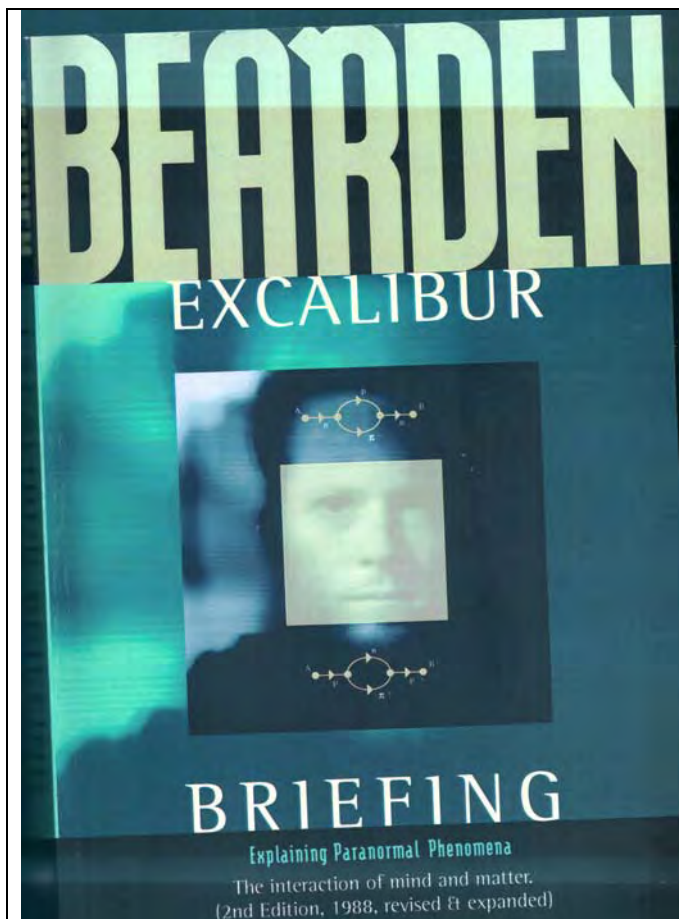
cells," U.S. Patent No. 3,368,155, Feb. 6, 1968;(i) — "Method of producing radiations for penetrating living cells," U.S. Patent No. 3,280,816, Oct. 25, 1966; (j) — "Procede et dispositif de production de rayonnements utilisables notamment pour le traitement de cellules vivantes," [Procedure and Assemblage for Production of Radiation Especially Serviceable for the Treatment of Living Cells], Republique Francais Brevet d'Invention P.V. No. 899.414, No. 1,342,772, Oct. 7, 1963; (k) Eric Perisse, *Effets des Ondes Electromagnetiques et des Champs Magnetiques sur le Cancer et la Trypanosomiasse Experimentale* [Effects of Electromagnetic Waves and Magnetic Fields on Cancer and Experimental Trypanosomiasis], Doctoral thesis, University of Bordeaux No. 83, March 16, 1984.

738. (a) R. O. Becker, "The neural semiconduction control system and its interaction with applied electrical current and magnetic fields," *Proc. XI Internatl. Cong. Radiology*, Vol. 105, 1966, p. 1753-1759, Excerpta Medica Foundation; Amsterdam; (b) — "The direct current field: A primitive control and communication system related to growth processes," *Proc. XVII Internatl. Congr. Zoology*, Washington, D.C., Vol. 3, 1963, p. 179-183; (c) — "Electromagnetic fields and life," *Psychoenergetic Systems*, Vol. 3, No. 1-4, 1979, p. 119-128; (d) - - "A technique for producing regenerative healing in humans," *Frontier Perspectives*, 1(2), Fall/Winter 1990, p. 1-2; (e) - - "The Biological Effects of Magnetic Fields — A Survey," *Med. Electron. Biol. Engr.*, Vol. 1, 1963, p. 293-303; (f) — - "The bioelectric field pattern in the salamander and its stimulation by an electronic analog," *IRE Trans. Med. Electronics*, Vol. ME-7, July 1960, p. 202-207; (g) - - and Charles H. Bachman, and Howard Friedman, "The direct current system: A link between the environment and the organism," *New York State J. Med.*, Vol. 62, April 15, 1962, p. **1169-1176**; (h) — and Joseph A. Spadaro, "Electrical stimulation of partial limb regeneration in mammals," *Bull. N.Y. Acad. Med.*, Second Series, 48(4), May 1972, p. 627-64; (i) - - and Carlton F. Hazlewood, Abraham R. Liboff, and Jan Walleczek, *Electromagnetic Applications In Medicine*, NIH-OAM Electromagnetics Panel Report, Jan. 15, 1993; (j) B. Baker; J. A. Spadaro, and R. O. Becker, "Electrical stimulation of articular cartilage," *Ann. N.Y. Acad. Sci.*, Vol. 238, 1974, p. 491-499; (k) C. A. L. Bassett; R. O. Becker, and R. J. Pawluk, "Effects of electric currents on bone *in vivo*," *Nature*, Vol. 204, Nov. 14, 1964, p. 652-654. There are many other publications by Becker, who is a true pioneer.

739. <http://www.cheniere.org>.


740. Kondepudi and Prigogine, {727}, p. 90-91. See also W. Nernst, *A New Heat Theorem*, Dover, New York, 1969.
741. Wang et al., {704}.
742. Maddox, John, *Nature*, 417 (2002), p. 903.
743. Buchwald, Jed Z., *From Maxwell to Microphysics* (University of Chicago Press, 1985), p. 44.
744. For a better meaning of "static" as dynamic but steady state, see Tom Van Flandern, *Phys. Lett. A*, 250 (1998), p. 8-9.
745. E.g., Sen, D. K., *Fields and/or Particles* (Academic Press, 1968), p. vii.
746. Wu, C. S. et al., *Phys. Rev.*, 105, 1957, p. 1413.
747. Weinberg, Steven, *Dreams of a Final Theory* (Vintage Books, Random House, 1993), p. 109-110.
748. Jackson, J. D. and L. B. Okun, *Rev. Mod. Phys.*, 73, 2001, p. 663-680.
749. Kondepudi, Dilip and Ilya Prigogine, *Modern Thermodynamics: From Heat Engines to Dissipative Structures* (Wiley, New York, 1998), p. 459.
750. Jou, D., *Extended Irreversible Thermodynamics* (Springer-Verlag, 1996).
751. Bohren, Craig F., *Am. J. Phys.*, 51, Apr. 1983, p. 323-327. Under nonlinear conditions, a particle can absorb and re-emit more energy than is in the light incident on it. Metallic particles at ultraviolet frequencies are one class of such particles and insulating particles at infrared frequencies are another.
752. Paul, H. and R. Fischer, *Am. J. Phys.*, 51, Apr. 1983, p. 327.
753. See Hal Fox, and Mitchell Swartz (JET Technology, MA), "Progress in Cold Nuclear Fusion - Metanalysis Using an Augmented Database," presented at ICCF-5, Monaco, April 9-13, 1995. The authors extracted information from over 3,000 papers on cold fusion collected by Fox's company. Over 600 of these experiments reported excess heat."

754. E.g., see Petar K. Anastasovski, H. Fox, and K. Shoulders, "A New Approach to the Cosmic Red-Shift and to the Cosmic Microwave Sources," J. New Energy, 1 (2), Summer 1996, p. 79-87."



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He holds a Sandan (third degree black belt) in Yoseikan aikido and was the first president of the Yoseikan Aikido Association of North America. He is a former singer, guitarist, songwriter, and recording artist. He is member of Mensa, the Society for the Investigation of the Unexplained, the International Tesla Society, the American Association for the Advancement of Science, the Association of the American Physics Teachers, the Air Force Association, the Association of the U.S. Army, the American Nuclear Society, the Association of Old Crows, the American Defense Preparedness Association, and the Alabama Academy of Sciences. He is also East Coast Director for the Association of Distinguished American Scientists.

Tom Bearden is the author of several books and numerous papers, briefings and presentations, dealing with anomalous phenomena, scalar electromagnetics, free energy devices, Soviet Tesla weapons, and Soviet scalar electromagnetic weather warfare; he is also the producer of several videotapes on these subjects.

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FOREWORD

by John White

This book deals in a comprehensive fashion with such a vast array of topics — from physics, psychology and evolution to advanced weaponry, military strategy and international politics — that many of you may become anxious, even fearful on reading it. In fact, this assembly of previously uncorrelated information and scientific breakthrough may be the most disturbing you have ever received.

This cannot be helped. This book represents an important step in our efforts to avoid global war involving not only nuclear armaments but also what appears to be a revolutionary development in Soviet military technology — psychotronic weapons. They are the modern equivalent of the legendary invincible sword, Excalibur.

The author is former U.S. Army officer Lt. Col. Thomas E. Bearden, now retired. During his twenty-year military career specializing in artillery, nuclear weapons, and military intelligence, Tom has pondered and researched many subjects that he covers here. His access to the full range of both military and NASA documents will be evident in his book. What may become highly classified data in the future is being revealed to you, our nation's ultimate policymakers, for an urgent reason that Tom has called Operation Fer-de-Lance, the presumed Soviet plan for domination of the planet through nuclear-psychotronic aggression and warfare. For the moment I would simply like to note two statements that indicate the basis for our sense of urgency:

1. On 13 June 1975, Soviet Premier Leonid Brezhnev urged a ban on research and development of new kinds of weapons "more terrible than anything the world has known."

2. In January 1977 former Air Force Chief of Intelligence, Maj. Gen. George J. Keegan (Retired) told *Newsweek* magazine, "The Soviets are working on dramatically exotic new weapons, twenty years ahead of anything ever conceived in the U.S. — so awesome as to lead the Soviets to believe that in the coming decade they would be capable of total neutralization of our ballistic and submarine missiles."

The U.S. military intelligence community interprets these signs in conventional terms as perhaps indicating the development of laser rays. Tom disagrees. His book will deal with the possibility that these weapons are psychotronic or parapsychical in nature.

In fact, we can say that in a strict sense, these are not weapons but devices — breakthrough technology with an enormous potential for the destruction of humanity. They are a second- or third-generation outgrowth of radionic devices presently used in unorthodox medicine for diagnosis and healing. Extremely compact, they could be carried in a suitcase and planted near targets — ICBM sites, communications centers, etc. Even if one of these devices were found and examined, it would only look like an electronic switching circuit or a small transmitter/receiver set, rather than a bomb or explosive.

The energy and the mechanism involved in psychotronic damping of nuclear, chemical or electromagnetic technology is, from all indications, unrecognized by official Western science but nevertheless inherent in it. That also has been deeply pondered by Tom, and this book will give a full explanation of the physics, mathematics and technology involved. It is not an exaggeration to say, as Tom does, that the explanation offers a "physics of metaphysics" — a fully developed theory of paranormal phenomena that elegantly unites physics and psychology. The ramifications of what Tom calls perception theory lead into every field of human knowledge and inquiry with revolutionary results — from science, theology and philosophy through the full spectrum of paranormal phenomena such as UFO's and psychokinesis into the elementary school classroom, the supermarket shopping basket and the voting booth. They most certainly lead into the safety of your homes and the integrity of your minds.

Before you turn to *The Excalibur Briefing*, I want to leave you with these thoughts. The material you are about to read will certainly be denied by our own government and military and probably by a major segment of the scientific community. It is not unlikely that Tom will be dismissed as a paranoid crackpot. Such tactics have been employed before against brilliant, courageous people who challenge the fundamental dogma of the establishment as Tom does here. Nevertheless, I want to reassure you that Tom is sane, sober, and serious.

Of course, such a person could still perhaps be mistaken. In that regard, I believe you will find Tom's presentation to be persuasive. He himself is careful to distinguish speculation from fact, inference from descriptive statement. Even if Tom were paranoid, however, the question arises: *What if there is good reason for paranoia?* To phrase it positively: We should welcome truth and enlightening insight whenever offered, regardless of the source. Do not let *ad hominem* arguments affect your critical judgment about the soundness of this presentation. Assess the work, not the man, for the work is always greater. And having judged the work affirmatively, render true acknowledgement — not lip service — by sharing the ideas in this book with others. Only free, informed, vigorous effort in the court of world opinion can defuse the possibility of Operation Fer-de-Lance and psychotronic mind control leading to total enslavement of the human race.

In closing, I want to point out that Tom's fundamental concern is the unification and evolution of the human species to a higher form of life through a process that he terms "mind linkage." This stage of growth to higher consciousness is explored in the latter part of the book. It is a breathtaking portrait of how the spirit of science can lead to a science of the spirit, to a physics of metaphysics.

INTRODUCTION TO THE SECOND EDITION

Since the first edition of *Excalibur Briefing* was published, a great deal of progress has been made on the actual physics of unusual and paranormal phenomena. Indeed, so much progress has been made in the ten years since the 1978 or so cutoff of most of the Excalibur material, that I really should rewrite the entire book. However, time will not permit that luxury at present I am simply too hard-pressed in the strenuous efforts to move a free energy machine to market and to convince our government that unorthodox Soviet superweapons present us with a problem of the gravest magnitude.

Accordingly, the inclusion of one of my latest papers, "Soviet Phase Conjugate Directed Energy Weapons," together with an updated glossary for the entire emerging field, will have to suffice.

The important thing is that **a separate new field of physics is beginning to emerge**. It turns out that what we've gotten on to is a unified field—one can now turn electromagnetic energy into gravitational energy and vice versa. Indeed, gravitational potential is now revealed as simply infolded electromagnetics, and electromagnetics is simply the unfolding of the internal contents of gravitational potential.

Colleagues have already proven it on the laboratory bench, by building both "free energy" devices and practical antigravity devices.

This new, extended electromagnetics—electrogravitation—I have dubbed **scalar electromagnetics**. The key to it is to let the EM force fields fight themselves to a "cancellation," forming a vector zero. If we do this in a nonlinear medium (modulator), the summing/multiplying EM vector forces are locked together and remain as an infolded EM system inside the EM vector zero. This now is a gravitational system. By merely varying (in phase) the summing EM components, one varies the local energy density of vacuum. Rigorously that is a gravitational wave. Further, it is a very powerful G-wave, for we are utilizing EM forces some 1042 times as strong as the normal weak G-force.

Classical EM has taught us to simply discard the components in the zero vector summation, replacing the system of opposing EM forces with a vector EM zero. This of course makes all vector EM zeroes equal. However, it totally ignores the space-time/vacuum stress of the summed forces, and the resulting gravitational implications. Therefore we have been taught to ignore any gravitational aspects of normal EM circuits, and indeed we proceed to release the G-stress effects in the circuits when we build them as we have been taught

Ordinary EM represents the release of the internal stress of gravity. By teaching us to make nonzero EM, scientists have taught us to always release electrogravitational potentials as electromagnetic forces. Thus in classical EM—and in most of the circuits we build—the EM force fields are the primary causative agents. Classically, when these force fields reduce to zero, there is no more electromagnetics going on. That is true, but there can still be a very large amount of gravity and inertial effects going on!

However, quantum mechanics teaches us that the EM force fields are not at all the primary causes. Instead, the potentials are the primary things; EM forces are simply made from these potentials by differentiating operators. And when the force fields are zero, the potentials still exist. Further, when these "forceless potentials" interfere—

even at a distance—real EM effects can still be obtained, in total violation of ordinary EM and ordinary mechanics!

This is called the Aharonov-Bohm Effect, and in 1986 it was finally proven to most physicist's satisfaction. Only the most diehard skeptics still object to it, according to *Physics Today*, January 1986.

At any rate, when we have zeroed the E and B fields, we can still have the potentials, according to modern physics. These potentials can interfere to produce electromagnetic force effects—even at a distance.

Further, the zero summation can be dynamic; that is, the vector components can be varying, so long as they always sum to a zero vector. Actually such a zeroed system now has an infolded, deterministic pattern of dynamic forces, according to the pattern we deliberately construct. Further, the energy of each force component infolded is varying, and thus the overall energy density of local vacuum is varying.

As we said, rigorously this defines a gravitational wave. So the zero-vector approach allows EM wave energy to be turned directly into gravitational wave energy. Now it is the curvature of spacetime that is being varied locally. That's a really astounding thing.

We can now deliberately engineer the vacuum/spacetime itself, with all that that statement implies. Locally we can bend spacetime itself, which Einstein assumed could never be done except by a huge collection of mass—such as a sun, star, neutron star, etc. But here we can do it with simple things such as opposing coils, opposing E-fields, etc. We've just violated one of the sacrosanct, severely limiting assumptions of ordinary (Einstein's) general relativity!

That is, up to now most Western physicists have assumed that the local spacetime/vacuum cannot be curved. They assume that, where we the observer and the laboratory instruments are, only special relativity applies. Locally the observer always has a "Lorentz frame," in that view. This assumption (the local Lorentz frame) means that all the conservation laws apply, and physical reality stays well-behaved where the laboratory is and where we are. Ordinary relativity becomes just a sort of "special relativity with distant perturbations."

The only curvature of spacetime of any consequence is only to be found at or near distant stars, suns, black holes, and other huge collections of mass, in this highly restrictive view. Further, this assumption implies that one can never have an experimental general relativity, since where one is experimenting (locally) there is always essentially zero spacetime curvature!

However, one need not have such a formidable restriction at all. Two bucking transformers can make a B-field vector-zero a little bit. More complex circuits can easily be designed to sum (or multiply) force fields to zero very well. When we do this zero summation, we also get an amazing gain as follows: Consider two electrons in free space. As is well known, the electric field force (repulsion) between them is about 10^{42} times as strong as the gravitational field force (attraction) between them. So the electric force is so very much stronger that the comparatively weak gravitational force can be entirely neglected, in most applications. However, if we "strangle" that electric field force by zero summation, all the opposing electric forces are converted directly into gravitational potential!

Interference of two such potentials can directly generate gravitational forces. So, if

we could zero-sum their E-fields perfectly, we could instantly amplify the gravitational force between the two electrons by a factor of 10^{42} . With such a gravitational force amplification factor, our altered "electrical" circuits would actually become powerful electrogravitational circuits. Further, appreciable gravity effects would now be experienced by any mass, object, or device exposed to the action of the circuits. This is the fundamental secret that Nikola Tesla discovered, one which he never openly revealed.

Further, by locking opposing EM waves together, we may easily construct purely scalar EM (electrogravitational) waves and beams. In such case, amazing new phenomena are encountered: (1) one can increase or decrease the mass and inertia of an object; (2) one can produce a unilateral force in and on each and every nucleon in a body, thus accomplishing the long-sought "antigravity"; (3) a unilateral force drive—a "space drive"—can be constructed; (4) transmutation of elements becomes fairly simply done, with miniscule energy; (5) effects at a distance—such as cold explosions or hot explosions—can be accomplished; (6) negative energy and negative time effects can be created and utilized; (7) Newton's third law can be manipulated and violated at will; (8) negative entropy effects can be created and utilized; and (9) direct energy extraction from the vacuum can be accomplished, etc. So many new effects are encountered that it will take a generation of graduate students and university laboratories to get a good handle on most of them.

The reader is urged to remember these rules: (1) The destructive interference of scalar EM waves (electrogravitational waves) produces EM energy in, or extracts it from, the interference zone. (2) The destructive interference of ordinary EM waves produces gravitational potential energy. (3) The release of the ordinary EM force fields represents the bleed-off of a 5-dimensional gravitational potential as ordinary electromagnetics. (4) The bottling-up of the ordinary EM force fields represents the forced bleed-off of a 5-dimensional gravitational potential as ordinary 4-dimensional gravitational force. (5) The EM field and the ordinary (4-space) G-field are just separate bleed-off's of the same 5-dimensional gravitational potential field.

Thus, I make no bones about it; we have a new physics in the offing—one that is eminently practical and easily engineered by any modern electromagnetics laboratory.

Since the first edition of this book was issued, it has also become obvious that at least two other phenomena are involved in UFOs, and intermingled with the "materializations from the collective unconscious" true UFO phenomena. These two additional things are:

(1) A great number of "lights at night" and "mysterious fireball" type phenomena—and giant balls of light and glowing hemispheres of light of gigantic size—are actually due to deliberate Soviet long range, high energy, real-time holography using phase conjugation. These phenomena are to accomplish orientation and alignment of giant Soviet weapons, and at the same time deliberately evoke UFO reports and scientific skepticism, providing perfect deception.

(2) Several nations of the world—at least two—have been building and flying antigravity spaceships all over the solar system, since the early 1950's. A very small number of UFO ship reports and encounters are due to these ships and their crews. However, control of these ships is not under any duly elected government, but passes out of the government concerned, into and under the control of some mysterious group

which I loosely refer to as "the control group." This is the same mysterious group which has been suppressing free energy and antigravity inventors and inventions for a great number of years.

Thus in *Excalibur Briefing* we are still addressing the primary UFO phenomena: Materializations from the collective human unconscious. Coverage of the other two parts of the overall reported UFO phenomena will be made elsewhere.

So it seems that, under my hard-pressed circumstances, the best thing to do for the second edition of *Excalibur Briefing* is to include something that shows some of the drastic progress that has been made. By adding a glossary and a current paper, the book will also be made much more usable. I also have prepared an index for the first edition, but it cannot be included because of space limitations. Admittedly that is regrettable and still not the optimum, but it will have to suffice. Perhaps in the future I will be able to do a complete rewrite of the book, for *Excalibur III*.

Until then, I ask the reader's indulgence and understanding.

* * *

In the first edition we accented the hyperspatial aspects of the problem, but also pointed out that higher dimensional spaces and deeper nested levels of virtual state are in fact one and the same thing. The reader should keep in mind that when we "inter-*nest*" vector zero systems, we are performing direct engineering in hyperspace.

Let me be more specific. When you zero sum a group of EM force vectors, you place those component vectors "inside the zero," so to speak. In modern language you have placed ordered patterns directly inside the violent flux of virtual particles comprising the vacuum. The modern concept of the vacuum is that it is like a seething plasma or gas. However, it's a very strange gas, for each particle arises spontaneously out of nowhere (according to quantum mechanics), and almost immediately turns into something else and/or disappears. Thus the vacuum plasma or gas is rather peculiar; the particles comprising it appear and disappear so rapidly that they cannot individually be detected. However, while a virtual particle exists, it is in motion, and so a violent flux of these "phantom particles" comprises the vacuum/spacetime.

However, just as many fleeting particles in the vacuum are moving backward in observer time as are moving forward in it! So this wild "vacuum gas" of ghost particles exists in both positive and negative time at once!

Anyway, when we make a zero vector EM system, each component force in the summation represents a gradient in this virtual particle flux. That is, we have "patterned" and organized the flux—polarized it, so to speak. And that now overturns one of the fundamental assumptions of quantum mechanics.

Quantum mechanics assumes that the violent flux of vacuum ghost particles is totally randomized. That is, no deterministic pattern exists in the flux. These virtual changes collect or cohere statistically, not deterministically, in the standard assumption. When they happen to collect/cohere sufficiently, the threshold of an observable quantum change is breached, and a quantum change occurs.

It can readily be seen that, in the ordinary view, the occurrence of these quantum changes is totally statistical. And indeed it is, so long as the virtual particle flux is randomized. However, with zero vector summation (or multiplication) we have produced

deterministic patterns in the flux—and hence in the cohering and collecting of this flux on observable charged particles. Therefore, these deterministic "virtual state" ordered patterns will result in the appearance of deterministic patterns in the occurrence of observable quantum changes.

Now we have begun to engineer physical reality directly; that is, one can now begin to pre-determine which statistical change shall be favored, or in the extreme case, which one shall occur, and whether or not it shall even occur at all.

The renowned physicist, David Bohm, has written a theory of "hidden variables" which could fit and describe all of physics (nothing out there contradicts it). It has largely been ignored, and will continue to be ignored unless it can show appreciable application that normal theory cannot cover. With the scalar EM approach, we can now directly provide hidden EM force field vectors, ordering the virtual state vacuum flux, and we may vary these ordered virtual patterns at will to produce startling new results in charged particle systems. So now we can directly engineer Bohm's "hidden variables," and the vacuum itself—something ordinary theory cannot cover. Drastic changes in the physicist's view of fundamental physical reality, and of what he can do about it, now result

But to return: We wish to engineer additional hyperspaces. (The first zero-vector summation places the component vectors in the fifth dimension.) If we take one of the component EM vector forces in the first zero vector summation, and we then take a point on it as yet another "reference zero", we may encapsulate a second series of zero-system summation vectors into and within that zero-point. In this case we have placed these second vectors into yet a deeper level of virtual state vacuum. That is, we have reached into yet another hyperspace with our engineering and control. Indeed, we have placed the second system EM vectors into the sixth dimension. So we have become true hyperspace engineers.

The process is repeatable as desired. We may reach any hyperspace we wish, as our technology and control develop.

Now we see the impact. In modern Kaluza-Klein geometry, one needs about 11 or so dimensions if one is to account for quarks, charm, etc. Now we have a direct tool to reach into any one or all of these hyperdimensions and affect the exact particle or component desired. We will be able to engineer matter—including the nucleus, and including inside the proton and neutron—in almost any way we wish. It all follows from scalar electromagnetics, which allows the direct engineering of hyperspace in all its dimensions.

Remember, engineering in hyperdimensions is just the engineering of nested levels of vacuum potentials. Even more startling, we can also place "thoughts" and effects directly in the mind itself, including the unconscious mind.

As we stated in the first edition of this book, we may model the mind as simply an objective 3-space, three turns away from the 3-space of the ordinary physical world. If we nest two or more additional zero-vector systems in our first one, then we have placed affects ("vectors") directly inside the mind itself. If we know the code of the human brain-tuner, we can now manipulate the mind directly. Electromagnetically, by scalar EM. And it appears that the Soviet Union has begun to reach this frightening capability.

Disease patterns may be induced upon ordinary EM carriers in the same manner,

by nesting the zero-vector systems. That is, of course, if one has measured the scalar patterns evident in the induced disease, say, in the Kaznacheyev-type experiments with the desired disease patterns. The reverse is also true: Nesting the patterns in the proper context on EM field carriers can cure diseases such as cancer and leukemia, as evidenced by the Priore device.

One can also make a practical "free energy" device by setting up a standing scalar wave resonance in a localized region or device. From the "high stress" point to the "low stress" region of vacuum formed by such a standing scalar wave, a literal "river of energy" is flowing in the vacuum itself. Once the river is established, only the "leakage" need be replenished. Hence, if one builds a special sort of "paddle wheel" to react with the river and turn in it, one obtains shaft power freely from the localized curvature of spacetime. In that case, an ordinary generator can be driven by the shaft torque to provide very cheap, or "free," electrical energy.

Several inventors—three of whom I work with in one respect or another—now have demonstration models of such machines, which take diverse forms.

Because of the extreme importance of these emerging potentialities, in recent years I've concentrated intensely upon the properties of the vacuum as spacetime, and uncovered shortcomings (and downright errors in many cases) in ordinary physics and electromagnetics. Slowly the scalar EM picture has emerged, and a series of papers has been written and published to develop the concepts of the new approach.

The scalar approach also includes the ability to engineer negative energy and negative time flow. The reader is referred to Chapter 4, "Extraordinary Physics," of my forthcoming book, *AIDS: Soviet First Strike*, Tesla Book Co., P.O.Box 1649, Greenville, Texas 75401 for a summary of the vast importance of the time-reversed EM wave (phase conjugation).

Let me here just accent a rule of great importance: It is actually the key to negative energy, negentropy, antigravity, free energy, transmutation, Tesla's wireless transmission of energy at a distance without loss, Tesla's original magnifying transmitter, and many other things.

First we need the expression CPTEGS, where C is charge, P is parity, T is time flow, E is energy, G is gravity, and S is entropy. We shall be concerned with the algebraic sign of each term in the expression. The rule deals with photon interaction with a charged particle inside an atom. Normally, incident photons interact with an electron in the electron shells, so C is normally negative. This produces normal parity, and causes the normal or positive flow of time, so T is normally positive. The normal kinds of energy, gravity, and entropy are experienced, so energy is positive, gravity is positive (attraction), and entropy is positive (progressive interactions in a system tend to more and more disorder).

The astonishingly powerful rule is this: In a photon interaction with a charged particle in an atom, if any one of the terms of the expression CPTEGS is reversed in algebraic sign, all the other terms are reversed in algebraic sign.

Thus if one makes scalar EM, the wave (and its photons) passes through the electron shells and interacts with (is absorbed in, and raises to an excited state, which then decays to emit a wave and photons) the highly nonlinear, positively charged nucleus. This represents a reversal of C, hence a reversal of P, T, E, G, and S also.

Consequently, a time-reversed wave—a phase conjugate replica of the incident

wave—is emitted by the decaying excited nucleus. In nonlinear phase conjugate optics, this is the mechanism that produces the phase conjugate wave. This is also the mechanism that produces a very large amplification of the incident wave when a "pump wave" (two waves 180 degrees out of phase) are used in the nonlinear (modulating) medium of the phase conjugate mirror.

(The reader is referred to any good book or summary paper on phase conjugate optics; for example, see David M. Pepper, "Nonlinear optical phase conjugation," *Optical Engineering* 21(2), Mar./Apr. 1982, p. 156-183.).

When one pumps a phase conjugate mirror material sufficiently, then "tickles" the release of the total nuclear excitation energy as phase conjugation replica waves (negative energy), appreciable negative time is produced in the decaying nuclei of the mirror. In negative time, gravity is a repulsion, not an attraction. The mirror thus produces antigravity, and gets lighter. If it is forced to sufficiently high amplification, it can be made to float in air. At higher amplification still, it will accelerate upward.

Some other references of interest to this new edition follow:

1. Robert A. Fisher, Ed., *Optical Phase Conjugation*, Academic Press, New York, 1983. Collection of papers. An extensive bibliography is given at the end of the book.
2. Ya. Zel'dovich, N. F. Pilipetsky, and V. V. Shkunov, *Principles of Phase Conjugation*, Vol. 42, Springer Series in Optical Sciences, Theodor Tamir, Ed., Springer-Verlag, New York, 1985.
3. Amnon Yariv, *Optical Electronics*, Third Edition. Holt, Rinehart and Winston: New York, 1985. See particularly Chapter 16: "Phase Conjugate Optics—Theory and Applications."
4. Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory." *Physical Review*, Second Series. 115(3), Aug. 1, 1959. p. 485-491.
5. R. G. Chambers, "Shift of an electron interference pattern by enclosed magnetic flux." *Physical Review Letters*. 5(1), May 1, 1960. p. 3.
6. Richard P. Feynman, Robert B. Leighton, and Matthew Sands, *The Feynman Lectures on Physics*. Volume II, Section 15-5, p. 15-8 to 15-14.
7. E. T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions." *Proc. Lond. Math. Soc.*, Vol. 1, 1903. p. 367-372.
8. T. E. Bearden, *Solutions to Tesla's secrets and the Soviet Tesla weapons*. Tesla Book Co., Greenville, TX, 1981.
9. T. E. Bearden, *Tesla's secret and the Soviet Tesla weapons*. Presented in absentia at the First International Unorthodox Energy Symposium, Toronto, Canada, 1981. Available from Tesla Book Co.
10. T. E. Bearden, "Soviet weather engineering over North America." 1-hour videotape, 1985. Available from P.O. Box 1472, Huntsville, AL 35807.
11. Gwynne Roberts, "Witness to a super weapon?" *The Sunday Times*, London, England, Aug. 17, 1980.
12. Greg Rippee, "Mushroom cloud sighted off Japan." *Los Angeles Daily News*, Apr. 11, 1984. p. 1, 8.
13. Martin Ebon, "Moscow, June 11, 1977." in his *Psychic Warfare: Threat or Illusion*. McGraw-Hill Book Co., New York, NY, 1983. p. 1-11.
14. A. K. Lapkovskii, "Relativistic kinematic equations and the theory of continuous media." *Soviet Physics Journal* 21(6), June 1978-Dec. 1978.
15. B. N. Belyaev, "On random fluctuations of the velocity of light in vacuum." *Azvestiya Vysshikh Uchebnykh Zavedeniĭ, Fizika*. 11, Nov. 1980. p. 37-42.
16. Ingram Bloch and Horace Crater, "Lorentz-invariant potentials and the non-relativistic limit" *American Journal of Physics*. 49(1), Jan. 1981. p. 67-75.

17. T. E. Bearden, *Comments on the new electromagnetics: Part I: discrepancies in present EM theory*. Tesla Book Co., Greenville, TX. 1982.
18. T. E. Bearden, *Comments on the new electromagnetics: Part 2: the secret of electrical free energy*. Tesla Book Co., Greenville, TX. 1982.
19. T. E. Bearden, *Toward a new electromagnetics: Part III: clarifying the vector concept*. Tesla Book Co., Greenville, TX. 1983.
20. T. E. Bearden, *Toward a new electromagnetics: Part IV: vectors and mechanisms clarified*. Tesla Book Co., Greenville, TX. 1983.
21. T. E. Bearden, "USSR: New beam energy possible?" *Defense & Foreign Affairs Daily*. 13(111), June 12, 1984. p. 1-2.
22. T. E. Bearden, *Star Wars Now! The Bohm-Aharonov effect, scalar interferometry, and Soviet weaponization*. Tesla Book Co., Greenville, TX. 1984.
23. T. E. Bearden, "A conditional criterion for identity, leading to a fourth law of logic." *Pursuit*. 13(1), Winter 1980. p. 6-10.
24. Max Frankel, "Khrushchev says Soviet will cut forces a third; sees 'fantastic' weapon." *New York Times*. Jan. 15, 1960. p. 1.
25. David Bohm and B. J. Hiley. "On the intuitive understanding of nonlocality as implied by quantum theory." *Foundations of Physics*. 5(1), Mar. 1975. p. 93-109.
26. Derek Wood, "USA probes mystery cloud reported off Japan." *Jane's Defence Weekly*. 1(18). May 12, 1984. p. 716.
27. Yossef Bodansky. "Soviets 'testing chemical agents in Afghanistan'." *Jane's Defence Weekly*. 1(13), Apr. 7, 1984. p. 508.
28. "Explosive events seen on Soviet island." *Aviation Week & Space Technology*. Sep. 26, 1983. p. 31.
29. Archibald E. Roberts, "The Tesla Factor." *Bulletin. Committee to Restore the Constitution*, POB 966, Fort Collins, CO 80522. Nov. 1984. p. 1-6.
30. See a series of articles by C. B. Baker in *Youth Action News*, POB 312, Alexandria, Virginia 22313. "Diabolic Soviet Warfare," Nov. 1984; "Soviet Weather Mayhem," Nov. 1983; "The Soviet Zapping of America," Dec. 1986; "Fifth Column Treachery," May 1987, and others.
31. D. W. McCann, "The Enhanced-V: a satellite observable severe storm signature." *Monthly Weather Review*. 111, 1978. p. 887-894.
32. I. J. R. Aitchison, "Nothing's plenty: the vacuum in modern quantum field theory." *Contemporary Physics*. 26(4), 1985. p. 333-391.
33. G. E. Stedman, "Ring interferometric tests of classical and quantum gravity." *Contemporary Physics*. 26(4), 1985. p. 311-332.
34. Peter Hobbs, "Holes in clouds?" *Weatherwise*. 38(5), Oct 1985. p. 254-258.
35. T. D. Lee, *Particle physics and introduction to field theory*. Harwood Academic Publishers, New York, NY 1981. Second printing with corrections, Nov. 1982.
36. Ruggero Maria Santilli. *Ethical probe on Einstein's followers in the USA.: An insider's view*. Alpha Publishing, POB 82, Newtonville, MA 02160. 1984.
37. Bryan G. Wallace, "The great speed of light in space coverup." *Scientific Ethics*, 1(1), Feb. 1985. p. 2-3.
38. Bryan G. Wallace, "Letters to the Editor." *Physics Today*. 36(1), 1983. p. 11,
39. Bryan G. Wallace, "Letters to the Editor." *Physics Today*. 37(6), 1984. p. 15.
40. M. E. Ash, I.I. Shapiro and W. B. Smith. *Astron. J.* 72, 1967. p. 72.
41. Bryan G. Wallace. *Spectrosc. Lett.* 4, 1971, p. 79.
42. Bryan G. Wallace. "The unified quantum electrodynamic ether." *Foundations of Physics*. 3, 1973. p. 381.
43. D. E. Thomsen, "Was a fifth force felt?" *Science News*. 129(3), Jan. 18, 1986. p. 38.
44. S. Olariu and I. Iovitzu Popescu. "The quantum effects of electromagnetic fluxes." *Reviews*

- of *Modern Physics*. 57(2), Apr. 1985. p. 339-438. Thorough review of the entire subject of the Aharonov-Bohm effect, from the standpoint of conventional physics. A very comprehensive list of references is included.
45. V. I. Denisov and A. A. Logunov. "The inertial mass defined in the general theory of relativity has no physical meaning." *Teoreticheskaya i Matematicheskaya Fizika*, 51(2), May, 1982. p. 163-170. (in Russian). English translation in *Theoretical and Mathematical Physics*
 46. A. A. Vlasov and V. I. Denisov. "Einstein's formula for gravitational radiation is not a consequence of the general theory of relativity." *Teoreticheskaya i Matematicheskaya Fizika*. 53(3), Dec. 1982. p. 406-418. (in Russian). English translation in *Theoretical and Mathematical Physics*.
 47. Richard A. Blade, "Modification of Maxwell's equations in free space to account for nonzero photon mass and scalar electromagnetic waves." *Proceedings of the Tesla Centennial Symposium*, an IEEE Centennial Activity, Colorado College, Colorado Springs, Colorado, Aug. 9-11, 1984, p. 91-92.
 48. Jack Y. Dea. "Scalar fields: their prediction from classical electromagnetism and interpretation from quantum mechanics." *Proceedings of the Tesla Centennial Symposium*, 1984. p. 94-98.
 49. Robert W. Bass. "Self-sustained non-Hertzian longitudinal wave oscillations as rigorous solutions of Maxwell's equations for electromagnetic radiation." *Proceedings of the Tesla Centennial Symposium*, 1984. p. 89-90.
 50. T. E. Bearden. "Tesla's electromagnetics and its Soviet weaponization." *Proceedings of the Tesla Centennial Symposium*, 1984. p. 119-138.
 51. Theodor Kaluza. *Sitz.* Berlin Preuss. Acad. Wiss. 966, 1921.
 52. O. Klein. *Z. Phys.* 37.895, 1926.
 53. Charles W. Misner, Kip S. Thorne and John Archibald Wheeler. *Gravitation*. W. H. Freeman and Co., San Francisco, CA, 1973. p. 19-21, 71-72, 163-165, 367-369. Presents the limiting assumptions imposed on general relativity, to provide the severely restricted "ordinary general relativity" taught in almost all Western universities. The Soviets are not nearly so attached to such artificial assumptions.
 54. V. I. Denisov and A. A. Logunov. "New theory of spacetime and gravitation." *Teoreticheskaya i Matematicheskaya Fizika*, 50(1), Jan. 1982. p. 3-76. (In Russian). English translation in *Theoretical and Mathematical Physics*, 50(1), July 1982. p. 1-48.
 55. Raymond C. Gelinias. "Apparatus and method for determination of a receiving device relative to a transmitting device utilizing a curl-free magnetic vector potential field." U.S. Patent No. 4,447,779. May 8, 1984.
 56. Raymond C. Gelinias. "Apparatus and method for modulation of a curl-free magnetic vector potential field." U.S. Patent No. 4,429,288. Jan. 31, 1984.
 57. Raymond C. Gelinias. "Apparatus and method for demodulation of a curl-free magnetic vector potential." U.S. Patent No. 4,429,280. Jan. 31, 1984.
 58. Raymond C. Gelinias. "Apparatus and method for transfer of information by means of a curl-free magnetic vector potential field." U.S. Patent No. 4,432,098. Feb. 14, 1984.
 59. Thomas E. Phipps, Jr. "Critique of accepted theories of special relativity and electromagnetism." *Scientific Ethics*. 1(2), Apr. 1985. p. 17-23.
 60. Bertram Schwarzschild. "Currents in normal-metal rings exhibit Aharonov-Bohm effect" *Physics Today*. 39(1), Jan. 1986. p. 17-20.
 61. William J. Hooper, "All-electric motional electric field generator," U.S. Patent No. 3,610,971. Oct 5, 1971.
 62. William J. Hooper, "Apparatus for generating motional electric field." U.S. Patent No. 3,656,013. Apr. 11, 1972.

63. William J. Hooper, *New horizons in electric, magnetic and gravitational field theory*. Akron, Ohio. Electrodynamic Gravity, Inc. 1974.
64. Oleg D. Jefimenko. "Gravitation and antigravitation." *Proceedings of the West Virginia Academy of Science*. 52(2), 1980. p. 106-118.
65. R. C. Jennison. "Relativistic phase-locked cavities as particle models." *Journal of Physics A: Mathematical and General*. 11(8), Aug. 1978. p. 1525-1533.
66. T. D. Keech and J. F. Corum. "A new derivation for the field of a time-varying charge in Einstein's theory." *International Journal of Theoretical Physics*. 20(1), 1981. p. 63-68.
67. Raymond Kromrey, "Electric generator." U.S. Patent no. 3,3374,376. Mar. 19, 1968.
68. M. J. Perry, "Magnetic monopoles and the Kaluza-Klein theory," *Am. Inst. Phys. Conf. Proc.* No. 116, 1984. p. 121-125. Kaluza-Klein theory admits soliton solutions which constitute magnetic monopoles. These monopoles have inertial mass, but no gravitational mass.
69. M. W. Kalinowski, "The nonsymmetric Kaluza-Klein meory," */ . Math. Phys.* 24(7), July 1983. p. 1835-1845.
70. D. J. Toms, "Induced Einstein-Maxwell action in Kaluza-Klein theory," *Phys. Lett. B* (Netherlands), 129B(1-2), Sept 15, 1983. p. 31-35.
71. Fritz Albert Popp et al, eds., *Electromagnetic Bio-Information. Proceedings of the Symposium*, Marburg, September 5, 1977. Urban & Schwarzenberg, Baltimore, 1979. See particularly Fritz Albeit Popp, "Photon storage in biological systems," p. 123-149.
72. A. G. Gurvitsch, *Theory of Biological Field*, Moscow, 1944 (in Russian).
73. V. P. Kaznacheyev et al, "Conditions Necessary for Appearance of Distant Intercellular Interactions after UF-radiation," *Bulleten Experimentalnoy Biologii i Meditsiny*, No. 5, 1979, pp. 468-471 (in Russian).
74. Antoine Priore, "Method of producing radiations for penetrating living cells," U.S. Patent No. 3,280,816. Oct. 25, 1966.
75. David M. Rorvik, "Do the French Have a Cure for Cancer?," *Esquire*, July 1975, p. 110-111, 142-149. Excellent summary of the Priore Affair, with some details of the working of the machine.
76. J. B. Bateman, "A Biologically Active Combination of Modulated Magnetic and Microwave Fields: The Priore Machine," Office of Naval Research, London Report R-5-78, Aug. 1978. Comes very close when he states that "The possibility that some hitherto unrecognized feature of the radiation from a rotating plasma may be responsible for the Priore effects should not be dismissed out of hand..." Indeed, none of the persons who checked the machine or pondered over it knew anything about phase conjugation— which plasmas can do, and which the Priore machines did.
77. J. B. Bateman, "Microwave magic." *Office of Naval Research London Conference Report*, ONRL C-14-77, 1977.
78. R. Courier, 1977. "Expose de M. le professeur R. Courier secretaire perpetuel de l'Academie des Sciences fait au corns d'une reunion a l'Institut sur les effets de la machine de M. A. Priore le 26 Avril 1977."
79. Jean-Michel Graille, *Dossier Priore: A New Pasteur Affair*. De Noel, Paris, France. 1984.
80. Thomas H. Moray, "Electrotherapeutic apparatus," U.S. Patent No. 2,400,707. Feb. 1, 1949.
81. T. D. Lee, *Particle Physics and Introduction to Field Theory*, Harwood Academic Publishers, New York, 1981. See particularly Chapter 16, "Vacuum as the source of asymmetry."
82. Royal R. Rife, "The Rife Microscopes," Apr. 28, 1939.
83. Arthur Isaac Kendall, "Filtration of bacteria; studies in bacterial metabolism," *Science* 75, Mar. 18, 1932. p. 295-301.
84. R. E. Seidel, M.D. and M. Elizabeth Winter, "The new microscopes," *Journal of the Franklin Institute*, Feb., 1944. p. 103-129.
85. Christopher Bird, "What has become of the Rife microscope?," *New Age Journal*, Mar. 1976.

86. Lida H. Mattman, *Cell Wall Deficient Forms*, CRC Press, Cleveland, Ohio. 1974.
87. T. E. Bearden, *AIDS: Soviet First Strike*, Tesla Book Co., 1987. (In press).
88. T. E. Bearden, "AIDS: Urgent Comments on Mankind's Greatest Threat, and the Secrets of Electromagnetic Healing," presented in absentia at the U.S.P.A. Annual Symposium, July 30-Aug. 2, 1987, Golden, Colorado.
89. "Tesla Electromagnetics: Weapons or Healing?", presented at the Whole Life Expo, Los Angeles Airport Hilton Hotel, Los Angeles, California, Oct 3, 1987.
90. Stefan T. Possony, "The Tesla Connection," *Defense & Foreign Affairs*, Aug. 1984, p. 12-14, 27. Highly recommended.
91. Daniel A. Walker et al. "Kaitoky Seamount and the Mystery cloud of 9 April, 1984," *Science*, 227(4584), Feb. 1, 1985, p. 607-611. See also Daniel L. McKenna and Daniel A. Walker, "Mystery Cloud: Additional Observations," *Science*, 234(4775), Oct 24, 1986, p. 412-413 for update to the information in the first article.
92. T. E. Bearden, *Fer-de-Lance: A Briefing on Soviet Scalar Electromagnetic Weapons*, Tesla Book Co., Greenville, TX. 1986.
93. T. E. Bearden, "Soviet Phase Conjugate Directed Energy Weapons: Weapons That Use Time-Reversed Electromagnetic Waves," 1987 (in this publication).
94. Yossef Bodansky, "Soviets testing chemical agents in Afghanistan," *Jane's Defence Weekly*, 1(13), Apr. 7, 1984, p. 508.
95. Draft agreement introduced by Andrei A. Gromyko to the United Nations' thirtieth session of the General Assembly on Sept. 23, 1975; "Prohibition of the Development and Manufacture of New Types of Weapons of Mass Annihilation and of New Systems of Such Weapons." The first article provided that the types of these new weapons would be "specified through negotiations on the subject."
96. "Secret Speech: Did Brezhnev come Clean?", *National Review*, 29(8), Mar. 4, 1977, p. 248, 250.
97. "Jetliner drops 32,000 feet; 400 aboard; 50 are injured," Associated Press Release, *Huntsville (Alabama) Times*, Feb. 20, 1985, p. 1. Also "China Airlines Pilot Denies Cockpit Error," AP Release, *Huntsville (Alabama) Times*, Feb. 21, 1985, p. A-9.
98. *Asahi Evening News*, Tokyo, Japan, June 22, 1982. Significant airline sighting by Japan Air Lines flights 403 and 421 of a giant, expanding globe of light on June 18, 1982, in the North Pacific, 700 km. east of Kushiro.
99. T. E. Bearden, "Search for a Unified Theory of Electromagnetics and Gravitation: The Russians Got There First and Weaponized It," 1987 (in publication).
100. T. E. Bearden and Andrew Michrowski, Eds., *The Emerging Energy Science*, P.A.C.E., Ottawa, Canada, 1985.

T. E. Bearden
December, 1987

INTRODUCTION TO THE FIRST EDITION

Today there are a great many books available on UFO's, paranormal phenomena, and wild science, and one more such book ought to say something quite different if it is to be justified. Accordingly, in this book I have tried to say something quite different, perhaps in some cases too different. And so, to assist the reader's comprehension, I would like to explain something of how the book came about.

For the last fifteen years or so I have been interested in paranormal phenomena to one extent or another. Fifteen years ago I started studying Shotokan karate, and later switched to Yoseikan aikido, a most profound and absorbing martial art. I had already started serious reflection on the nature of perception, and after some years of aikido practice I occasionally began to experience what might be called paranormal perception. For example, occasionally, when violently attacked by several opponents, I would suddenly discover myself standing calmly on the sidelines watching the robot-like figures go through the motions of a play, motions that had already occurred in one kind of reality and that were now simply being repeated. On the rare occasions when I experienced this pure zen state of aikido, the techniques became flawless. In fact, the state was not separable into attacker, defender, and technique — rather a single union of the universe occurred. Unfortunately, although I eventually reached Sandan (third-degree black belt), I never permanently attained the complete aikido oneness state; this does not normally occur until the sixth dan level.

However, the occasional experiencing of this pure unity made a deep impression on me, for such aikido is pure meditation in motion, and only in such a state can the individual grasp the nature of perception. Only when conscious activity has stopped ("mind like a moon on still water") is such awareness possible. For several years I then laboriously developed a theory and interpretation of aikido for Westerners and eventually published it privately.

In 1971, while finishing a Master of Science degree in nuclear engineering at Georgia Tech, I put together a first crude theory of perception, which was published in 1973, many rewrites later. By that time I was already deeply engrossed in the study of paranormal phenomena, and especially unidentified flying objects. I had seen several UFO's (the earliest in 1950), and no longer doubted that the UFO phenomena represented some sort of new reality experienced by a great many people.

The UFO organizations at that time seemed to be in disagreement with each other. For twenty-five years or so almost everyone studying the phenomena had been trying to prove the extraterrestrial hypothesis, i.e., they started with the assumption that UFO phenomena were caused by, say, a group of young stalwarts over on planet X of star Y, getting beered up on a Sunday afternoon, hopping into an old space jalopy, and motoring over to planet Earth to jolly the natives. So they vigorously cataloged the UFO reports that fit the picture, and embarrassedly ignored those that did not. Yet most of the phenomena consisted of strange lights at night, not steel-hulled spaceships. And most of the contactee cases — particu-

larly those involving apparent communication and abduction — were regarded as just too far-out for engineers and scientists to swallow. Almost everyone in the UFO organizations seemed to be convinced that Earth was being visited by spacemen from another planetary culture more advanced than our own, and so the UFO enthusiasts looked for hardware and spaceships, no more and no less.

The tabloids were a mess — filled with sensational nonsense about the purported UFO invasion of earth. Some invasion! If the would-be invaders possessed such an advanced technology, why had they spent twenty-five years flitting around the backside of the country and frightening the rural people, instead of simply landing an expeditionary force and having done with it? It seemed that almost no one was really looking at the phenomena in a totally unbiased manner. When one did so, without especially selecting the data, the strangeness of the data went up by orders of magnitude.

So I decided — rightly or wrongly — not to compete with the catalogers, but to try to come to grips with the possible *science* evidenced by the phenomena. I wanted to examine what kind of science was necessary to describe the phenomena and the mechanisms producing them. It rapidly became obvious that our scientific framework was not adequate to explain these events. In fact, our logical framework was not adequate. So I decided to look for a new scientific framework, knowing that the effort would be long and arduous and might not succeed at all.

All the unexplained phenomena seemed to me to be interconnected; for example, a study of Sasquatch will sooner or later lead to the study of UFO's and thence to the study of the other phenomena. So it appeared that they were all different aspects of the same overall reality. Since that reality most definitely involved the mind as well as matter, it appeared necessary to develop a new science incorporating both mind and matter. And so the search and the gradual accumulation of insight continued.

The trail led directly to the great paradoxes of science, the great unsolved problems of philosophy, and the three laws of logic on which all logical disciplines and sciences are founded. Using my perception theory, it was possible to see through the age-old necessity for the identity of opposites, how opposites could be identified, and when they were identified. Thus a fourth law of logic could be written and the system closed.

Slowly the nature (or, more precisely, a model of the nature) of mind became clearer. In addition, mechanisms for materialization and dematerialization appeared, as well as mechanisms for metal bending, thoughtform materializations (tulpas), and telepathy.

But the international strategic balance also could not be ignored. From my military background, the Soviet military buildup toward an attack capability was apparent as early as 1970-71. Moreover, from my work on the Moray radiant energy device I had discovered what I believed to be the basic theoretical mechanism used by T. Henry Moray to tap the zero point energy of free space. (This mechanism powerfully amplifies virtual state into observable state.) And positive evidence suggested that the Soviets had obtained the secret of how to make the Moray detector tubes. Putting this together with psychotronics produces an astounding weapon capability — and the Soviets must have had such capabilities already on site and others in development.

I looked for evidence of these weapons, and the evidence was there, cleverly — even diabolically — concealed.

When I then realized the *entity* nature of the collective human unconscious, everything fell into place. Suddenly the different major waves of UFO's made very good sense, as did the cattle mutilations, the Soviet buildup, Khrushchev's 1960 statement about fantastic weapons, Brezhnev's 1975 reference to the development of weapons more frightful than man had ever conceived, the long years of microwave radiation of the U.S. Embassy in Moscow, the Legionnaires' disease, etc.

The intelligence community had completely missed the fact that the Soviets had been working on a psychotronic Manhattan Project for thirty years. Not a soul in officialdom would believe that such capability could be achieved by surprise. This is not because of a deep conspiracy of the government (although I believe one of our high intelligence officials may be a Soviet agent, a sort of Penkovskii in reverse, who has been personally responsible for preventing any serious U.S. governmental research into psychotronics and UFO's); rather, it is because of all the personal arrogance, bias, power-seeking, manipulation, and maneuvering that now make up so much of our top managerial base in government.

So I decided to put out the information for all to see. There is still time — but just barely, I think — to build psychotronic defenses and prevent the launching of the Soviet attack. But we must move swiftly if Fer-de-Lance, the Soviet attack plan, is to be frustrated, for the eleventh hour is here.

Moreover, there is a single human problem responsible for all the ills that man causes man, and that problem has a technical resolution that is well within our grasp. I firmly believe that by psychotronics, the minds of all men can be linked into a great supermind having absolute psychokinetic mastery over time and space — literally a godlike being, in whom the collective human unconscious has a collective conscious instead of the four billion fragmented individual personal conscious minds it has at present. The initial psychotronics linkage mechanism is just a tool; after linkage is accomplished and stabilized, such props will not be necessary.

This is my real goal. Even if the U.S.S.R. launches Fer-de-Lance, annihilates NATO and China, and obliterates all Western retaliation with a stunning blow, and even if the collective unconscious then psychokinetically lashes back with the violent destruction of the Eurasian continent, linkage is still the goal and the final resolution. Should the apocalypse come to pass, there will still be time, in the midst of the horrendous collapse of civilization, to gain the final solution.

And it is the final and total solution. All the parables in the Book of Revelation will be realized. The grave literally will give up its dead — for with the overcoming of time and dimensionality, all that ever has been or ever will be, *is*, in one great oneness, allness, Omega, "I am that great I AM."

That is the goal, and it is toward that end that this book is written.

Please note that a listing of the research and reference works mentioned in the text can be found in the bibliography.

PART ONE

**A SAMPLING OF
SPECIFIC PARANORMAL
PHENOMENA**

In this section I show a sampling from the world of the paranormal, including UFO's of various kinds, psychotronics, Loch Ness monsters, Sasquatch, bigfoot, superfoot, psychokinesis, remote viewing, psychic photography, and a host of other phenomena— all explicable by the theories presented in Part Two.

I fervently believe that a theory can be constructed to explain our lives, including all the strange phenomena as well as the more familiar happenings. In this book a serious attempt has been made to point the way by developing what I believe to be the basic concepts, and by showing that a host of phenomena do seem to be consistent with the schema.

Let us hope that science and scientists are not after all dead, and that they will shake the cobwebs from their eyes and set about particularizing a new paradigm of mind and matter. When the top theoreticians and experimentalists wake up and join in the effort, my task will be finished.

THE VESTIGIA MYSTERY LIGHT EXPERIMENT

Let me start by introducing you to Vestigia, a very fine, relatively new organization that has been formed to study mysterious and unusual phenomena in a scientific manner. This organization, of which I am happy to be a member, is headed by Robert E. Jones and the investigation of the mystery light is spearheaded by James McGrath and Bill Wagner. (The informative *Vestigia Newsletter* is published by the organization. Persons interested in the objective scientific study of unusual phenomena are cordially invited to contact Vestigia at P.O. Box 1183, Perth Amboy, NJ 08861.)

Vestigia's ongoing investigation of a mystery light in Morris County, New Jersey is a classic example of the manner in which mysterious phenomena may be studied in a scientific manner, and it should serve as a model for other investigative groups. Vestigia's experimental work has exemplified careful planning, close teamwork, proper scientific equipment and preparation, and the patience and persistence that are essential when performing fieldwork experiments in the field of unusual phenomena.

I wish to stress in advance that Vestigia does not endorse my own theory of the possible nature of mystery lights; in fact, the organization very properly remains openminded. Also quite properly, they practice scientific conservatism in studying the possible nature of the phenomenon; at the present time they strongly favor the theory of the piezoelectric effect. Substantial evidence for this thesis includes the presence of a known geological fault in the local area, the presence of piezoelectric minerals in the local granite (e.g. thirty percent quartz), close association of the incidence of the phenomenon with subsequent local earth tremors, conditions favoring the accumulation of a surface charge (e.g., metal railroad tracks oriented parallel to the geological fault), and enhancement of the phenomenon under study. And this is exactly how Vestigia is in fact proceeding.

In science, the prevailing world view is not to be dismissed lightly since a great deal of experimental data has been gathered to substantiate it. And a single experiment cannot establish the need to correct that solidly based view, even if the experiment at first appears puzzling and not in accordance with the accepted view. Only after many exhaustive studies have found the world view inadequate, may a

paradigm properly be changed. From a rigorous scientific viewpoint, then, I am saying that this classic experiment is consistent with my own orthorotation theory, but not that the one experiment proves my theory. The experiment at this point is also perfectly consistent with the more conservative hypothesis that the mystery light is due to the piezoelectric effect. Additional different kinds of experiments are required before either theory will hold. For example, in my own theory, the mechanism of orthorotation must be verified elsewhere, and in the piezoelectric theory, the mechanism that spatially separates the effect from the crystalline material where such an effect normally occurs, must be explained and verified by other experiments.

With these precautionary remarks to the reader, let me now describe the beautiful experiment initiated and still being performed by Vestigia. I will then present my own theoretical explanation, again stressing to the reader that it must be treated as a hypothesis at this point.

Mystery lights occur in many locations throughout the United States and Canada. Vestigia has determined over ninety of them to date. They are recurring phenomena and are often seen near some natural or man-made feature such as a stream, hollow, road, railroad track, field, or mountain.

The mystery light under investigation by Vestigia is located along a one-mile stretch of railroad track in Washington Township, Morris County, New Jersey. The light has been seen by hundreds of people at one time or another over the last twenty to forty years. Dr. C. Louis Wiedemann describes it in the *Vestigia Newsletter*: "Appearing at night, it is said to bob or sway from side to side in the manner of a swinging lantern, and when approached it vanishes, sometimes reappearing at a more distant point."

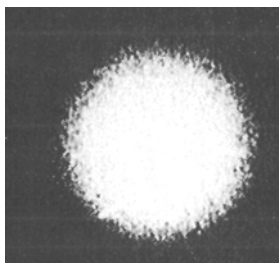
Quoting from the *Vestigia Newsletter*:

The preplanned battery of experiments and observations was conducted on the night of November 20-21, 1976. Three observation posts were established along one mile of railroad track, and these were manned in shifts by small teams of observers who maintained contact with team leaders via portable radio communicators. Communications were monitored and instructions were issued from a command post which was maintained in two vans joined in a T-configuration adjacent to the central observation post (Post 2).

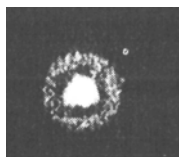
The vans contained electronic equipment valued at \$30,000, which was wired to sensing devices along the railroad tracks. Four thousand feet of silver plated fine copper wire was laid between the rails and attached directly to an amplifier and oscilloscope in one of the vans, to detect variations in electrical frequency and amplitude. Other cables were attached directly to the rails, providing a capacitance test. Other devices included a Geiger counter, thermometers, a methane gas detector, a barometer, a parabolic listening device, a radar unit, an infrared sensor, and a sensitive compass. Personnel at observation posts were equipped with binoculars and cameras. One tripod-mounted camera equipped with infrared sensitive film was located near the rails at Post 2.

James McGrath, a member of Vestigia's executive board, acted as advisor to the team. Team leader was electrical engineer William S. Wagner who was assisted by Jack Mazzuchelli. In all, sixteen persons were actual members of the team, and a total of twenty-one persons participated that night. A number of these were members of the Unexplained Phenomena Club of the County College of Morris, headed by the club's president, Steve Hopler, and vice-president Mary Ann Barron.

Shown here are six of the seven infrared photos of the mystery light which were taken by the Vestigia team. The frames shown are frames two, three, four, six,

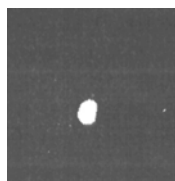


Frame Two



Frame Three

Photo 1. The Vestigia mystery light experiment.



Frame Four



Frame Six

seven, and eight. The camera with infrared film was located at Post 2. Frame 1 was a test frame. Simultaneously with the recording of frame 2 at Post 2, observers looking from Post 1 reported visual observation of a light. The light was not seen by observers at Post 2. A second camera with ordinary film recorded only a pinpoint of visible light.

In the photograph, frame two recorded an image of an apparently plexiform spheroid of dynamic granules of light invisible to the eye of the cameraman. At the same time, observers from Post 1 looking back reported visual observation of a light.

In frame three, within about fifteen seconds the image has decreased in size and the plexiform spheroid is now a thinner corona around a dense, nearly hexagonal center.

In frame four, a dense but small irregular or oval image can now be seen. Frame five, not shown, is quite similar.

In frame six, a substantial decrease in size is apparent.

In frame seven, again the image size has increased, and again it possesses a dome central core surrounded by a thinner spheroidal corona of dynamic granules of light. Also, several separate satellite images are now visible at some distance from the main spheroid.

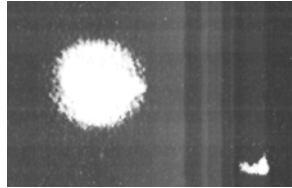
Frame eight is very similar, except that the satellites are no longer visible and the light in both the core and the corona is not quite as dense.

To describe the experiment precisely, the following passage is taken from Dr. C. Louis Wiedemann's article in *Vestigia Newsletter* No. 2, Spring 1977:

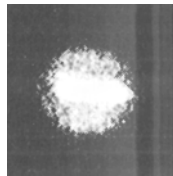
Following several hours of equipment testing and calibration, at 10:21 P.M. two observers at Post 1 radioed the message that they had a "light" under visual observation between their position and Post 2, at an apparent distance of 300 to 400 feet from Post 1. Post 2 observers immediately scanned the area with binoculars and radar, but no object or light was detectable from that position. The yellowish-white light remained visible from Post 1 for approximately one minute and thirty-five seconds, initially approaching the tracks from a lower position off to one side, but soon positioning itself over the rails, and then seeming to sway from side to side in a pendulum-like manner. Its size was estimated between three and six inches in diameter, and for awhile the observers believed it was approaching them. When it vanished, the disappearance was sudden, as if the light had been "switched off."

During the period in which the light was under observation, personnel at Post 2 took pictures of the apparent darkness, and continued to search with radar and binoculars. Two observers at Post 3 briefly saw what appeared to be an orange light between their position and Post 2. While the main light was under observation, several of the instruments in the command post gave unexplained readings. Most notable among these was the oscilloscope's display of an electrical frequency in the range of 40,000 Hertz. Additionally, the capacitance test showed the apparent presence of a conductive body between or over the rails. Nine minutes after the light had vanished from view, the Geiger counter (whose sensor was between Posts 2 and 3) indicated a full scale reading of greater than 5 mr per hour, lasting ten seconds. Normal background radiation was then recorded for five to six minutes (0.1-0.2 mr/hr), whereupon another full scale reading was displayed for approximately seven seconds.

The pictures were enlarged from small images which appeared on the infrared film which was exposed through a 135 mm telephoto lens from Post 2 by Richard Larkin. Film employed was Kodak high speed infrared No. 2481, which is sensitive to infrared radiation to 900 nanometers, with maximum sensitivity from 750 to 840 nanometers. The lens opening was f/3.5 with the apera-



Frame Seven



Frame Eight

ture set at infinity. The second frame (frame 2) was exposed between 3 and 5 seconds, and the others were varied in exposure from 3 to 10 seconds. Intervals between exposures were between 10 and 15 seconds.

High speed (non infrared) film in a camera which was hand-held by James McGrath at Post 2 also produced several images of an apparent point source of light above the rails (not shown here). Jack Mazzuchelli observed the area through binoculars during the entire time period, and he was unable to discern any light whatever, although he could perceive the rails and the railbed in the faint illumination provided by starlight shining through a partially overcast sky.

As I stated previously, Vestigia has not yet reached a firm conclusion as to the causative agent, but strongly favors the piezoelectric theory, since it offers the simplest explanation at this point. Again, to quote the *Vestigia Newsletter*:

No absolute conclusions can yet be drawn, other than the apparent fact that a phenomenon or set of phenomena did occur. Team leader Wagner theorizes that the phenomenon might be similar to so-called earthquake lights which have been reported to precede seismic tremors in Japan. Interestingly, there were explosionlike shocks or "loud booms" reported by residents of two housing developments several miles distant from the site on December 5 and 6, 1976, and these shocks were recorded by seismographs at Columbia University and elsewhere. Intensity was (-)0.25 to (+)0.38 on the Richter scale. Wagner posulates a possible piezoelectric effect from tension on subterranean rock deposits.

The possible relationship of a piezoelectric effect will be investigated further. Data gathered in Japan tends to indicate the development of subterranean stresses during the passage of a cold front. In the light of this possibility, it is interesting to note that there was a drop in barometric pressure from 29.9 to 29.76 culminating less than one hour before Vestigia recorded the start of the phenomena. A light snowfall preceded the appearance of the light.

Wagner believes that the initial discoveries tend to indicate that the following conditions must be present for the phenomenon to be manifested:

- (1) A geologic fault in the local area.
- (2) The presence of certain minerals, especially quartz (quartz comprises 30% of the granite in the area under investigation).
- (3) Conditions should permit the accumulation of a surface charge (e.g.: the presence of railroad tracks, because they are metallic).
- (4) The tracks must run parallel to the fault.
- (5) The phenomenon's manifestation tends to occur under conditions of temperature changes as well as extreme changes in temperature.

Wagner states, "Our indications are, at this point, that the lights precede earthquakes or tremors."

Regardless of what hypothesis we begin with, it must be consistent with all the major features of the Vestigia mystery light experiment.

(1) The explanation must show why a light with structured patterns formed and changed. The structured patterns changed geometrically in shape and intensity, as well as in movement and location. This dynamic formation and change was recorded on infrared-sensitive film. The geometrical shapes of the light structures must be accounted for.

(2) Ordinary film recorded only a pinpoint source of light.

(3) The light which was photographed in infrared was not seen by the photographer himself, nor by eight other persons who were observing at the time from Post 2.

(4) Either that light or another was seen visually from a different station.

(5) At the same time as the visual appearance of the light, instruments recorded the apparent presence of a conductive body between the rails or over them.

Specifically, the electrical capacitance between the rails was observed to change — or at least indications to that effect were received on the instruments.

(6) Nine minutes after the main light vanished, a Geiger counter began to read full scale for about ten seconds, then lapsed back to background reading. Five or six minutes later, full scale reading was repeated for about fifteen seconds. About a minute after that, full scale reading was again recorded for about seven seconds.

(7) At the same time as the main light visual sighting, an electrical frequency of approximately 40,000 Hertz was recorded on the oscilloscope.

There were also environmental conditions which may well have been involved in the experimental effects.

(8) Barometric pressure dropped from 29.9 to 29.76, culminating less than an hour before the phenomena were recorded.

(9) There was a temperature drop and a light snowfall preceded the appearance of the light.

(10) The geological conditions strongly favored seismic stress and piezoelectric effects. For example, the local granite contains about 30 percent quartz, and there is a known geological fault not far from the experimental site. About fifteen days after the experiment, seismic shocks were indeed recorded at Columbia University and elsewhere, and they were audibly detected by residents of two local housing developments. The measured intensity of the seismic shocks was from (—)0.25 to (+)0.38 on the Richter scale. It thus appears highly probable that seismic stresses existed on the subterranean rocks at the time of the experiment and that piezoelectric activity was present in the local granite quartz due to these stresses.

(11) Conditions also favored the accumulation of surface charge, and the railroad rails (good conductors) were oriented parallel to the geological fault.

(12) Several thousand feet of wiring existed in the immediate area to connect the different stations and the instruments to the sensors. About four thousand feet of fine copper wire, silverplated, was laid between the rails and fed to an amplifier and an oscilloscope to detect variations in electrical frequency. The capacitance test also used cables attached to the railroad rails themselves. The Geiger counter's sensor was also positioned at the experiment's hot spot and wired to the equipment van. Additional equipment and wiring was also used.

Finally, preliminary surveys of the area were carried out by persons of known paranormal sensitivity several days before the main experiment. Before conducting the major experiment, Vestigia interviewed persons who had seen the light and also conducted preliminary site studies using psychics. One nationally known psychic was brought to the site by Vestigia's president Robert Jones, and asked to walk along the tracks. The psychic reported impressions of some personal tragedy, perhaps a gruesome murder. Later several other persons with heightened psychic sensitivity were brought to the site, and they reported psychic impressions.

In all, three psychics were brought to the track. The only directly correctable result was that all three had a reading in the same area on the stretch of track, within sixty feet of the sighting of the night of November 20-21. The psychics' own interpretation of their readings differed considerably.

UNEXPLAINED GENERATION OF ELECTRICITY

Some additional data exist to indicate the generation of electricity by rocks and

the generation of unexplained electromagnetic energy radiated from the earth, ocean, or atmosphere.

For several years T. Townsend Brown has worked in electrogravitics and holds many patents in the field. Some of his laboratory experiments have positively demonstrated a direct connection between electric currents, electric charge, and gravity, although the exact nature of this connection has not yet been fully explained. Nevertheless, it can be shown that highly charged objects do not behave in a gravitational field exactly as predicted by classical theory.

Furthermore, in 1974 Santilli succeeded in proving that one of the classic assumptions of physics is wrong, namely that electric field and gravitational field are mutually exclusive. Santilli proved that gravitational field and electric field are either partially or totally the same thing, in contradiction to present assumptions.

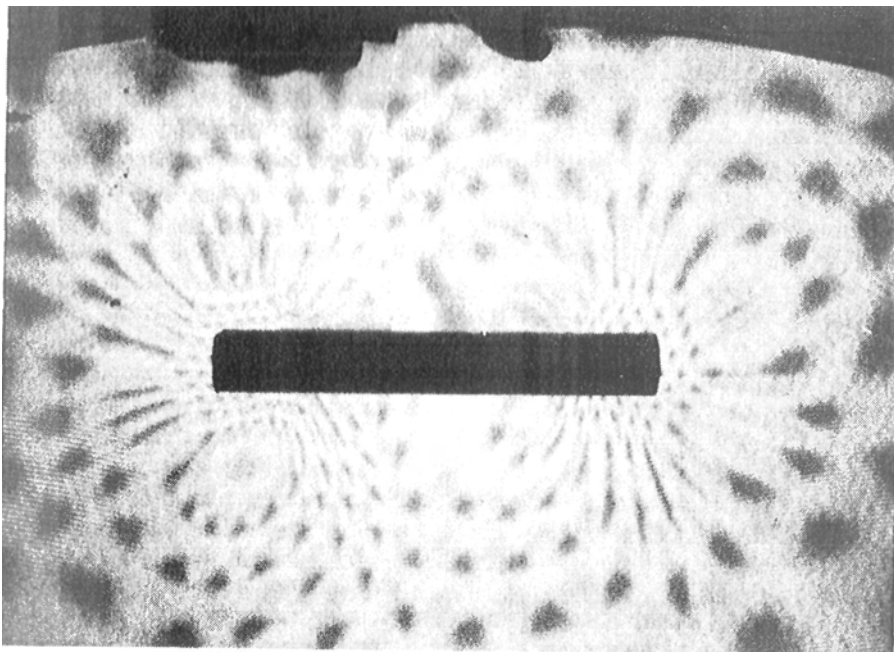
Over a decade ago, Curtis reported the measurement of very low frequency electromagnetic signals generated over the ocean that are not accounted for by any presently known mechanism or theory. Although Curtis published several articles on this effect, no further investigation has appeared in the literature.

Finally, there is a certain location where the generation of an anomalous electromagnetic signal occurs continuously. This is McGregor Missile Range (U.S. Army), where Army units fire air defense missiles such as Nike Hercules and Hawk. As a young captain, in 1961 I headed up the Hawk Evaluation Team at McGregor Range and directed the Hawk missile firing. About sixty-five kilometers out in front of the Hawk missile sites and downrange, there was a most peculiar source of electromagnetic noise, which could considerably affect a Hawk illuminator (continuous wave) radar when the radar antenna was oriented in that direction at a low elevation. In that case the radar would continually noise-lock (make and break lock-on) on the noise signal, dithering slightly as it continued to try to resolve a coherent radar return signal. This noise source was always present, in all seasons and temperatures, and so we simply made each Hawk unit commander and his personnel aware of the phenomenon. On one occasion I even vectored a helicopter with an investigation team to descend on the site and inspect it. All they found was the usual surface of the desert floor, with sparse growths of greasewood and cactus. There was nothing which could serve as a generator or reflector.

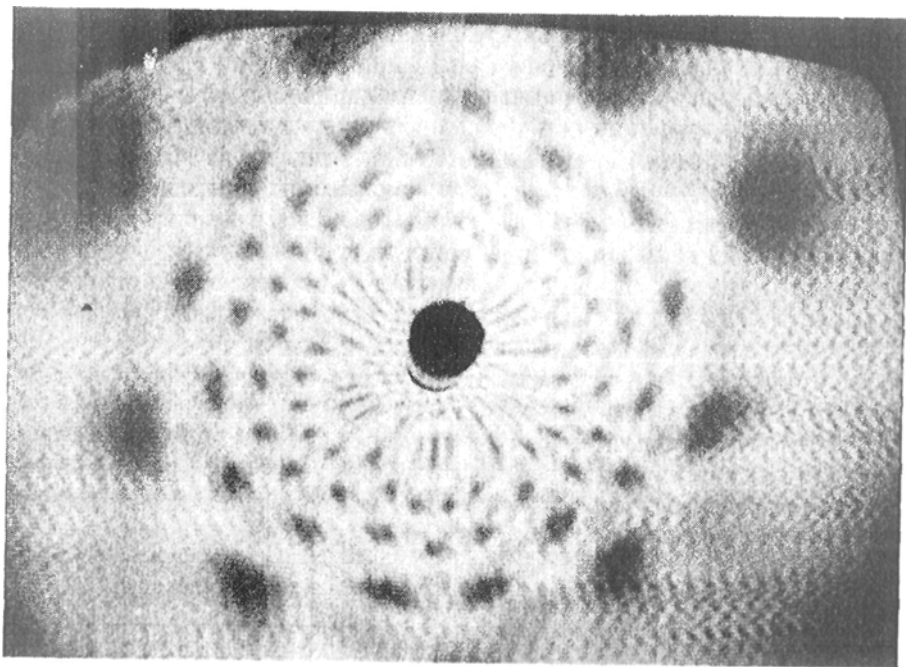
At one of our other missile sites in the U.S., there was a strange reflector mechanism located at some distance from the site and at about 15,000 feet altitude. This was rigidly fixed in location and unvarying, and the unit radar personnel often used it to calibrate the range of the radar. They simply locked on the reflecting point and fine-adjusted the radar range dials to indicate exactly the known range to the reflecting point. Here again, personnel on their own initiative vectored an aircraft directly through the point and searched the air in that area, but nothing at all could be found.

HYPERFIELD GENERATION OF PHOTON PATTERNS ABOUT A BAR MAGNET COLLECTOR

The magnetic field has more fundamental components which integrate in the virtual state to form it when two successive orthorotational thresholds (quantum thresholds) are breached. Furthermore, in the picture of a bar magnet taped to the

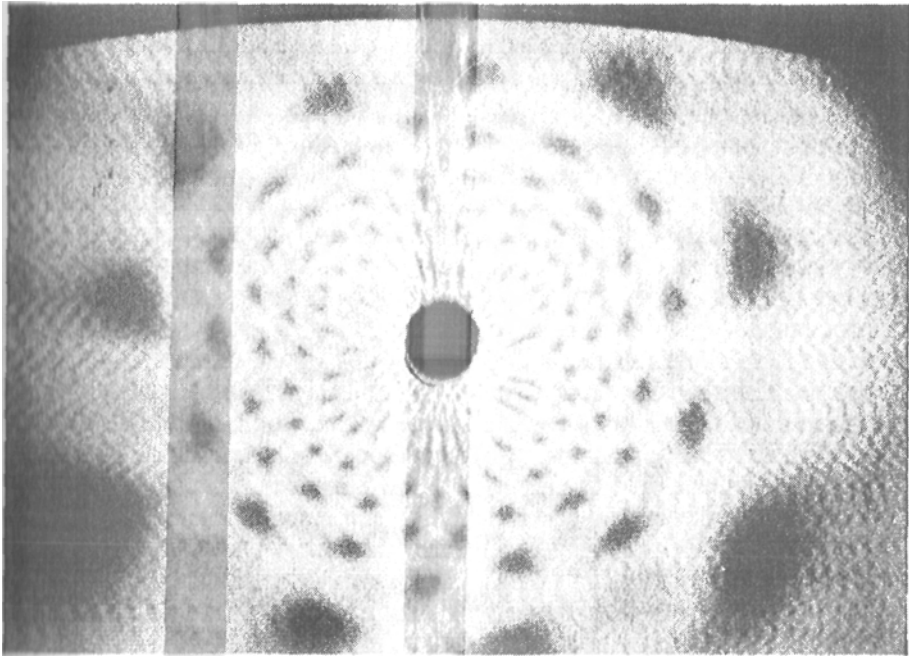


Magnet 3/4" dia. x 6" long taped to face of a color TV tube approximately 1200 Gauss.



South pole end of same magnet taped to face of color TV tube.

Photo 2. Hyperfield flux in a magnetic field.



North pole end of same magnet taped to face of color TV tube.

face of a color television tube, one can see that the hyperfield orthogonal circulations in the magnetic field arc not symmetric about the two poles; i.e., the pattern is quite different around the north magnetic pole from that around the south magnetic pole.

Around the north pole, the hyperfield circulation is emitted in the form of a hexagonal solid. Thus there is an intense hexagonal orthorotation about the north pole. Radiating conically out longitudinally is a toroidal null zone, at an angle to the longitudinal axis projected away from the north pole into space. At an even higher angle, another concentric cone is radiated out in the same direction; this higher cone is an emission cone where photons are being generated. Thus viewed from the north end, and at a distance from the magnet, the pattern shown in the right figure of the slide emerges. The pattern is a ring of light or light bubbles, surrounding a concentric ring neutral zone, which in turn surrounds a hexagonal center of intense emission.

If frame three of the Vestigia mystery light photos is examined meticulously, this exact pattern is seen, allowing for the dynamism of the phenomena and for slight nonlinearity of the spatial medium in which the photons are emerging by orthorotation.

On the other hand, looking at the left hand figure on the slide, we see that the outer emission ring is so thin that it has effectively disappeared; it is radiated at right angles to the magnetic longitudinal axis. The middle null area is also much wider. The densely emitting core area now has a relatively circular cross section at a distance. So the pattern of photon emission that is seen from this end is simply a dense round core. Frames four and five of the Vestigia photos demonstrate variations of this effect, viewed at a slight off-axis angle.

When the magnetic field is observed from the side, only the hexagonal dense emission core of the north pole is seen. In the south pole area, we are looking into a large null area, so no emission at all is seen. Frame eight is approaching this result, with a slight deviation from an orthogonal viewing axis. Also, frames seven and eight exhibit composite structuring from several (three or more) side-by-side magnets of square-end configuration, where the magnet cross section is wide, looking at the end. In that case, the top right picture would be elongated, giving a stretched hexagonal dense core surrounded by a concentric null zone of oval shape, further surrounded by a concentric thin emission zone of oval shape. In frames seven and eight, the outer thin emission zone is roughly spherical, not oval. However, a combination (further composite) of the lower right picture case and the upper right picture case could give the pattern exhibited by frames seven and eight.

And as I show clearly elsewhere, orthorotated hyperfield energy usually emerges with a "burst-in" effect which, in free space, assumes a spherical shape. Thus one would expect a dynamically bubbling sphere of light at the initial "burst-in" of the phenomena, and frame two exhibits this effect.

So the expected hyperfield generation of photon patterns about a localized region of magnetic field (such as a bar magnet or composite grouping of bar magnets), when that localized region of field is in the collection or burst-in and decay gradually mode, would account precisely for the particular structured patterns photographed by Vestigia.

Again, this does not prove the hyperfield hypothesis, but shows that the structural patterns obtained are consistent with it.

HYPERFIELD CIRCULATION PATTERNS ABOVE A MAGNETIZED RAILROAD TRACK

Figure 1 shows the hyperfield circulation patterns above a magnetized railroad track. The general setup of the Vestigia experiment is shown. The rails are oriented parallel to the fault line, which means that the rock stresses are oriented perpendicular to the rails. Thus the telluric currents piezoelectrically induced by the quartz and other minerals in the local granite are also generally oriented perpendicular to the rails and below them.

These piezoelectric currents thus constitute effective coils about the rails, magnetizing them weakly along their length, but this is in addition to their normal magnetism, if any, picked up due to the specific local and atmospheric electricity changes.

In the hyperfield flow pattern for two magnets which are lengthwise parallel and viewed from the end, a primary hyperfield circulation pattern exists both between the two rails and in the air above them. The location is the same, whichever end of the parallel magnets one looks into; however, the circulation direction changes with the change of ends. As the strength of the magnetization of the two magnets changes, the vertical distance above the rails to the plane of the center of the hyperfield circulation pattern (primary) changes. The stronger the field, the higher the center of the pattern, and vice versa.

In addition a secondary (weaker) hyperfield circulation area exists over both rails as shown. As the piezoelectric currents fluctuate in direction and intensity, corresponding fluctuations in the magnetization of the two rails occur.

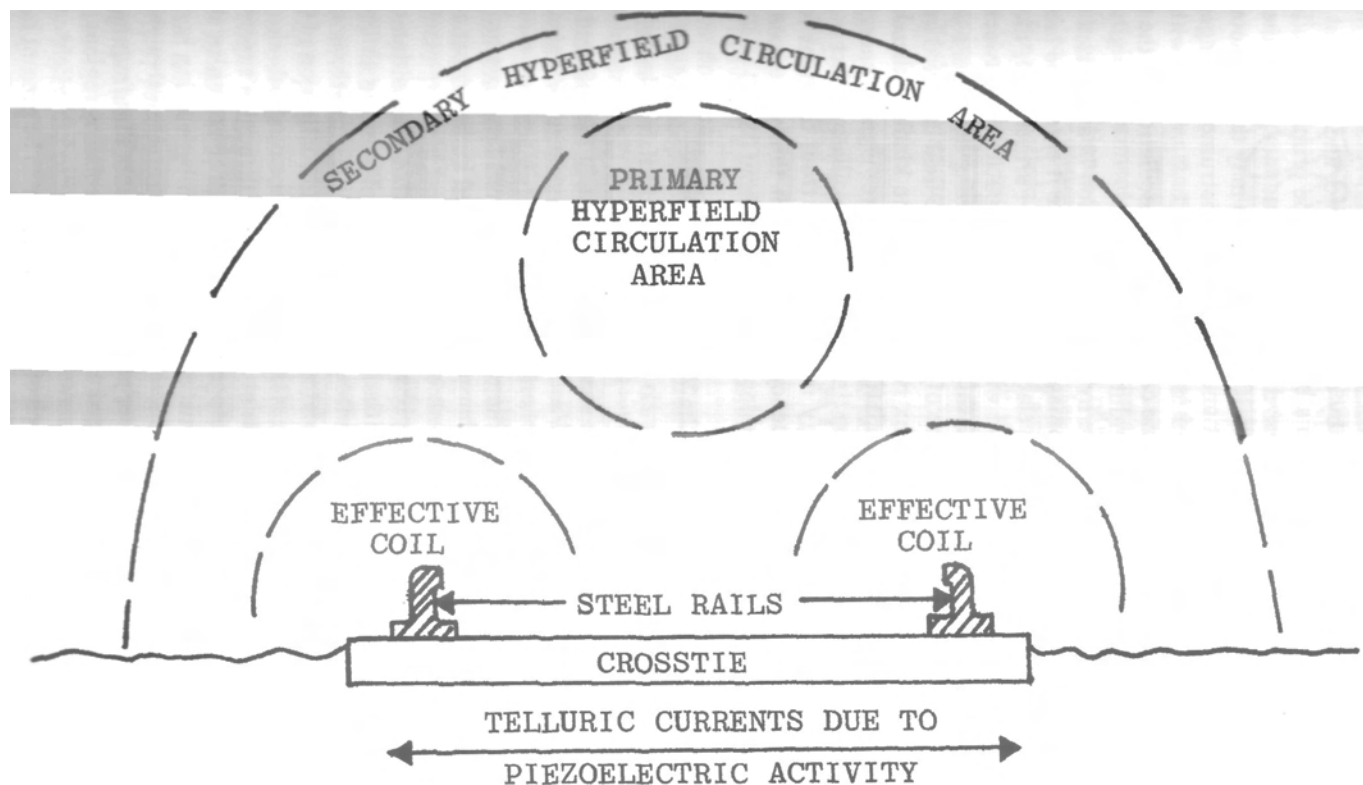


Fig. 1. Hyperfield circulation patterns above a magnetized railroad track

Thus, over the rails there exists a sort of undulating tubular tunnel of primary hyperfield circulation, surrounded by a larger undulating tunnel of half-elliptical cross section. In addition, the terrain and foliage features nearby will have their own hyperfield circulation areas, with flowing currents of hyperfield circulations between them and undulating tunnels over the rails. The final result is a complex flow pattern, which is further modified by atmospheric, ionic, and electrical currents. So a mystery light can kindle into a burst in one of the primary circulation areas and move, usually in a faltering or drift-dart-pause manner, along the undulating tunnels above the railroad track. Structural changes may then be noted as the geometrical aspect between the light and the observer-instrument changes, as additional collection-kindling occurs, and as discharge dampening occurs with the passage of time, due to the discharge time constants of the oscillations of the time dimension itself that are induced by kindling and burst-in.

Note that in the kindling process, the hyperfield circulation in a localized area suddenly bursts into magnetic or electromagnetic field. Since it enters the laboratory frame at right angles, orthogonal relationships result. Furthermore, the appearance of a kindled magnetic field form will change the capacitance between the rails, and a capacitance test will indicate this, as if a conducting body were there. The localized magnet or geometrical piece of electromagnetic field is locked in and maintained as long as the hyperfield flux remains above the kindling threshold. However, since the burst-in of the hyperspatial flux into electromagnetic energy involves the shocking into oscillation of the time channel, an oscillator effect is produced, and electromagnetic signal energy may be radiated from the light form, usually through one of the magic frequency windows which thinly interconnect orthogonal three-spaces. One of these windows is located at about 38,000 to 40,000 Hertz.

Such a signal was indeed recorded in the Vestigia experiment.

Also, at night time the time channel quenching effect of visible light is materially reduced since most visible light is absent. Further, the light-shielded quartz in the underground rocks has two magic windows: one in the infrared and one in the ultraviolet. So the area of the Vestigia experiment constitutes a gigantic kindling mechanism par excellence. With sufficient piezoelectric activity, the collected hyperspatial flux exceeds the kindling threshold required for burst-in, and localized triggering of a discharge or discharges can be initiated in the proper area. The thousands of feet of wire further enhance the collecting and kindling mechanisms. From a physics viewpoint, the living observer is the initiator who initiates the collapse of the wave function, in turn initiating observation. The same ability or property also is required to initiate the kindling of hyperspatial flux into the normal three-space, in my opinion. This is consistent with the rather wide collection of data presented here to show that a living observer can generate or extinguish electrostatic, magnetic, and electromagnetic fields at a distance, even through a superconductive farraday shield. The thought photography examples presented also show that electromagnetic field (light) can sometimes be generated by a living human being, and impress the camera film with the visible light spectrum, even though the light is not consciously seen by the observer's eye. It also appears that frequencies of something other than light, in the infrared and ultraviolet frequency regions, can enter through IR/UV windows and then rotate into the ordinary visible light spectrum and ordinary visible light energy. Such effects also appear to be present in the

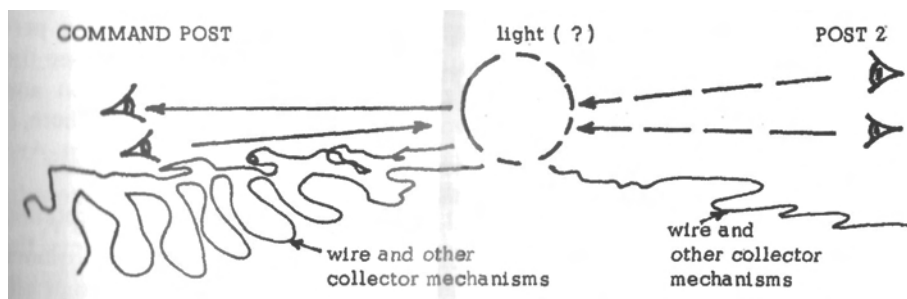


Fig. 2. The cyborg effect and orthorotational sensitivity

Vestigia experiment, since the cameraman himself saw no light, but other posts did. Thus an additional directional effect of the rotation into visible light seemed to be involved.

Since so-called thought energy is simply hyperspatial flux which has a minute one-to-one coherence in its crosstalk with the laboratory frame, the section explaining thought photography deals with hyperspatial mechanisms that are also applicable to mystery lights.

THE CYBORG EFFECT AND ORTHOROTATIONAL SENSITIVITY

In Figure 2, I show how it is possible that one team sees the light and a second team does not.

In the inceptive cyborg effect, each person, each instrument, the wiring, other collectors including the sensors, the other paraphernalia of the environment such as railroad tracks, rocks and their minerals, etc. are all cyborged together into a single instrument in the hyperfield domain. This is precisely because the hyperfield domain is the time channel, and all of these exist at the same time. Further, in the experimental locality, the difference in time between observers, equipment, devices, and aspects is small, because the distances between pieces are relatively small. Hence to the hyperfield channel an appreciable degree of coherence exists

between the various components of the hypersensory cyborg. Yet the overall pattern of coherence has high points and lower points in it, and pattern groupings that vary with the grouping of components. Thus the subgrouping at the command post, for example, may be expected to differ in its hyperfield characteristics from the subgrouping at Post 2. Furthermore, the bulk of the collection wiring, and the rails, were outside the command post, so the greatest collection might be expected at this station.

In addition, the human components of the subgroupings vary appreciably in their sensitivity to hyperfields. Some persons are more positive or attuned than others, particularly in their unconscious minds. In fact, some persons are quite negative and are squelchers of the hyperfield effects—the negative psi effect is well known in experimental parapsychology. However, it is reasonable to assume that there were no psi-negatives on the Vestigia experiment; but there was probably an

appreciable variation in the degree of psi-positive exhibition in the various personal unconsciousnesses. So it is understandable that one post may not see the light, while another would. And with the appreciably greater collection and kindling outside the command post, we would expect the sighting to occur there, if anywhere, as long as a real psi-negative was not present in the command post. And the experiment seems to have exhibited this effect as expected.

Also, I must point out that the visual mechanism for detecting orthorotating energy is different from that for detecting normal visible light, unless the orthorotating hyperenergy is extremely strong and overrides the squelch effect of normal light. (At night the degree required to go into visible light is less.) At any rate, the orthorotational hyperfield energy comes in through the infrared and ultraviolet windows for the most part, and then orthorotates into the visible light region, changing its frequency as it is absorbed by or interacts with a receiver.

Further, the orthorotational energy does not travel through three-dimensional space in the accepted sense that a signal normally does; rather, it is entering this three-dimensional space all at once from a region orthogonal to the entire three-space. It is therefore entering all components of the tuning-receiving instantaneously and simultaneously, or holographically, if one extends the term. Each subgrouping component of the cyborg exerts its own tuning-damping constant(s) upon this holographic signal entry, giving differing degrees of receptive sensitivity, or signal strength, or signal to noise ratio.

So the signal enters each part of the cyborg holographically and the reception characteristics of that portion dampen or enhance the degree of orthorotation into the normal electromagnetic field. Further, the actual orthorotation into the electromagnetic field is occurring primarily at the actual sensor.

For a human being, the primary sensors are the retinal surface of the eye and the skin. The retina is actually a complex structured piece of the brain, so to speak, and extensive nervous system complexes are located there which do extensive on-site signal processing. The unconscious mind of the individual directly interacts at the retina with signals received by the retina, either by hyperspatial orthorotation or by ordinary light. So the individual nervous system is highly variable in its interactions with the hyperfield energy that is orthorotating into ordinary electromagnetic energy in the interaction itself. Briefly, the unconscious state of the observer partially shapes and forms the observed.

In a camera, the sensor is the film. It is thus entirely possible for a camera to record light energy that is holographically rotated in from hyperfield energy without the cameraman himself seeing anything at all. This is especially true when the camera film is sensitive to infrared and ultraviolet to an appreciable degree. A camera containing infrared-sensitive film will interact readily with hyperfield energy because it is open in the magic window between orthogonal frames. A camera containing ordinary film, which is less sensitive to infrared, will interact much less in the magic window because it barely extends into it.

Thus, with other variables held constant, one would expect the infrared camera to record hyperfield energy to a much greater degree than the camera containing ordinary film, and indeed the Vestigia experiment has demonstrated this effect.

Furthermore, the experiment exhibited heightened kindling and collection outside the command post due to the distribution of wiring, components, and rails.

ADDITIONAL FACTORS CONSISTENT WITH THE VESTIGIA EXPERIMENT

First, a cooling effect is often associated with the appearance of paranormal phenomena; this effect is well documented in the literature.

A corollary effect also exists when hyperfield energy is being collected and kindled. Just as lowering the electronic noise in an amplifier increases the fidelity of the signal, lowering the local environmental temperature reduces the "noise" that is blocking the collection and kindling of hyperfield energy. Specifically, reducing the temperature reduces the photon emission and absorption activity of the environment. This lowers the background electromagnetic noise which inhibits orthorotation of the hyperfield energy into electromagnetic field energy. Since photon activity is reduced, the consequent photon squelching of the time channel (precisely detailed elsewhere in this book) is also reduced. This in turn lowers the threshold required for kindling to occur.

Also, a Geiger tube often acts as a collector and amplifier of bioenergy and hyperfield energy. (The association of Geiger counter readings with UFO phenomena has been frequently noted in the literature.)

The Geiger tube may become a detector of hyperfield energy, because the tube's kindling threshold may be significantly lower than that of the environment or of other components such as the observer's eye. Kindling across the Geiger tube's lower threshold simply creates an electrostatic field inside the gas in the tube. In fact, it is the potential ionic current that is the collector, since hyperfields accumulate along probability paths as well as along observationally determined paths, communicating with both future and past. At any rate, the kindling of an electrostatic field in the Geiger tube may result in ionization of the gas if the field is of sufficient intensity. An avalanche discharge may occur and the Geiger counter may indicate a reading (usually appreciable or full scale). This may occur even though no visual phenomena are seen and even though other sensors receive no indication. This reading of the Geiger counter is of course not due to radioactivity. A Geiger counter *does not indicate radioactivity*; rather it indicates appropriate ionization of its internal gas. In this case, the kindling of hyperfield energy into electrostatic field occurred, generating the ionization in the Geiger tube gas.

Note that this occurred in consonance with the visual sighting and the infrared film photos, and when no visual sighting resulted and photos were not taken. Furthermore, as I point out elsewhere, the kindling and burst-in of energy has a discharge time constant, due to the discharge time constant of the oscillation of time that occurs at kindling and burst-in. Depending on the initial amplitude of oscillation at burst-in, the time required to lower the burst amplitude to kindling threshold and below varies. When the amplitude drops below the kindling threshold, kindling and burst-in cease and the hyperfield-induced electrostatic field in the Geiger tube vanishes, stopping the hyperfield-induced ionization of the gas in the tube. The Geiger counter reading then drops back to normal background reading.

The variable amplitude at burst-in and the consequent variation in the time required for the Geiger counter to cease reading the hyperfield-induced ionization were demonstrated in the Vestigia experiment. Furthermore, the Geiger counter

showed a reading twice when visual phenomena were not seen and cameras did not record. Of course, no photos were taken during the Geiger counter readings.

Finally, the drop in barometric pressure also lowers the molecular collision activity of the local atmosphere, and lowers the rate of production of collision ions, electric currents, and photons induced by the collision activity. This reduces the electromagnetic noise, which is squelching the collection mechanism and raising the kindling threshold. It reduces the kindling threshold, making orthorotation of hyperfield energy into electromagnetic-electrostatic-magnetic field energy easier.

Thus, according to hyperfield theory, the major features of the Vestigia mystery light experiment are seen to be within normal expectations. Again, this does not prove the hyperfield-orthorotational hypothesis, but it is consistent with it and therefore constitutes an important piece of evidence for the theory.

Also, I should stress that the piezoelectric theory is in fact included in the hyperfield theory, and is a vital part of it. In other words, the hyperfield theory is an extension of the piezoelectric theory, and in my opinion the extension is necessary if the piezoelectric effect is to fit the experimental results. There are no contradictions between the two theories since one is merely an extension of the other.

REMOTE VIEWING

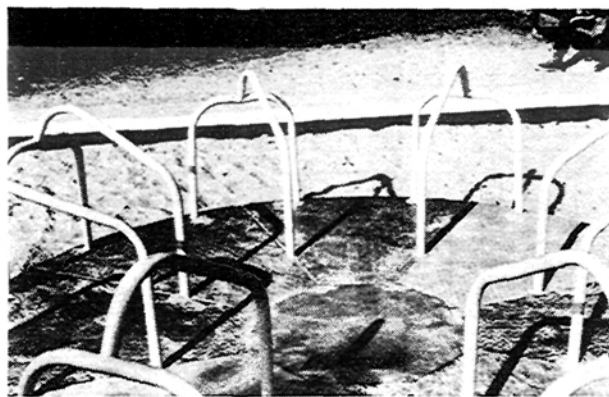
In a classic series of carefully controlled experiments at SRI International, physicists Hal Puthoff and Russell Targ have shown that the human mind can produce evidence of its ability to see at a distance, and also to anticipate the future.

In their protocol one experimenter goes to a distant target, which is selected randomly for him en route, and a subject in the laboratory tries to describe the target scene, both orally and by sketching on paper. The experimenter in the field uses a random number generator to select one sealed envelope out of a group held by a controller accompanying him. The selected envelope is then opened, and that target becomes the target for the experiment. The targets are preselected with rigorous protocol by a group not involved in the experiment.

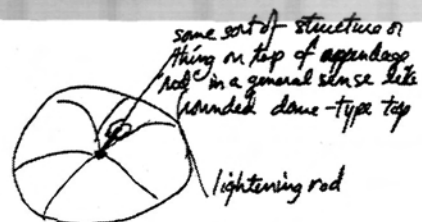
In the experiment shown here, the target selected was a rather unusually shaped playground merry-go-round, with handrails made of bent pipes, as shown in the two photographs. The laboratory subject, in addition to describing the scene verbally, made the sketches shown at the right. As can be seen, the channel is noisy, but there is definitely signal in it.

Puthoff and Targ also obtained some of the best experimental results when the laboratory subject was asked to describe the scene which the field team would see in the future, the target selection via random number generator not yet having been made. A wide variety of subjects — including persons hostile to parapsychology — were used by Puthoff and Targ in their experiments, with good results.

Each particle of mass in our bodies represents one closure of the entire universe — yielding a holographic reality — and deeper communication with ourselves is identical to communication with the universe, including any part of it, at any distance. Furthermore, in hyperspace the future and the past are all present. Since a particle does indeed exhibit a four-dimensional component for 1/137 of the time, each particle does connect to the future and to the past. With selective tuning



Target: Playground Merry-Go-Round.



Top View



Responses.

Photo 3. Remote viewing.

and kindling any part of this holographic reality is accessible. However, because of the smallness of a single selective signal in the midst of the totality, the channel is quite noisy. For this reason skilled psychics ~ persons who have been found to have a greater fidelity of selective tuning - can be expected to produce better results than the normal person.

Puthoff and Targ's results have also been successfully repeated by other experimenters.

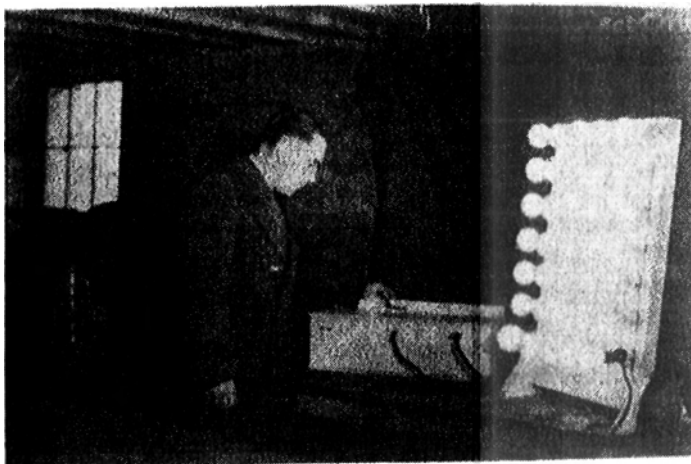


T. Henry Moray makes some final adjustments in tuning his radiant energy device to tap zero-point vacuum energy.

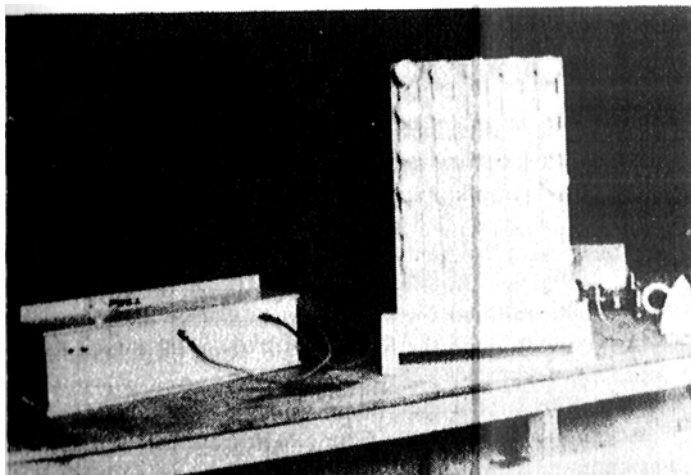
THE MORAY RADIANT ENERGY DEVICE

In the early 1900's, Dr. T. Henry Moray of Salt Lake City produced his first device to tap energy from the metafrequency oscillations of empty space itself. Eventually Moray was able to produce a free energy device weighing sixty pounds and producing 50,000 watts of electricity for several hours. Ironically, although he demonstrated his device repeatedly to scientists and engineers, Moray was unable to obtain funding to develop the device further into a useable power station that would furnish electrical power on a mass scale.

As a boy, Moray had been deeply inspired by the greatest electrical genius of all time, Nikola Tesla. His imagination was especially fired by Tesla's claims to have knowledge of an energy source greater than ordinary electricity, and by Tesla's emphasis on frequencies as the stuff of the universe. When Moray finished high school in Salt Lake City, he went abroad to study, and took resident examinations for his doctorate in electrical engineering from the University of Uppsala, Sweden, during the period 1912—14. Returning home, his diploma and credentials were interrupted by World War I, and the University mailed him these items in 1918 after the war.



Here **the** Moray radiant energy device is providing free power to 35 100-watt lamps and a 1200-watt Iron.



Once tuned in, the power continues and is free for the taking.

Photo 4. The Moray radiant energy device.

Shortly thereafter, Moray produced his first elementary device that delivered measureable electrical power, and he continued to work diligently on energy devices when he had time. In the 1920's and 1930's he steadily improved his devices, particularly his detector tube, the only real secret of the device according to Moray himself. In his book, *The Sea of Energy in Which the Earth Floats*, Moray presents documented evidence that he invented the first transistor-type valve in 1925, far ahead of the officially recognized discovery of the transistor. In his free energy detector tube Moray apparently used, inside the tube itself, a variation of this transistor idea — a small rounded pellet of a mixture of triboluminescent zinc, a semiconductor material, and a radioactive or fissile material. His patent application (for which a patent has never been granted) was filed on July 13, 1931, long before the advent of the Bell Laboratories' transistor.

In test after test Moray demonstrated his radiant energy device to electrical engineering professors, congressmen, dignitaries, and a host of other visitors to his laboratory. Once he even took the device several miles out in the country, away from all power lines, to prove that he was not simply tuning in to energy being clandestinely radiated from some other part of his laboratory. Several times he allowed independent investigators to completely disassemble his device and reassemble it, then reactivate it themselves. In all tests, he was successful in demonstrating that the device could produce energy output without any appreciable energy input. According to exhaustive documentation, no one was ever able to prove that the device was fraudulent or that Moray had not accomplished exactly what he claimed. On the other hand, the records are full of signed statements from physicists, electrical engineers, and scientists who came to the Moray laboratory as doubting Thomases and left with the complete conviction that Moray had indeed succeeded in tapping a universal source of energy that could produce free electrical power.

But in the face of all of this, the U.S. Patent Office refused to grant Moray a patent, first, because his device used a cold cathode in the tubes (the patent examiner asserted it was common knowledge that a heated cathode was necessary to obtain electrons) and, second, because he failed to identify the source of the energy. All sorts of irrelevant patents and devices were also presented as being infringed upon or duplicated by Moray's work. Each of these objections was patiently answered and nullified by Moray; nonetheless, the patent has still not been issued to this day, although the Morays still keep the patent application current.

One of Moray's efforts to develop the machine involved an association with the Rural Electrification Agency for a short time before World War II. At that time, the R.E.A. was apparently infiltrated by Communist sympathizers and high level officials of a decidedly pinkish tinge. These officials continually urged Moray to turn over all details of his device to the Soviet Union, and even arranged the visit of high-level Soviet scientists to the Moray laboratory to see the device in operation. On the initiative of the Communist-infiltrated R.E.A., one person — let us call him "Z" — spent about two months in Moray's laboratory, and succeeded in worming his way into Moray's full confidence. Moray eventually disclosed most of the details of the construction of his special valve to "Z" — the only person in whom Moray ever completely confided.

There is strong reason to believe that "Z" was a Soviet agent, and that this is

where the Soviets first obtained the impetus to develop the hyperspace amplifiers later used in their psychotronic weapons.

However, Moray became quite alarmed at the continued attempts of his R.E.A. contacts to get the device into the hands of the Russians. He eventually concluded that he had become involved with a governmental group filled with radicals and reactionaries. Moray became concerned that fifth column activity was actually directed against him in an attempt to steal his device. Quotes from the *Salt Lake Tribune* of December 2, 1941, attributed to Representative Thomas D. Winter, imply that Moray's suspicions of the R.E.A. were well founded, since Representative Winter called for a full-scale investigation of the R.E.A. on the grounds of Communist infiltration. Indeed, Moray was wounded by gunshot in his own laboratory on March 2, 1940, which seems to suggest that his fears and suspicions were based on fact. Moray severed his association with the R.E.A. in February 1941.

However, his basic unit had been destroyed by a hammerslinging witness in 1939; it is not clear whether or not this was the work of "Z" or of someone else. According to his son, John Moray, the man who broke his unit, as well as other interested groups, wanted complete disclosure of the materials and construction - **nothing** more or less. John Moray, who operates the Research Institute in Salt Lake City, has been trying to continue his father's work since the basic unit was destroyed. Dr. Moray himself died in May 1974.

According to John Moray, highly energetic cosmic rays from space are tapped by the machine, which is in subharmonic resonance with this high-frequency energy level, and it converts this energy level into a usable form of electricity. However, John Moray's use of the term "cosmic ray" is not necessarily the same as that of **modern** physics, but in fact is the same as the present concept of "zero-point" energy of vacuum. T. Henry Moray envisioned all space filled with tremendously high frequency vibrations carrying vast and incalculable amounts of pure raw energy. He envisioned the dynamic universe as a turbulent source of great energy, just as the ocean waves carry energy throughout the earth. This was also the vision of Tesla, and after him of Clifford and Einstein, who turned the attention of general relativity to the problem of the nature of the vacuum itself. Clifford and Einstein founded a branch of physics that has come to be known as quantum geometrodynamics, the study of energetic change that occurs in little pieces, including the concept that very small lengths of space, or pure vacuum, themselves oscillate at great frequency and with great energy. In Moray's day relativity was still a strange and unproven branch of physics, suspected and rejected by most of the physicists of the day, and quantum physics was still in the process of being worked out. There was no theory whatsoever predicting that empty space itself not only contained prodigious quantities of energy, but in fact *was* prodigious quantities of energy. But slowly, over the decades, the picture has changed, and the modern followers of quantum geometrodynamics assert the truth of Tesla's original vision. Today we know that one cubic centimeter of pure vacuum contains enough energy to condense into 10^{80} — 10^{120} grams of matter! Thus the major part of Moray's thesis — that vacuum itself contains unlimited energy — is vindicated today. In this sense empty space is like a gigantic, restless ocean, and Moray's free energy "tapping" device is no more mysterious than the water wheel. In other words, his **thesis** that the energy is there to be tapped is correct; it only awaits a practical

method to tap it in order to solve the energy problems of mankind forever.

Moray thus is vindicated as a man ahead of his time, who simply built a device before any theory existed to explain its operation. Moray met with constant opposition, and his life and that of his family was anything but pleasant. Certain pressure groups constantly tried to force him into selling for almost nothing, or to disclose the secrets of his valve's construction. He was often attacked and he was sometimes shot at on the city streets. In fact, his life was threatened so often that he was forced to install bulletproof glass in his automobile. His laboratory was broken into, some of his components and papers were stolen, and his dogs were continually being killed. Moray was shot in his own laboratory, and he himself always carried a gun. Because he was harassed ceaselessly, over the years he became understandably suspicious and close-mouthed about his work. He sometimes greeted visitors at his desk with a loaded pistol lying on the desk within easy reach, and occasionally confirmed that he would not hesitate to shoot if he were attacked or threatened. One of his greatest fears was that big interests would take up his invention and simply shelve it to keep it from benefiting the public. When large companies made him offers, he always demanded written guarantees that the device would be put into production and sold to everyone, once it was developed.

Moray also realized the potential of his device as a weapon. He was fully aware that the only difference between a controlled energy device and an explosion is the rate of release of the energy. According to John Moray, his father received an offer to go to Japan in 1938 because he had built a deathray which operated off the device. According to John, a representative of the Japanese government came to the laboratory and offered a position to Moray, but he refused. Allegedly Moray had managed to rig the device so that it projected a ray of energy in a beam, and could kill mice instantly at over fifty feet. When radiated by the beam, the mice were carbonized immediately. They appeared frozen, but nothing was left except their shells, and they simply fell apart when touched.

In one experiment Moray ran his device for 157 hours without any connection to external power sources, and produced over fifty kilowatts of power during the test. He also found that an additional fifty kilowatts could be added by simply providing another tap further back in the circuit. When he shut the device off from this test, he had proven once and for all that the device was generating electrical energy from free and natural sources without batteries or external power. During this test nothing in the machine heated up; instead, all parts of the circuit ran absolutely cold. This alone is totally unexplainable by ordinary electromagnetic theory, and it strongly implies the truth of Moray's assertion that the device simply collects the energy in each of its stages in a subharmonically resonant manner, in synchronization with the extremely high frequency cosmic oscillations. In other words, since the parts of the machine ran cold, it is clear that the energy was being simultaneously collected at each stage rather than being processed through the individual stages in serial order, since serial processing in the conventional electrical sense would lead to resistance heating of the circuit elements.

Moray's device used twenty-nine stages of his special detector valves, which were difficult to produce, costing about five hundred dollars each. Only about one in four proved suitable for operation. He also had difficulty in obtaining sufficiently pure materials to make his special mixture for the pellet that enabled tube operation in a one-way gating fashion. Moray explained that his device was based

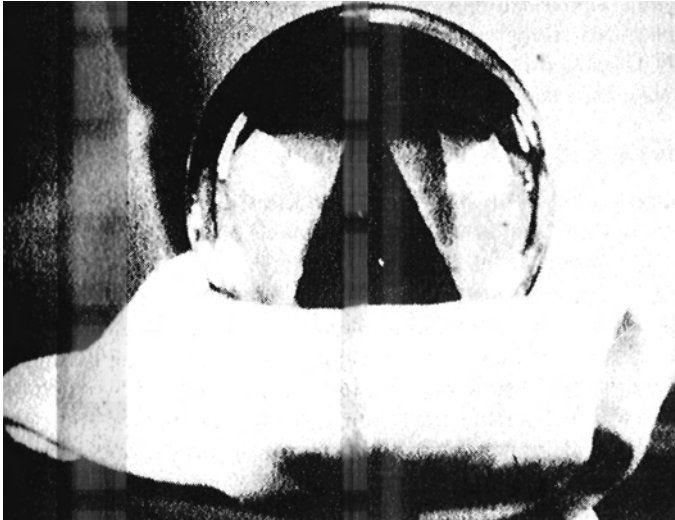


Photo 5. An Atlantean power crystal?

on the discovery of a mixture that would act as a one-way gate for the high frequency oscillations of space, so that the energy could go through the material more readily in one direction than another. Thus it was like a one-way gate valve to an ocean wave; the energy "water" could flow in in each valve, but was prevented from flowing back out. The assemblage of multiple stages thus provided a series of collectors which contained enough energy to be useful. Theoretically there was no limit to the number of collectors that could be added, and so there appeared to be no limit to the energy that such a device could produce.

AN ATLANTIAN POWER CRYSTAL?

The next two photographs are of a most amazing quartz crystal sphere removed from a chamber in a pyramid underneath the surface of the ocean in the Bermuda Triangle. Dr. Ray Brown purportedly removed the object in a dive while treasure-hunting with several friends after a storm had stirred the sandy ocean floor in 1968. Brown describes how he swam into a chamber in the pyramid after swimming around it three times, and how he saw seven stone seats surrounding two handlike stone holders for the crystal in the center of a table or dais, with a two inch metallic rod running down vertically from the roof of the stone chamber and pointing directly at the crystal. Brown plucked the crystal from the holder and ascended to the surface; he found that his companions had brought some nonoperative objects to the surface which appeared to be some sort of strange electrical apparatus.

Brown himself had a strange foreboding and a strong impulse against returning to the site, and so he refused to do so. Three of his companions reportedly returned at a later date, and their boats were found floating abandoned in the Triangle. The three men were never seen again.

The crystal does indeed have some strange properties. In the first picture one can clearly see a very sharply outlined, pyramid shaped inclusion inside the quartz. The pyramidal inclusion is dark, but the crystal is absolutely clear. However, the second photo shows that the quartz is milky when seen from a different angle. Here three pyramids can be seen.

Other objects have been seen and photographed in the crystal from time to time. In *The Pyramid Guide*, Vol. V, No. 4, there is a photograph of the crystal showing a very distinct, humanlike iris and eyelid appearing in it, making it resemble nothing so much as a giant human eye. In that photo the three pyramids are not visible.

While I have not personally investigated the crystal and examined it in detail, some general remarks can be made. (1) Brown reported finding the pyramid after a huge storm had stirred the ocean, including the ocean's sandy bottom. This had revealed outlines on the bottom resembling buildings, which had attracted the attention of the treasure hunters. (2) Such a storm, over the ocean's great water mass, is an excellent kindler of bioenergy. In other words, Brown and his companions were definitely in a place which should have had an enormous kindling of bioenergy from the biosphere and the collective human unconscious. (3) Sufficient publicity has been given the Bermuda Triangle's mysterious disappearances to have its alleged ability to open a window between worlds implanted deeply into the unconsciousnesses of a large number of persons. (4) Brown was with a group of persons who were sharing the same sensations with the storm and surrounding area, so there was sufficient coherence of their personal unconsciousnesses to accomplish at

least some degree of tuning. (5) The legends of Atlantis were in a great revival period in the late 1960's from the popularizing of Edgar Cayce's work and other material, as indeed was the Egypt/pyramid/Atlantis mythology in general.

So conditions were very ripe for a tulpoidal contact (see Part Two) of extensive magnitude — perhaps even to the point of tuning in the ruins and pyramid for a period. Brown also reported sensing an omniscientlike presence, which is symptomatic of many such tulpoidal contacts or materializations.

In such a case, Brown could have actually swum into such a pyramid that had materialized from the collective unconscious — which after all has the psychokinetic power of Uri Geller times ten to the four billionth power or so, and which largely maintains the format of our physical reality in the first place. The collective unconscious has no difficulty in creating even many alternate worlds or materializing and dematerializing entire areas, let alone in producing a single pyramid and a ruined city.

Brown's action in plucking the crystal out of its holder and swimming back to the surface would also have constituted a tuning/kindling which was "returning with the crystal into the normal world" — in which case it could have been tuned into complete stability so that it would endure, rather than fade away as do most tulpoids.

Until we have developed psychotronic instruments to scan the crystal and reveal its true story, we cannot say for certain that any of the above actually happened, and that some sort of delusion or fakery was not involved. The point is, it could have happened just as Brown reported it, in the theory I have constructed in the second part of this book.

Until we free our minds from the present bias that physical reality is always permanent and unchanging, we shall never be able to adequately investigate such phenomena as Brown's strange crystal.

THE CRYSTAL SKULL

It appears that at least some of the ancient peoples understood certain aspects of psychotronics and even possessed some psychotronic devices.

An example of such a psychotronic device is shown in the next two pictures, reprinted here with the kind permission of Bill Cox, from *The Pyramid Guide*, No. 17, May-June, Vol. III, No. 5.

To quote directly from *The Pyramid Guide*:

These are two views of the famed crystal skull... completely hand-formed, possibly centuries in the making from a single block of hard quartz crystal. It was recovered from beneath the altar ruins, within the jungle-covered, 7 1/2 acre citadel of the ancient Mayan city of Lubaantu'n by explorer F.A. Mitchell-Hedges in 1927. A several-stories-high pyramid was also found within the citadel complex. The skull, possibly of Atlantean and/or Babylonian origin may have been brought to the Americas by the Phoenicians around 1,000 B.C. Frank Dorland says historical records suggest the skull may have been held in the London inner-sanctum of the Knights Templar prior to the Holy Wars. The high priests probably executed ceremonial magic with the skull; a ribbon-like prism in the cranium acts as a magnifier. Hollow light pipes projecting upward from the base permit light reflections from the eye-sockets. The moveable jaw easily coordinated motion with speech. Lesser quality crystal skulls exhibited in the British and Paris museums, and miniature versions, lack the Mitchell-Hedges skull's brilliant craftsmanship

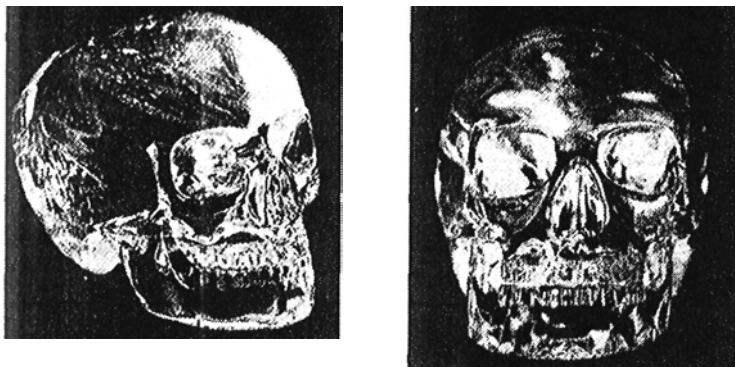


Photo 6. The crystal skull.

Two views of the famed crystal skull. Completely hand-formed, possibly centuries in its making from a single block of hard quartz crystal. It was recovered from beneath the altar ruins within the jungle-covered seven-and-a-half acre citadel of the ancient Mayan city of Lubaantu'n by explorer FA. Mitchell-Hedges in 1927. A several-stories-high pyramid was also found within the citadel complex. The skull, possibly of Atlantean and/or Babylonian origin, may have been brought to the Americas by the Phoenicians around 1,000 B.C. The high priests probably executed ceremonial magic with the skull; a ribbon-like prism in the cranium acts as a magnifier. Hollow light pipes projecting upward from the base permit light reflections from the eye sockets. The moveable jaw easily coordinates motion with speech. Lesser quality crystal skulls exhibited in the British and Paris museums, and miniature versions, lack the Mitchell-Hedges skull's brilliant craftsmanship.

One of the major African tribes is also reported to have once possessed such a crystal skull as a holy object and the center of their religion. Their skull was reportedly stolen by a white thief in the early 1800's,

So let us now discuss sonic of the peculiar properties of such a device.

First, quartz is a very hard substance and not easily worked at all. Making such a perfectly carved piece, with removable hinged jaw and eye lenses, must have consumed a tremendous amount of manual labor and considerable time, even centuries. Such an effort is not lightly undertaken; usually there is an overpowering reason for such persistence. In this case, there may well have been such a reason, and ancient priests may well have known it.

Quartz has magic qualities from a psychotronic point of view. It is open to both the ultraviolet and the infrared, and so it possesses two magic windows into the hyperframes, bioframes, orthogonal frames, and other realities. Since the third and higher bioframes (orthoworlds) are all mind worlds, quartz has open magic windows into the mind and mind energies. Thus Frank Dorland surmises correctly that the device can amplify and focus mental energies.

Furthermore, quartz is a piezoelectric crystal. Being crystalline, it possesses a lattice, a regular array of molecular stages. Thus it possesses a large number of identical stages, which is important for hyperchannel amplification.

Properly shielded against visible light, or in dim light, the crystal skull thus can function as a mental amplifier in the hands of a skilled user. Also, the quartz is piezoelectric; multistaged electrical piezoelectric currents are natural hyper-energy-hyperfield collectors, and under the proper conditions the quartz can produce heat and light, since collected hyperfield energy can be orthorotated into electromagnetic field by kindling. It can even produce these effects at a distance due to the hyperchannel circulation patterns surrounding a magnetic field or a localized area of magnetic field. The easiest place to produce effects with the skull would be inside another human head (in the brain).

So, in the hands of a skilled practitioner, the skull is (1) a collector of bio-energy, capable of turning this into electromagnetic energy and physical effects, (2) a form resonance inductor, i.e., a sort of super witness which matches the general shape of the human skull and is capable of resonating with a human skull (and thus with its contained brain) at a distance through hyperspace, and (3) a psychotronic device capable of producing psychotronic effects such as the augmentation of healing energy, psychic attack, telepathy, clairvoyance, precognition, and psychokinesis, where these initiative abilities are possessed by the user or practitioner.

Thus, in the hands of an adept, the crystal skull is indeed a formidable device, and one can well understand how the motivation existed to make it, even though its production may have taken centuries. Since in the ancient days knowledge was zealously guarded and usually incorporated directly into religion, such psychotronic artifacts as the crystal skull would have been regarded as the most powerful, hence the most sacred, of objects. One can therefore speculate that the elite of the priesthood were the only ones who knew of and were taught how to use the skull, and that this information was guarded extremely closely. The legend of such a skull existing as a central part of the religious magic of an African tribe is not beyond belief. Ordinary crystal balls, which are certainly made more easily, may have originated from the secret rites connected with the skull. An ordinary good quality, clear quartz crystal may well have been the substitute for priests who did not belong to the supreme inner circle, or the device used when a skull was not available.

I have seen at least one picture of an optical image which spontaneously formed in the crystal skull; the image closely resembled that of the Mayan astronomical

observatory at Chichen Itza.

To give a simple example of how the skull may have been used by a skilled priest, let us suppose the priest had an enemy he wished to disable or kill. With the proper psychic exercises he could have induced an increase in his own psychic energy. Then, using the crystal skull, he could simply have visualized the image of his enemy's face, and visualized the energy or light pouring into his enemy's head. The stability of the imagery is more important than effort of will.

At any rate, steady application of this imagery starts the bioenergy projection into the enemy's head and brain, and it collects there. Collection to the kindling threshold starts turning the bioenergy into electromagnetic field. At this point, a host of effects could be produced, depending upon the specific wish and induction by the priest. The effects include sharp pain (such as migraine headache); a leaden mass or frozen mind in which the brain activity itself is slowly frozen and stopped; the generation of a strong, overpowering emotion such as rage, hatred, panic, or terrible sadness; a sharp attack on the mind itself, as if a saw or knife were slashing a physical object to bits; numbness of the body or selected portions of it; interruption of the heart's functioning; kindling of the brain and nervous system into seizures, convulsions, or violent muscular spasms (capable of breaking bones); and an increase in blood pressure until the vessels swell and burst. In the hands of a priest who was strong in psychokinetic ability, this amplified ability would have been projected through hyperspace to the unfortunate victim's vicinity; objects such as stones could suddenly have levitated and hurled themselves at him, bushes and small trees could have enveloped him, etc. All in all, the skull can be used as a terrible weapon.

A few of these effects, and others I have not described, are presently in use by certain lunatic fringe groups in the United States; they use basic devices other than a crystal skull. I have been subjected to several strong attacks, and can vouch for their effectiveness if the target person is unskilled in shielding himself or evading such attack. In two cases I was nearly killed, and in a third case in substantial jeopardy.

Use of the crystal skull by a group of priests would give even more power, for from such a group the kindling level at which bioenergy orthorotates into electromagnetic field energy is much more easily approached. The inceptive power is of course usable for either good or evil purposes. Good purposes would include amplifying psychic healing; curing fevers and other infections; stopping internal bleeding; dematerializing growths and tumors; placing a person into deep anesthetic sleep so that a surgical operation can be performed; treating soil, seeds, or plants to assist sprouting and growth; treating emotional disorders with cancellation thought forms (contrary forms), and projecting them directly onto the unconscious to neutralize the disturbing form; and communicating telepathically at a distance.

A 300-year fabrication period is more credible if we recognize that the quartz crystal would have been usable from the beginning, just as is a crystal ball. So the high priests could have used the rare clear crystal (the skull is made from a single crystal), while priests recently initiated into the level that knew of crystal devices worked on it when it was not needed for use. Such a practice would explain why other skulls less finely worked have been found; these had simply not been as highly finished as the Mitchell-Hedges skull.

Furthermore, cutting off an enemy's head and exhibiting the skull was a common practice among many primitive tribes as a way of showing power. Crystal devices could have been used as a means of combining psychotronic effects with prevailing religious practice and beliefs. The fact that this eventually yielded a psychotronic amplifier of great power in the hands of a skilled priest would have led to the zealous guarding of the knowledge and the device from all but a very few of the elite.

METAL BENDING

The next remarkable sequence of photos from a Super 8 movie film taken by James Bolen, editor and publisher of *Psychic* (now *New Realities*) magazine, shows Israeli Uri Geller breaking a dinner fork in two through mind over matter. The fork, which Bolen personally verified as being intact before the demonstration, gradually becomes pliable at its midsection as Geller rolls his thumb and index finger over it. The fork finally breaks apart, the prong part clinging slightly to the handle just before it drops away, suggesting that the stainless steel momentarily became plasticlike.

Here the kindling is taking place in the nuclei of the metal atoms and also along the lines of field force in the bonding lattice. The protons in the nuclei may become quarklike due to partial extinguishing of the pions which create their electrical charges. The softening of the electrical field directly softens the ability to hold electrons and rearranges electron orbits. In addition, kindling is occurring in the orbital electrons, partially extinguishing their charge also. The overall effect is for the metal to become plasticlike as lattice bonds are severely weakened. For a metal break due to these effects, the metal in and near the fracture should show the results of severe electromagnetic fields at the localized level, e.g., as if subjected to intense heat from an internal laser action. This has indeed been found to be the case in other experiments, notably by Byrd and Franklin.

THOUGHT PHOTOGRAPHY: STELLA LANSING

Stella V. Lansing is a remarkable person who has captured a large number of authentic thought photographs on film, and in whose presence others often get thought photographs when they operate their own cameras. For several years her work has been investigated by the psychiatrist and noted researcher, Dr. Berthold Schwarz, who has published numerous papers in scientific journals on his studies of Mrs. Lansing. The late J. Dunninger also observed Mrs. Lansing's work and concluded that it was genuine, and that no magician could accomplish by sleight of hand or other trickery the remarkable results she obtained.

In Stella Lansing's photographs all the evidences and signatures of tulpoidal or thought energy kindling into the first biofield, electromagnetic energy (light), are seen (see Part Two). Typical, metallic-looking, clamshell, UFO-like images are often obtained, most often with several objects arranged in a clocklike circle symbolically: the unconscious may well be aware that the time channel is the paranormal channel, and symbolically express this in a clockwork pattern suggestive of time.

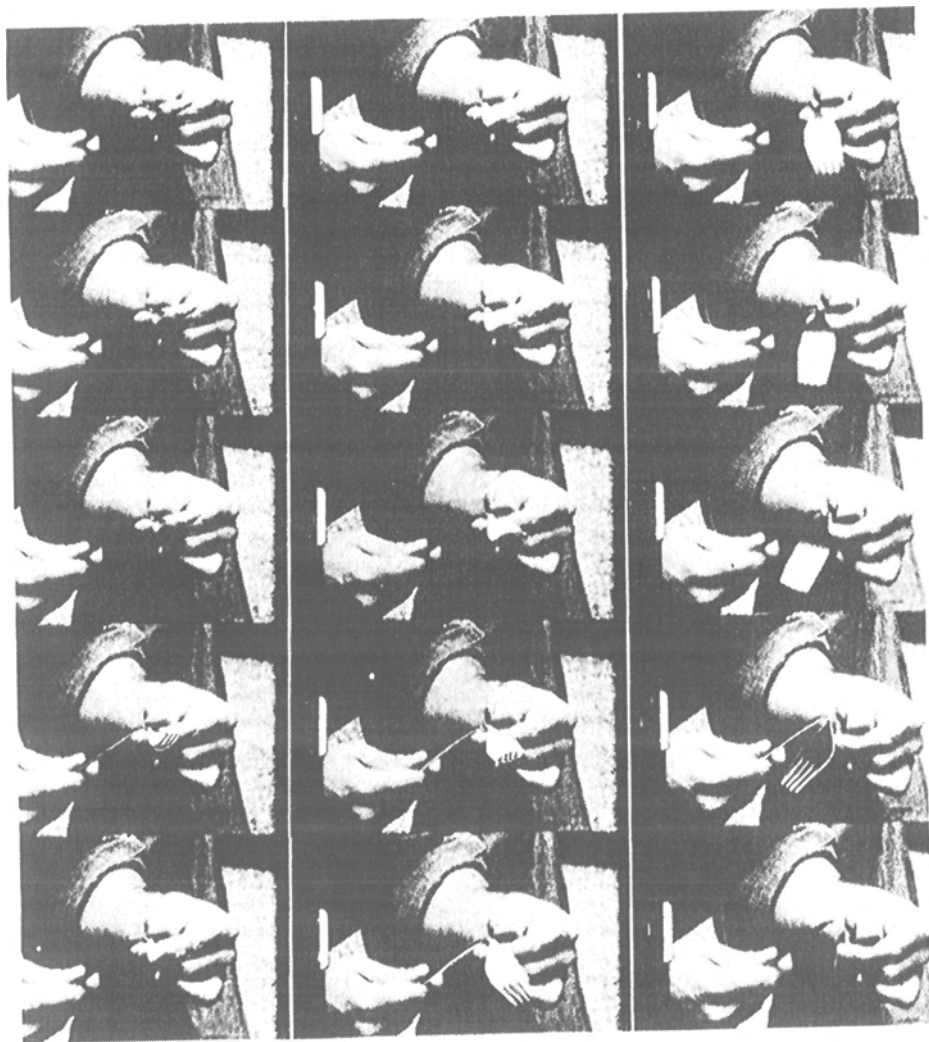
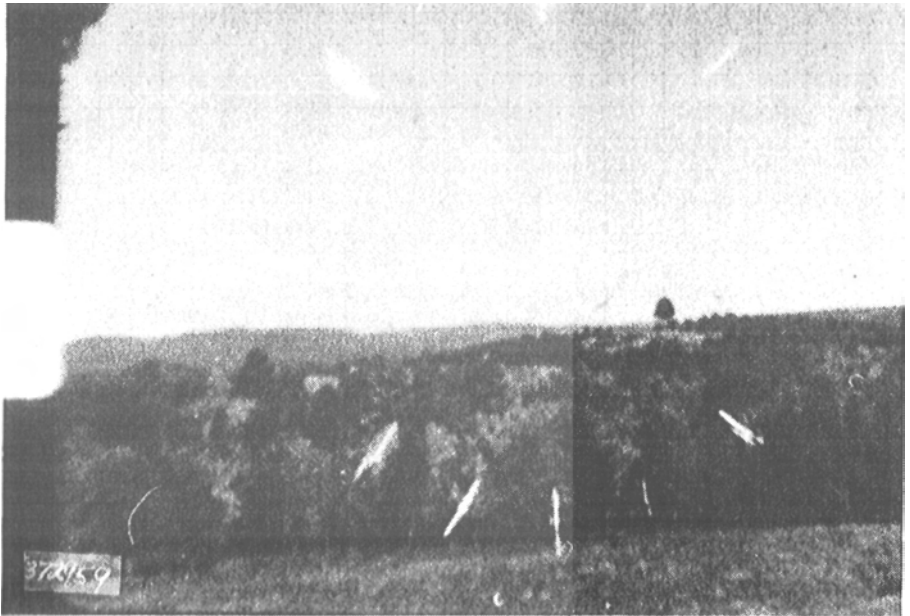


Photo 7. Metal bending.



Late evening clockwork pattern of "clamshell-like objects" obtained when photographing a church steeple.



First daytime clockwork pattern, Route 47, Amherst, Mass., September 1972.

Photo 8. Clockwork patterns.

Just as Geller and Kulagina have been noted to transfer psychokinetic ability to other talented persons who were in their presence for a period of time, Mrs. Lansing's clockwork patterns and psychokinetic abilities appear to have stimulated another person's abilities in similar fashion. Paul Koslouski is a researcher who worked with Mrs. Lansing for a short time, and in his own thought photographs the clockwork pattern so characteristic of Mrs. Lansing's pioneering efforts dutifully appeared.

Mrs. Lansing is a brave and gracious lady, and her significant work with thought photographs is important to the understanding and advancement of parapsychological science.

THE DISPLACEMENT EFFECT

The next picture was taken about 1938 in Chicago with a camera on a tripod and a timed release. It was taken by Paul Trovillo, who is the gentleman sitting on the bench with somewhat of a problem of transparency and partial disappearance.

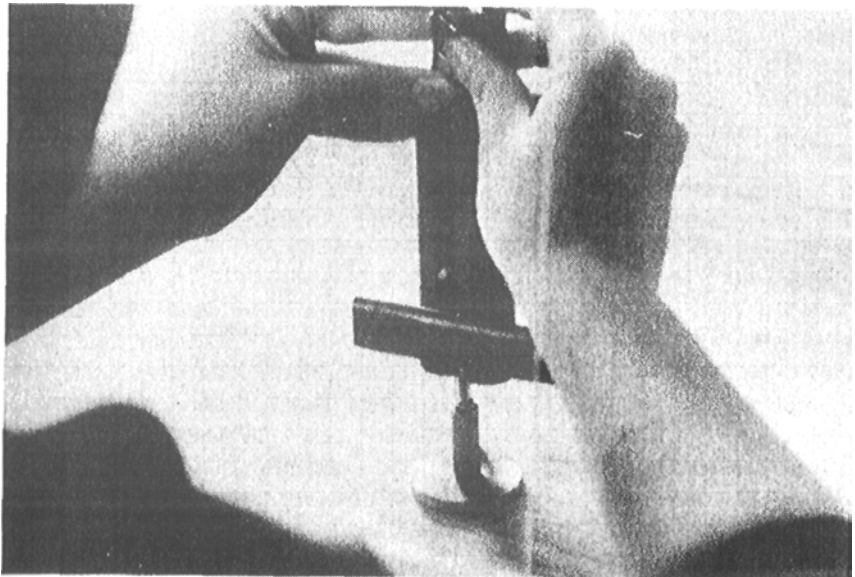


Photo 9. Displacement effect.

The light is by an overhead arc light, which is rich in ultraviolet (one of the magic window frequency bands in the hyperchannel crosswalk between orthogonal worlds). Pan film was used in the camera, and the picture is of Paul and Ferne Trovillo. Note the bushes through Paul's left shoulder and through the slats of the bench at approximately Paul's waist. Also note that the background is in excellent focus.

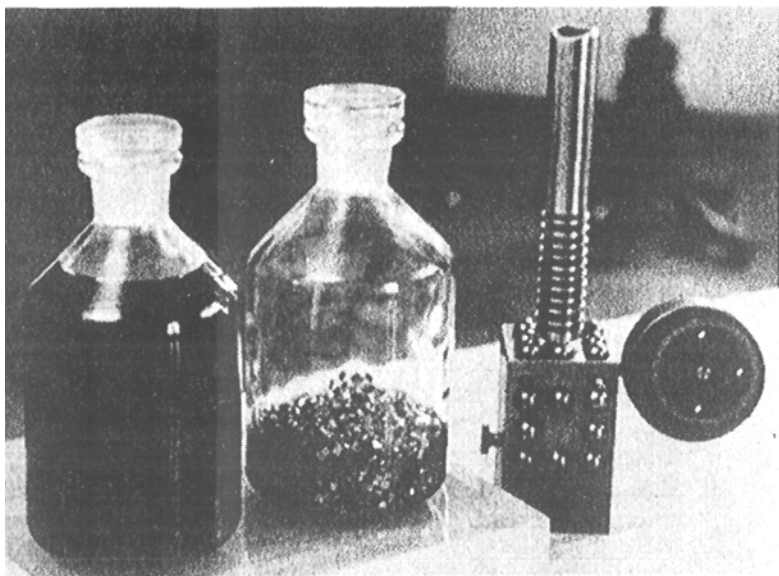


1. Robert Pavlita, Czechoslovakian engineer, and his daughter.



2. Device becomes a psychoenergetic "magnet" when charged by the human being—and will pick up materials, including nonmagnetic objects.

Photo 10. Pavlita's psychotronic generators.



3. A generator that can precipitate solutes from solution. The jar to the left contains a dense solution; when the generator was placed over identical solution in the jar to the right, the precipitate shown in the jar resulted.

Occasionally the kindling of bioenergy (which is greatly eased in ultraviolet light) leads to eddies of hyperchannel connections between separated portions of the ordinary frame. The normal three-dimensional frame is constructed action quantum by action quantum, and each quantum is fissioned and fused individually to give individual increments or jumps of time and length. Appreciable kindling intermixed in the frame construction can provide other geometrical paths for light, so that the light rays during one or more segments of their straight-line path arc actually flipped into and back out of hyperspace. In cases such as this, one can often see right through a physical object, or even inside it (see Part Two).

I have worked with a psychic group in the American Association of Meta-Science, and have seen one experiment where similar effects were obtained, with the camera on a tripod, in a picture taken by my wife.

Excellent pictures of the Loch Ness monster were recently taken by Doc Shiels. These pictures have been subjected to computer analysis by Ground Saucer Watch (GSW) - and GSW was alarmed at the discovery that the monster in the portrait exhibited transparency. Indeed, for a materialization less than complete, which the monster must be if it is to keep disappearing, one would expect or even demand such transparency, even though a large body of water is a good collector for kindling of bioenergy and tulpoidal forms (UFO's are also notoriously connected with rivers, lakes, and the ocean).

Note also that the Dennis Billings UFO picture demonstrates the same sort of partial transparency. There is a readily understood physics that applies to these effects, but the effects are not contained in the present monocular interpretation of physics and reality.

PAVLITA'S PSYCHOTRONIC GENERATORS

In Czechoslovakia an engineer named Robert Pavlita has been building and demonstrating psychotronic generators for about thirty years. These are devices of various shapes and sizes and composed of materials such as steel, iron, brass, and copper, and they often contain mysterious symmetries of pattern, holes, and shape. The devices for the most part charge up with thought energy when subjected to human contact or eye contact, and then perform various functions such as precipitating a solution, turning, picking up or magnetizing nonmagnetic materials, and killing insects. The devices thus accomplish orthorotation and kindling of thought energy. Pavlita has admitted that his devices could be scaled up to serve as weapons — unfortunately, every tool can be used for either good or evil. He has demonstrated a great many times the killing of insects by pointing a charged rod at them. He also admitted that in an accident his daughter became semiparalyzed and her life was in grave danger, requiring him to work feverishly without stopping for about two days to build a second device to reverse the effects of the first. Pavlita has also demonstrated that his psychotronic devices can either stimulate or retard plant growth, depending on which polarity the plant is exposed to.

The loose information net of which I am a part has recently learned that Pavlita is now in charge of a secret project that has succeeded in building two weapons, one of about two hundred miles range and the other of unlimited range. No further details on the weapons are available.

Pavlita is a pioneering genius, and it is to be hoped that he will eventually release the secret of his psychotronic devices to the world for use in the healing arts and other beneficial sciences. Bioenergy/hyperenergy is real, and Pavlita has scored a major breakthrough in building simple devices to harness it.

CELL-LIKE INVISIBLE TULPOIDAL FORMS

Trevor James Constable has succeeded in evoking and capturing many of these forms on film. The first photo was taken by Constable on 25 August, 1957 in the Mojave Desert, and shows an amoebalike or cell-like bioplasmic form containing shapes that resemble nucleoli, vacuoles, and other cellular structures. The invisible object was at first directly overhead, but moved to positions that enabled inclusion of local terrain in the pictures.

In material presented in Part Two of this book, I show that all that a physical form or physical body is is a total tulpoid, *i.e.*, a form that can be shown to exist in each and every mind. All that a living biosystem is is a one-to-one coherence established between such a total tulpoid (physical form) and a monocular tulpoidal universe (mind world or hyperframe). Furthermore, all possibilities exist concretely in the various hyperworlds. Thus Constable's plasma creatures do indeed exist concretely—but in invisible, orthorotated hyperworlds (mind worlds). The revolutionary discovery by Constable has been a direct, straightforward way to evoke and photograph such bioplasmic tulpoidal forms. His experimental work is of absolutely fundamental importance, and I would not hesitate to compare its ramifications to those of the Michelson-Morley experiments.

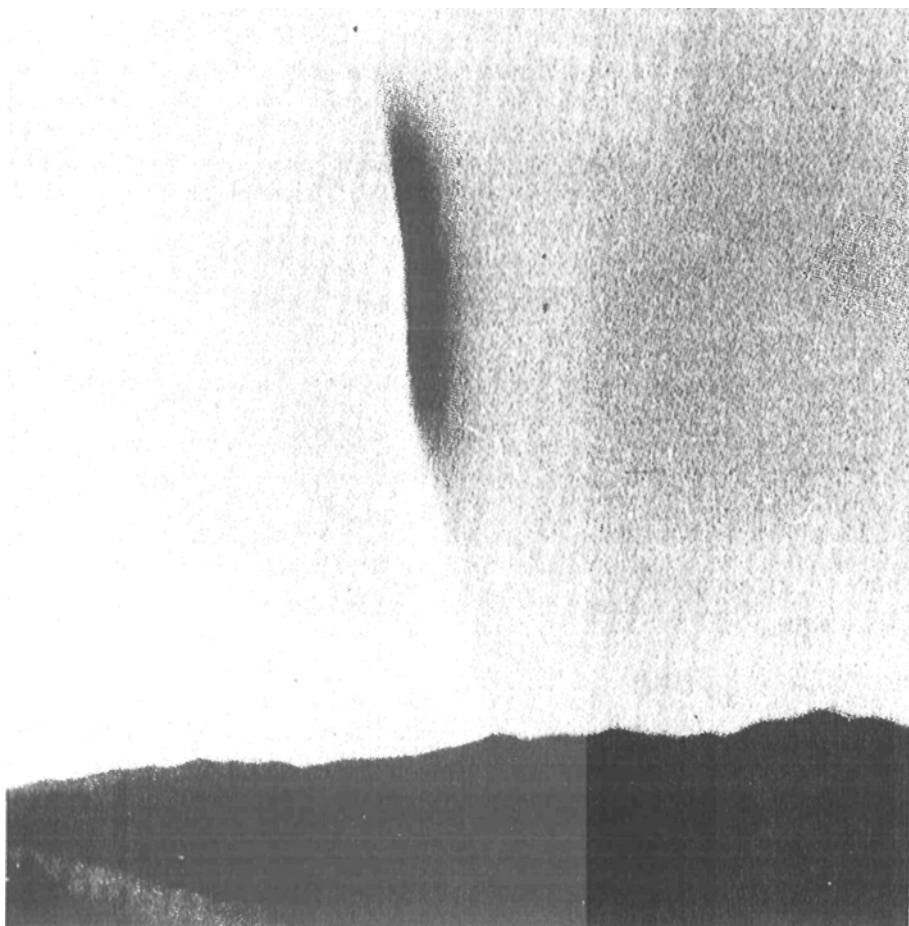


Photo 12. Form for potential materialization.

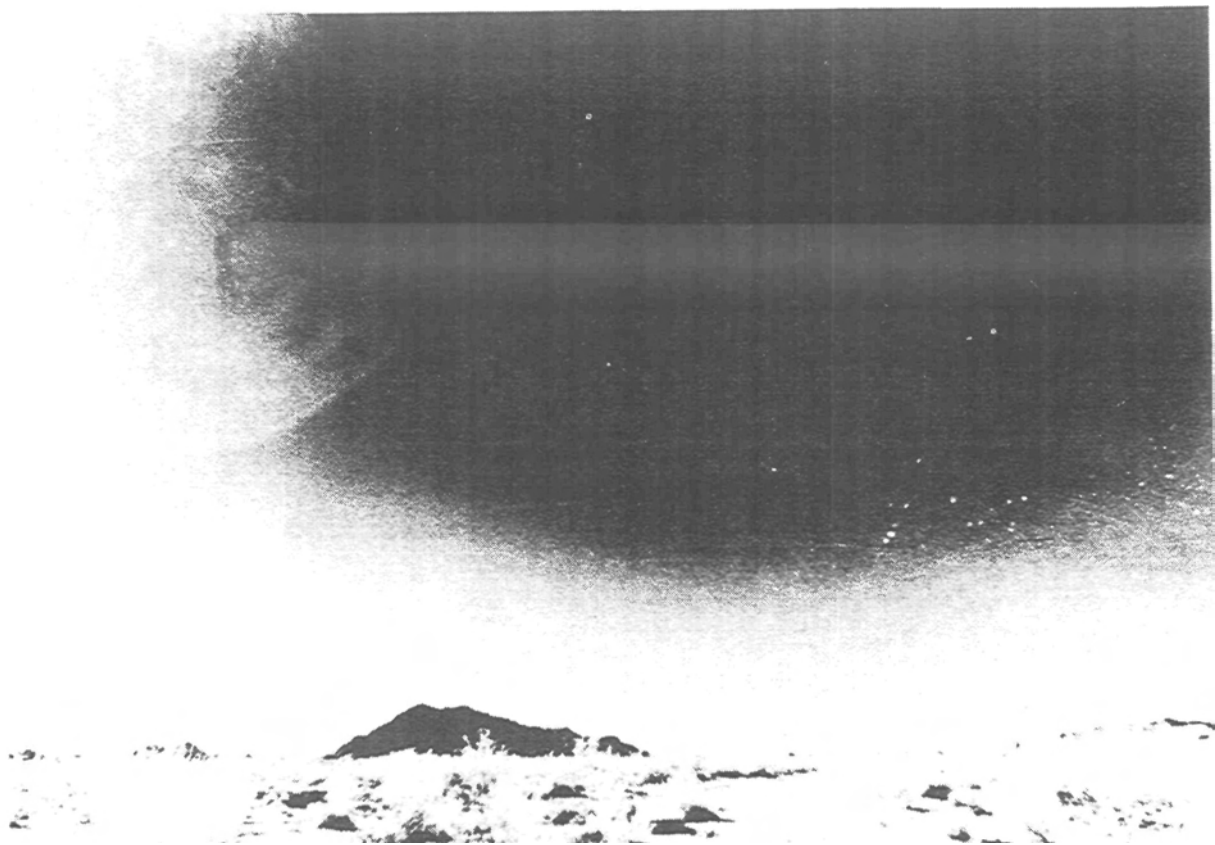


Photo 11. Cell-like invisible tuipoidai forms.

These experiments are also directly related to the work of Miller and Fox, who have shown that, when the probable atmospheric conditions of the earth of millions of years ago are exposed to electrical discharges and ultraviolet radiations, amino acids are formed; and then these proteinoids will form microspheres having cellular characteristics, even the ability to grow and reproduce. Every possible life form is already present in virtual state reality, and under proper selective conditions can be kindled into the first bioframe (electromagnetic field) and photographed, or even into the zeroth bioframe (full materialization).

In the UFO photographed in strong potential condition for materialization by Trevor James Constable, note the form of a disc on edge, only a portion of its form being tangible even to infrared. Note also the whitish lobe of the tulpoidal force field extending earthward from the discoidal region. Highspeed infrared film was used, no filter, shot just before sunrise near Giant Rock, California. Constable's pioneering work is remarkable laboratory evidence for orthorotation and materialization of tulpoidal energy forms.

UFO'S

The following pages show some of the most extraordinary UFO sightings and other paranormal phenomena of recent years. Photograph 13 shows a noiseless UFO seen by a university student near Las Cruces, New Mexico, in 1967. (The student reported that, as he changed plates in his camera, the object disappeared. He had been taking photos of rock formations for a class in geology.) In the Spring of 1950, two photographs of a highly materialized UFO were taken by Paul Trent on his farm outside McMinnville, Oregon. The first photo (photo 14) showed the UFO at an angle, while the second (not shown) caught the UFO in direct profile.

1. Black Ring UFO

From Project Bluebook, here is an example of a tulpoidal UFO moving along through the sky and exhibiting the "black ring" effect. In this case only the edge frame is visible, and that edge is generating the black ring or "light quenching" effect. Note that the inside portion of the tulpoid is quite transparent, for one can see the clouds behind it clearly.

2. Anchor Patterns

One of the interesting aspects of combined orthorotation into our normal three-dimensional space and out of it from hyperspace is an anchorlike pattern, shown in the next four pictures. Photo 1 was taken by Ira Maxey, and it shows several tulpoidal forms, which are intersecting our frame in a white or photon-emitting anchorlike pattern. The curved part of the anchor pattern is due to the spinning or orthogonal rotation, and the shaft portion intersects it at right angles. Note also the clouds, whose water content is highly conducive to kindling of the tulpoid — into the first bioframe, in this case.

The second photo from Project Bluebook shows another anchorlike tulpoid — this time the orthorotation is reversed, giving photon absorption — moving through the sky over a dock area by the water.

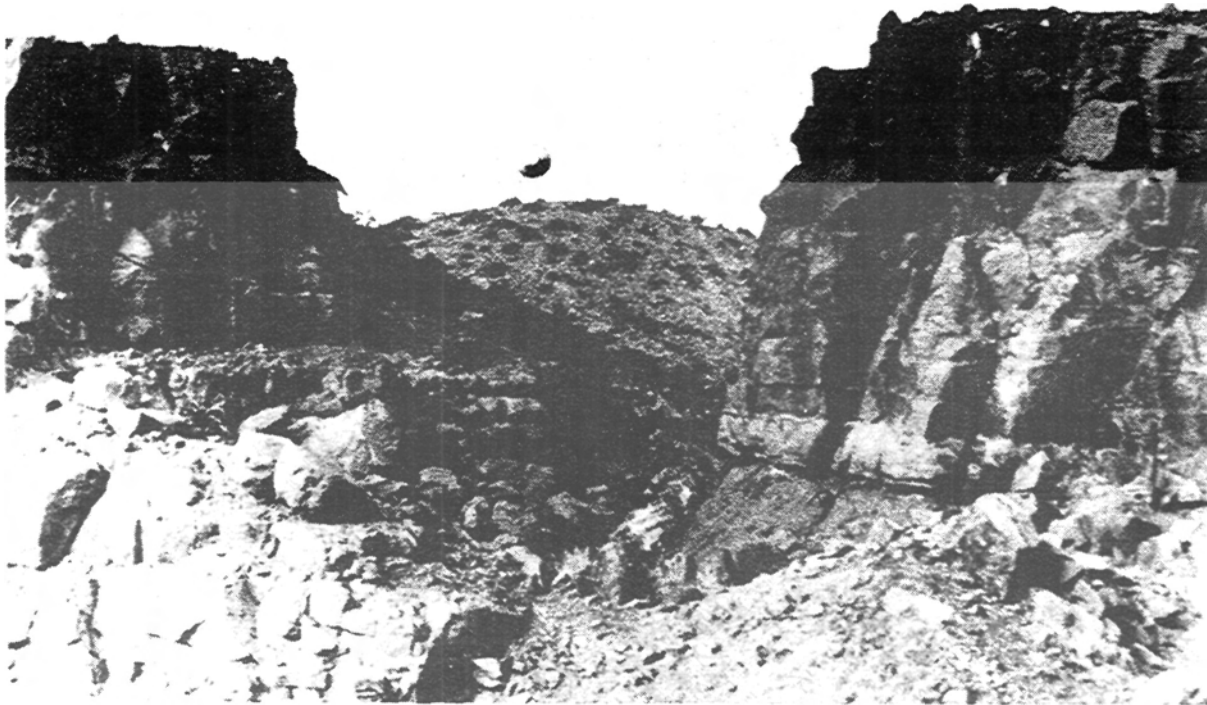


Photo 13. New Mexico UFO.

The third photo, taken in Wales, is one of several which clearly captured another anchorlike tulpoid in a photo-emitting mode.

The fourth photo, taken by Fay Clark in a darkened room, shows very similar photonic patterns being emitted by Ingo Swann's hands after Swann was asked to try to produce energy to be photographed. In the rightmost arc the shaftlike perpendicular bisector can be seen, associated with Ingo's arm. Bioenergy and mind-energy are the same, whether being emitted from a single human system/mind or from a collective system/mind.

3. Bifringement

Another common effect demonstrated by UFO's is bifringement, clearly shown in this photo from Project Bluebook. Here a UFO in highly materialized form is shown just beginning to turn back into hyperdimensional space. Interestingly enough, in hyperspace a tulpoidal form can turn in two or more directions at once, and this one appears to be doing so. A photon-absorbing turn is indicated by the outer bifringement ring, which is white. These can also be compared to photon interference patterns commonly demonstrated by light waves from two or more sources. Just as there are interference patterns in our three-dimensional space, there are interference patterns in higher dimensional spaces. The three-dimensional intersection in our frame of one of these higher dimensional interference patterns may be black, white, or consist of both black and white components.

4. UFO's in Water

Water is a substance that changes its state and form in a fantastic complex and is therefore one of the very best collectors for bioenergy or tulpoidal energy. That is, in fact, why water is so universally associated with living biosystems, for biosystems need a good collective medium in which to establish coherent tuning. So it is not accidental that water is necessary to life as we know it, or that our bodies are largely made up of water. For the same reason (ease of kindling), UFO's and many other tulpoidal forms have a high degree of association with water. Nessie and other water monsters tune in from time to time in large bodies of water such as lakes, rivers, and oceans.

This photo from Project Bluebook shows a UFO tulpoid in the first bioframe (photonic) moving along in the water.

5. UFO's in Clouds

Again from Project Bluebook here is a picture of a UFO tulpoid kindling in water, this time in the moisture in clouds. Clouds are also usually electrically charged, which enhances the tuning effect, particularly when the clouds are darkening and so are highly charged and also densely loaded with moisture. The darker clouds shield out more of the visible light, reducing the hyperchannel (time) squelching effect of visible light.

6. UFO Seen by the Author

The next UFO is one of several seen by me, and it provided a very curious, anomalous phenomenon in my memory. Furthermore, this UFO was sighted by hundreds of persons over a four-state area, so there is no question that something was there in the upper atmosphere.

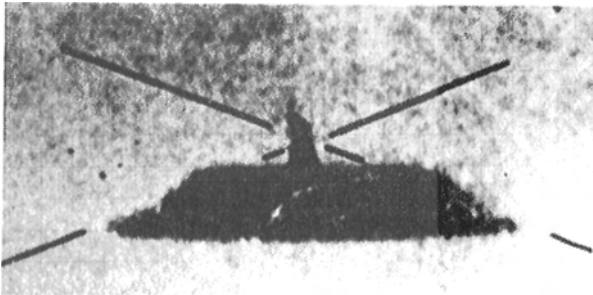
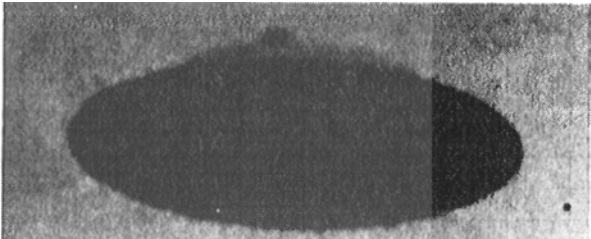
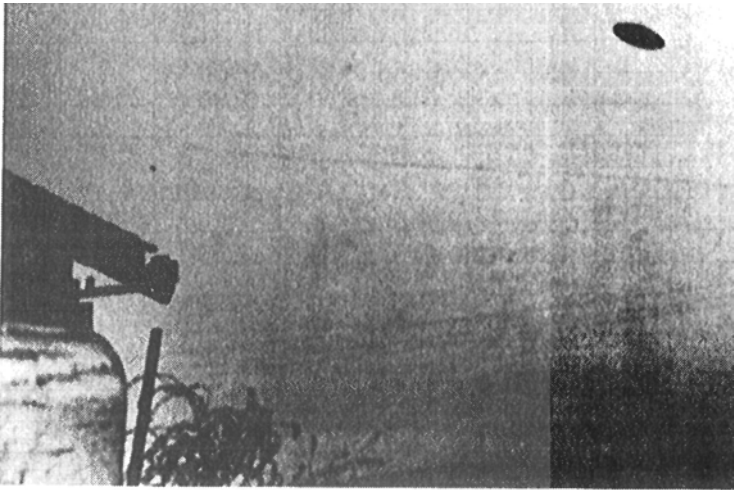


Photo 14. Oregon photos.

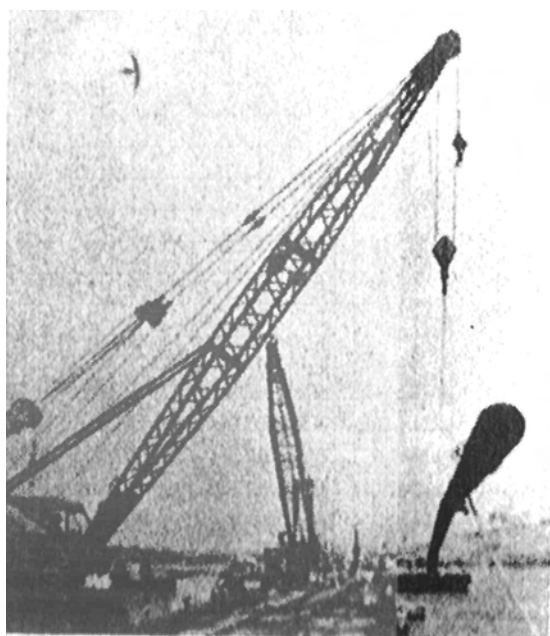


Photo 16. Anchor patterns.

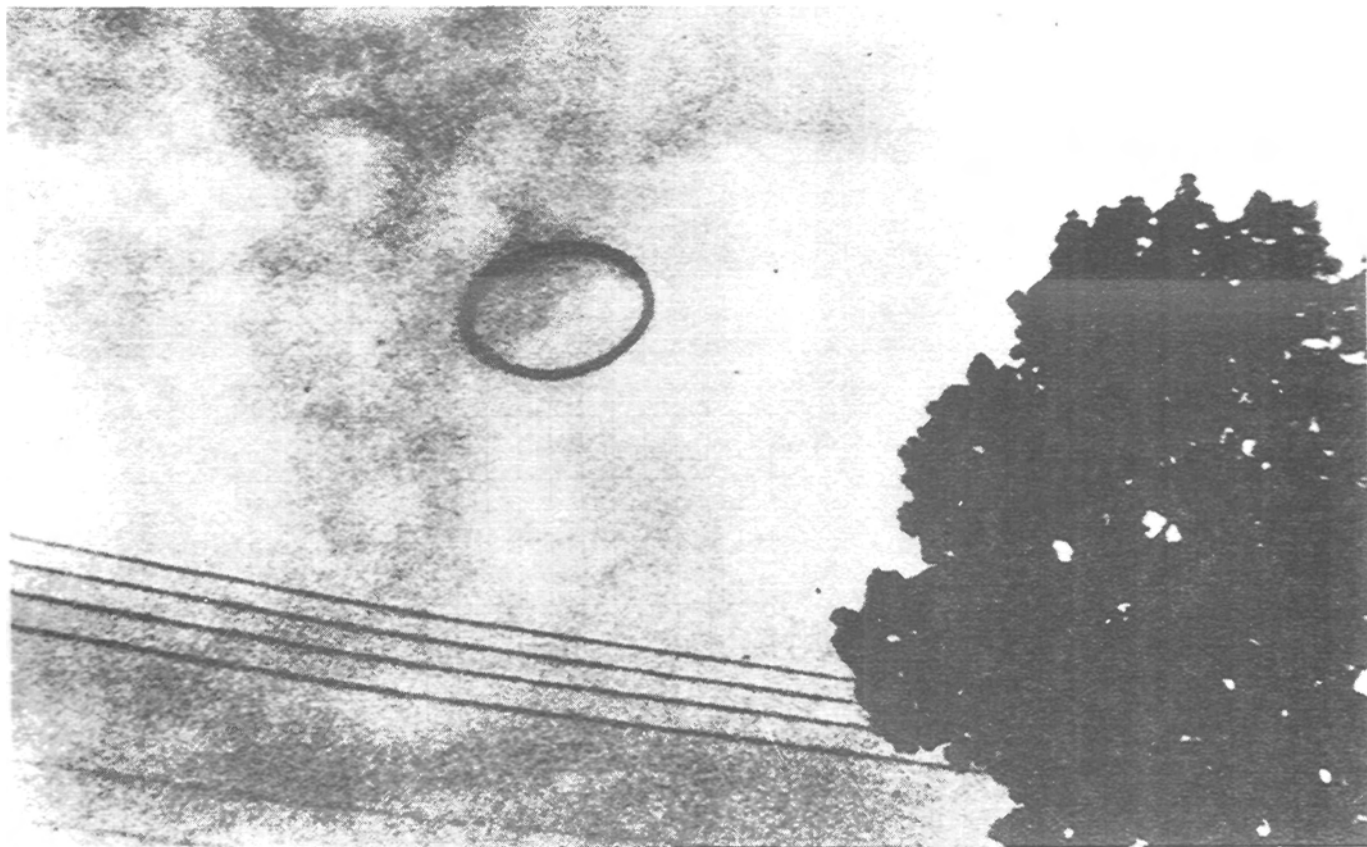
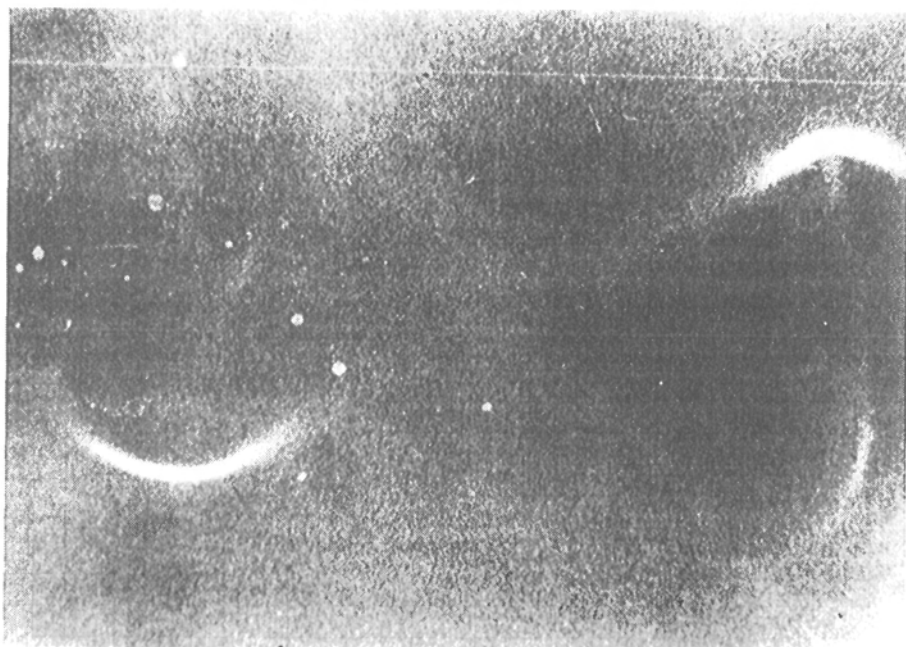


Photo 15. Black ring UFO.



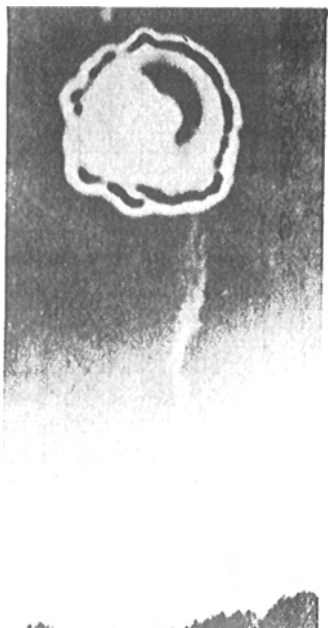


Photo 17. Bifringement.

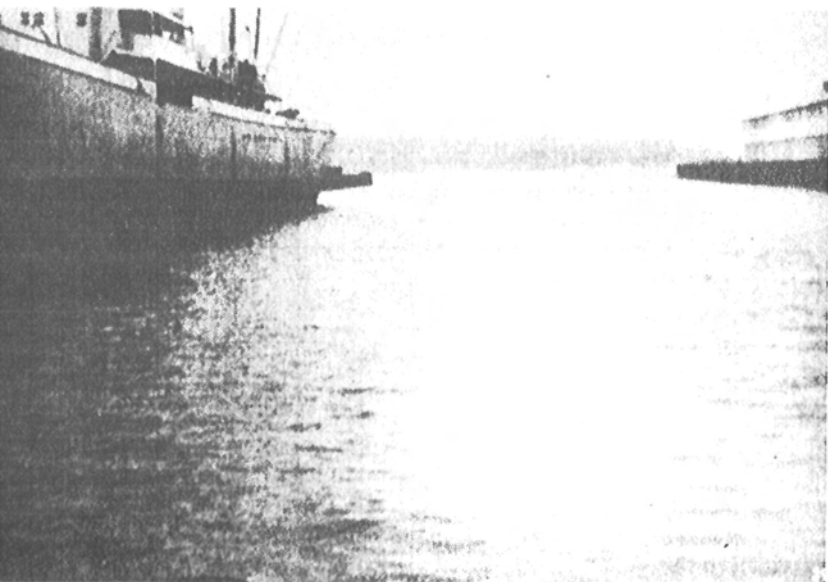


Photo 18. UFO In **water**.

The sighting occurred in June 1950. At the time I was home with my father in Woodville, Mississippi for the summer vacation from college. All my family were in the timber business — pulpwood and logs — and I was working for the summer with them.

It was a beautiful, warm, clear summer day with almost no clouds at all. Coming out of the woods on a pulpwood truck with the last load of the day (about 4:30 or 5:30 PM), the truck was slowly making its way across a large open field to the county road. Suddenly a light was seen in the extreme upper atmosphere, glowing with a fierce white radiance, very similar to the light emitted by a magnesium flare or by burning magnesium. Some object was apparently entering the atmosphere from outside it, but the velocity of reentry was far slower than reentry vehicles that would be fired many years later on U.S. and Soviet rockets. As the fiercely glowing light smoothly descended, a change occurred. At that point gray smoke also appeared in the white smoky trail being left by the object, and the trail became turbulent from that point on. Then an orange color appeared at the front of the descending, tumbling object, in the light being emitted. The smoke trail from this orange glowing color was darker gray. The object tumbled slowly downward, burning fiercely, until utterly consumed, still at an extremely high altitude (I would estimate still above 100,000 feet). In the sky the smoke trail that had been left persisted for a while, until it was gradually dispersed by high atmosphere winds. In the picture a great deal of dispersion has already occurred.

So far as is known to me, and I have had considerable missile experience, neither the U.S. nor the Soviets were firing any sort of vehicle in 1950 that could account for the phenomenon. Furthermore, even if we postulate a reentry vehicle from a large rocket, its velocity was far below normal reentry velocity, and this cannot be accounted for. The object also could not have been a meteor because its velocity was far too low.

For the doubter let it be pointed out that even if a high drag, low ballistic coefficient reentry vehicle comes into the earth's atmosphere on a downwards plunge and rapidly slows down, its initial velocity is quite high, and its rapid slowdown is quite apparent. This phenomenon did not exhibit such a characteristic.

7. The 1966 Dennis Billings UFO Sighting

At about 7:00 P.M. on the night of September 23, 1966, Dennis Billings and his wife and daughter sighted a UFO at close range. The close UFO was one of a total of four sighted by the family in about one hour. The sighting occurred in Decatur, Alabama. The UFO phenomena occurred after anomalous physical effects were noted. From the alley by his back yard Dennis, who had taken out the garbage, began to hear sounds from inside a neighboring house at some distance as if he were physically inside the room in which the sounds were occurring. These sounds consisted of conversation and dish-rattling in the kitchen where two women were apparently cleaning up the table after the evening meal and washing dishes in the sink. Then the sounds changed to those from another room where children apparently were playing games. Peculiarly, the sounds seemed to originate from wherever Dennis focused his attention, such as the garbage can, the house, etc.

Shortly afterward his daughter followed him into the yard as he left the house to go to a football game, carrying his binoculars. She spotted a cluster of lights moving along slowly in the sky above the treeline, and called his attention to them.

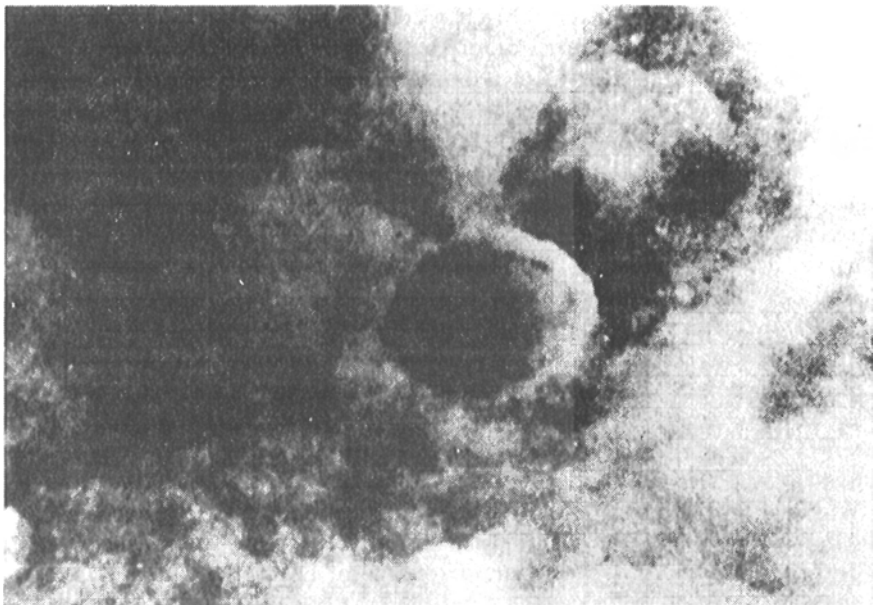


Photo 19. UFO in clouds.

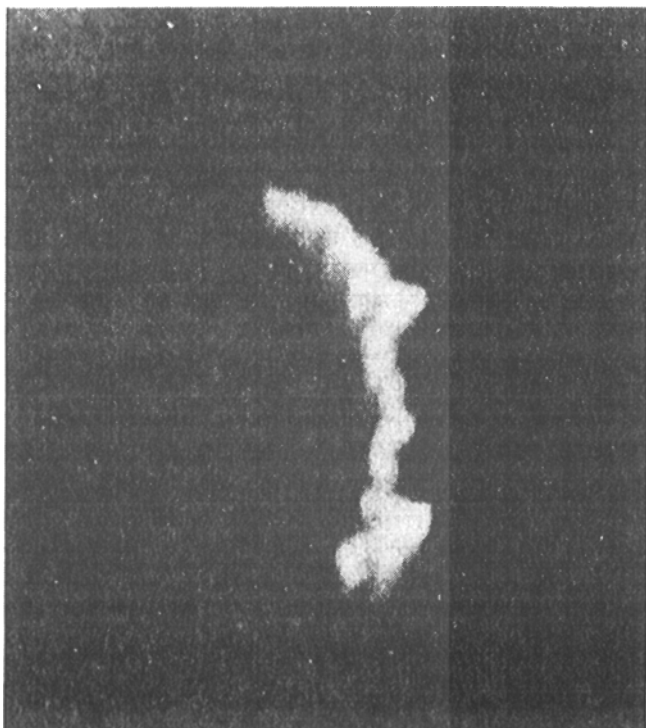


Photo 20. UFO seen by the author.

Through binoculars the cluster of brightly colored, flashing lights could be seen to be one object about two blocks from Dennis's house, moving very slowly and making no sound, about fifty feet above the trees.

Just then Dennis's wife turned on the exterior house lights which illuminated the entire back yard. As she came out into the yard, an object, a fiery red, glowing, round ball of light about twenty-five feet in diameter, appeared just above the neighboring house in back, the same house from which the anomalous sounds had been heard a few minutes previously. Strangely, the glow of the object did not appear to illuminate the rooftop of the dwelling above which it hovered.

The glowing light seemed to be composed of a tremendous amount of energy, and there was violent fluctuation, turbulence, and movement of the light energy within the sphere. Another way to describe its dynamic characteristics is to visualize it as being composed of individual particles of light or incandescent particles of highly charged matter moving rapidly in a circular plasma. The light itself appeared to be comprised of hundreds or even thousands of individual light sources confined to the circular shape.

Within a few seconds the individual lights began to coalesce and form into a solid light with no agitation, dimming in incandescent intensity and changing from red to orange to yellow. As the circular shape of light grew dimmer, a rocket-shaped object formed in the center. After the light had finished changing to yellow and was much dimmer, the rocket-shaped object began to rise, with particles of light from the sphere clinging to it and falling off toward the ground, where they evaporated and disappeared. The rocket-shaped object had no wings or tail fins, and it picked up speed and sped away, streaming an exhaust tail of light or flame behind it, similar to a welding torch's flame or a flaming sparkler. The object made several spirals as it rose and then headed in a straight line toward the stars. As it rose, it also made a slight arc toward the moon, which was full or nearly full, and passed across its face. As it crossed the face of the moon, its rocket-shaped outline could be clearly seen.

Astonished, Dennis and his wife began discussing what they had seen, still standing in the back yard. At this time the anomalous reception of unusual sounds began again. At first Dennis seemed to hear a train on a distant track although there are no railroad tracks in the vicinity. The sound seemed to come closer until he seemed to hear a train passing by immediately in front of him with its wheels clicking on the joints of the steel rails. Then they heard other sounds similar to automobiles and trucks on a freeway, again very close, although there is no freeway in the vicinity either. The whining motors and honking horns of these unseen vehicles could also be heard. Turning first in one direction and then in another, Dennis could hear the anomalous sounds seemingly originating from wherever his attention was directed. Other sounds such as airplanes flying in the sky also came in. Then he heard another sound like a high-pitched tuning fork, and it began to increase in frequency until Dennis's eardrums were hurting.

With this high-pitched frequency sounding and his ears smarting, Dennis looked up and saw a bright object positioned in the sky, larger than a star, and approaching him and his wife. As it approached on a straight line toward their back yard, it got bigger and brighter, until it stopped directly overhead, hovering 100—150 feet directly above the yard. The object appeared to be circular or oval in shape, and it descended with the flat side down. On its rear end the object was

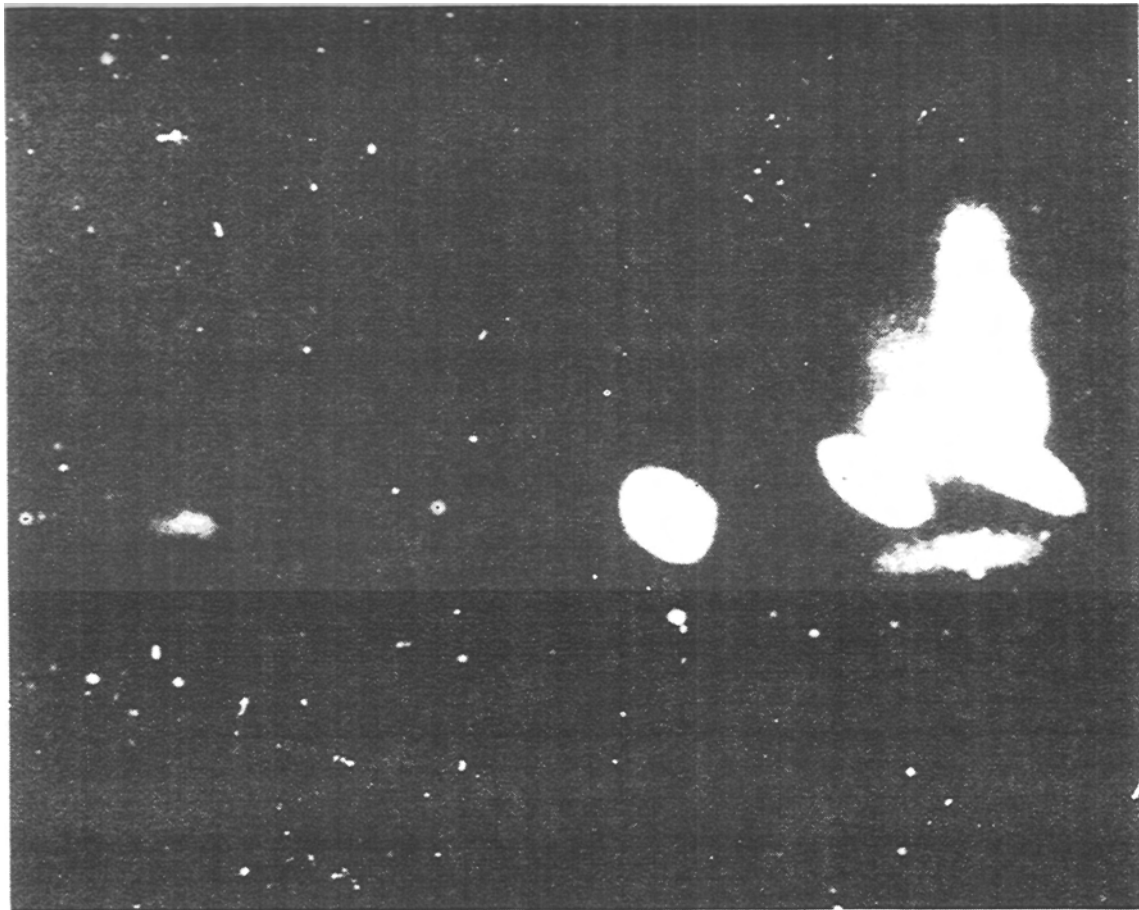


Photo 21. Second Billings UFO.

rimmed like a horseshoe with twelve washtub-sized blinking lights, each of a different color. These lights appeared to be controlled so that as one light blinked on, the other lights went off. In this way one light at a time blinked on and off in successive positions, so that a single light seemed to rotate around a complete half circle and cross at the open end, changing color as it progressed. On one side of the horseshoe the light positions were bright red, on the next yellow, on the next pale green, on the next a darker blue-green, and the final light on the opposite side of the horseshoe pattern was a very bright blue. Underneath the center of the object was what appeared to be a hemispherically-shaped plastic capsule or shield. This capsule was completely blacked out; yet through what appeared to be smoked glass, movements or shadowy activity could be seen. Dennis assumed that this was the exhaust section of the craft and that what he was seeing was probably smoke coming out of a black hole in the craft.

Around the outer perimeter of the craft, and about two feet out from it, was an illuminating light which circled the object like a halo or corona. Dennis had the eerie sensation that the object was intelligently controlled and that he himself was under close observation.

At this time Mrs. Billings became extremely frightened, ran into the house and got the baby, and crawled under the bed until the craft had gone.

As she left in fright, the craft lifted up in the sky a little and began to move slowly away, so slowly that Dennis could walk along beneath it as it moved across the back yard and into the front yard. Walking under it and looking straight up at it, he was able to observe closely the blinking lights and their operation. When the craft had been motionless, the lights had blinked on and off slowly, so that they moved in a slow, pulsating motion from position to position around the horseshoe pattern, changing color as they went. As the craft began to move and pick up speed, the lights began to increase in pulsation frequency and thus to appear to move faster around the horseshoe pattern. As the craft moved even faster, the light pulsations became so short and fast that they seemed to be spinning around the horseshoe in one continuous blur of motion.

As the object left Dennis's yard, it moved into the sky and away, but not too far, until it had positioned itself over the airport (Pryor Field) as a large bright object. At this time Pryor Field was serviced by Southern Airlines. As one of the commercial aircraft took off, the UFO followed it back directly over Dennis's house, then left the aircraft and repositioned itself in the sky in its original position over the airport, hovering motionlessly.

After hovering motionlessly for about fifteen minutes, the UFO suddenly shot down in an arc toward the ground, passing below the tree line and out of Dennis's view.

Dennis waited for about ten more minutes, when suddenly the UFO shot back up into the same position in the sky, seeming to follow in reverse the same arc on which it had descended. It remained in this position, hovering in the sky above Pryor Field for another ten to fifteen minutes. Then a similar object approached and joined it, and the two seemed to merge or dock together. They remained motionless for about five minutes more, then moved across the sky, still joined, until they disappeared below the horizon.

According to the newspapers the next day, this object or something similar had been seen all over the eastern half of the U.S., and had been described as "multi-

colored clouds."

8. The Second Billings UFO Sighting

If Dennis and his wife had experienced only one UFO, the incident would have quietly faded away in the unwritten annals of ufology. However, such was not to be the case.

Dennis vowed to himself that, if such an incident ever occurred again, he would get a photograph of the object. And just before Labor Day in 1970, Dennis got such a chance, and indeed made good his intention.

On that night, with almost totally clear skies and a bright moon, Dennis's wife came rushing into the house in Decatur, Alabama and excitedly reported to Dennis that she had seen another UFO. Rushing into the yard, all Dennis could see were some distant white lights — too far away to say positively they were UFO's. However, recalling the multiple UFO's in the previous incident, Dennis and his wife took up separate watches on each side of the house. Dennis also thought of his Polaroid camera left in his car parked in the driveway, so he went to get it.

Standing between the trees, Dennis looked up into the sky and saw a UFO suddenly triggered into position, as if his thought and intent had pulled a switch and the object had suddenly appeared, positioned perfectly for his observation, pouring light from underneath for a distance of about twenty to thirty yards. This light seemed to emit some immense force and was colored like the fire, whiteness, and glare of a welder's torch. The tail diminished as the craft lowered. Dennis snapped a picture when the craft's tail had shrunk to only four or five feet long. He pulled the tab on the polaroid film and ran into the street under an outdoor light to see if he had recorded a UFO. When he saw he had done so, he then noticed the object had descended and made a left turn, moving eastward down Nelson Street slowly at about five miles per hour. Its porthole lights were still clearly visible and no sound was being made. Dennis hurried after the UFO and caught up with it at the end of the street near a T. V. A. easement, where large electrical power lines were located, running generally north to south. He got slightly ahead of the object as it traveled parallel to the power lines and as the craft passed directly over him. At the very instant he pressed the shutter, all lights in the craft instantly extinguished as if his mind had been read and the photograph deliberately prevented. The now darkened, cold, lifeless-appearing craft moved smoothly away, passing over Mallard Park where a Marine Corps Band was playing. The second photograph showed no lights whatsoever.

One of the local newspapers then printed the story and the picture, and Dennis received a call from one of the national UFO agencies. After giving the agency his photograph, his camera was mysteriously stolen from his automobile, and the agency then claimed to have lost his photograph. However, they underestimated the determination of Dennis Billings.

Dennis simply got on a plane and went to Washington, and proceeded to the office of the head of the UFO agency. The president of the organization had said that he would be out of town for several days and would be unable to see Dennis. Nevertheless, Dennis went to his office, where his secretary repeated that the gentleman was out and would not return for the day. Dennis barged into the office over the protestations of the secretary — including the threat to call the police and have him removed — and proceeded to search for his photograph, eventually finding it in the

desk drawer of the president of the organization. He retrieved his photo and returned to his home. Without his personal determination to retrieve his property, the photograph — like so many others over the years — would have been "lost." The immediate question that occurs is: Isn't it curious that one of the major UFO organizations in the U.S. — supposedly devoted to solving the UFO mysteries — exhibited the desire to misappropriate a really good picture of a UFO and see that it disappeared from the scene?

At any rate, Dennis got his photo — and a beautiful photo it was. Furthermore, the incidents experienced by Dennis Billings are classic examples of my theory. Many anomalies in the incidents will not fit orthodox theory or orthodox ideas about reality. The "pieces of light" seem to be almost intelligent. There was a close coincidence of thought/intent/expectation and kindling burst into observable reality, plus a great deal of sky-watching and expectation by Dennis between the first UFO incident and the triggering of the second (i.e., a long kindling time, just as Patterson experienced before he got his excellent movie shot of a sasquatch). And there was close experience of very distant sounds (to be expected in hyperspace, where ordinary distance can be shortened or even eliminated). Furthermore, there were multiple witnesses to the UFO incidents, and Dennis got his photograph. Psychologically, it may even be significant that for several years Dennis vowed to take a picture of any other UFO he might later see, and when he got a picture, he was prevented from getting another. And on the photograph obtained, one can see that the "craft" form of the tulpoid is only partially materialized, since the stars can be seen right through the vehicle's midsection. This is similar to the strange transparency of the Doc Shiels photograph of Nessie (the Loch Ness monster), which Ground Saucer Watch found when they performed a computer analysis of his photo. (The second Shiels photo showed that the water was being forcibly moved by Nessie, so the tulpoid was at least partially materialized.) Yet such is to be expected if one is dealing with partial materialization of tulpoids.

Finally, the entire area is located in the Tennessee Valley Authority's project. Great electrical transmission lines go through the area, and there are many long lakes and the Tennessee River. So an excellent kindling medium is provided, and many UFO's are seen over the Tennessee Valley.

The Dennis Billings photo remains one of the best UFO photographs ever taken, and coupled with Dennis's astute personal observations, it provides a key-stone insight into the actual nature of the UFO phenomena.

9. The 1973 Pascagoula UFO Sighting

In October 1973 one of the greatest UFO flaps of all time occurred in the United States, and created headlines because of the bizarre increase of contactee incidents. One of the most sensational of these was the purported abduction of two men in Pascagoula, Mississippi, who were allegedly taken aboard a saucerlike craft, examined, and released.

Shortly afterwards another incident happened in Pascagoula, which drew little attention. In this case, underwater phenomena were involved, because two U.S. Coast Guard petty officers investigated the object and made physical contact with it. An official Navy investigation was made and a report written. Unusual characteristics, highly suggestive of a device using psychotronic effects, were displayed by the object. I suggest that this device may well have been a Soviet psychotronics de-

vice, taking advantage of the UFO flap as a screen to carry out clandestine activities.

In Pascagoula an illuminated underwater object followed the boat of Raymond and Rayme Ryan, who tried to beat it away with an oar. The nine witnesses, including two Coast Guard investigators, described the object as metallic, rod-shaped, two to three feet in length, and four inches in diameter. It was attached to an oval-shaped beam ahead for four to six feet. It looked like a mini-submarine and moved at four to six knots in four to six feet of water. Although it sounded like metal when struck, it could not be struck consistently, and its light, when illuminated by a flashlight, turned off immediately and then on again after about one minute. The portion of the Ryans' oar that was under water could not be seen from the surface when the object's light beam fell on it.

At this point I would like to make some general remarks about the nature of UFO's. (1) The UFO-generating mechanism and the psychotronic mechanism are the same. (2) The Soviets may even be able to psychotronically evoke particular types of UFO phenomena at will. (3) A small number of UFO phenomena could even be generated by the Soviet Union as part of its psychotronics deception plan. However, most UFO phenomena are definitely not of Soviet initiation, (4) An explanation of the UFO phenomena is briefly sketched out in my section on psychotronics. (5) Some of the NASA photos taken of moving lights in orbit around the earth may have been of Soviet-initiated effects. Like the radiation of U.S. personnel in the U.S. Embassy in Moscow, this effect could have been intended to evoke U.S. high level reaction, to positively assess whether the U.S. had any knowledge of psychotronics, and if so, what that level might be.

10. Other UFO's

A brilliant, "crystalline-like" UFO was seen over Madrid, Spain in 1968 and was chased by Spanish Air Force planes. Whenever people are significantly structured in their thinking, symbolically "sharp" and "crystalline" tulpoids often are seen, representing their ideas. Many such UFO tulpoids are seen over Iron Curtain countries, and over countries such as Spain that have one dominant religion and culture.

In October 1973 the governor of Ohio, John Gilligan, saw this UFO phenomenon along with over 100 other people. The police were notified by the governor, and this photo was taken by the *Columbus Evening Dispatch*. Note that the tulpoids remain in the first bioframe (see Part Two), and even though their intersections change shape, the second one remains in a "burst mode."

In 1965 Rex Heflin took four pictures of a highly materialized UFO near Santa Ana, California. In the fourth photo the dematerialization "photon absorption" effect is shown: if orthorotation into higher dimensional space is made in one direction, photon (light) is emitted. If the orthorotation is made in the opposite direction, photons are absorbed. In one case "glowing light(s)" are associated with the UFO's hyperdimensionality, while in the other case "black rings" or "smoke" are associated.

FALKVILLE SPACEMAN

These two pictures are black-and-white versions of two of the photos taken by Falkville, Alabama Police Chief, Jeff Greenhaw, in an encounter during October

1973. Greenhaw had received a call from one of his constituents to say that a UFO had landed in her pasture, and he was proceeding to investigate the incident. In his police cruiser he carried a polaroid camera which he used in his police work.

Driving down a narrow gravel road, Jeff noticed a metallic-clad, suited figure walking down the road toward him, and he stopped his car to get out and have a look. For some strange reason his instinct was not to pull his pistol on the creature, and instead he started taking pictures as the creature/tulpoid walked toward him. The creature was holding something exposed in one of his hands, as can be seen in one of the photographs. As the tulpoid approached with no apparent intention to stop, Jeff then switched on the blue light above his cruiser, and the rotating, flashing light caused the creature to turn about and run away down the road. Jeff jumped into his cruiser and gave chase, eventually reaching about forty-five miles per hour without catching the tulpoid. His car spun off a curve and Jeff still had the photos — polaroids that he developed.

Bizarre things then happened to Jeff Greenhaw. His wife left him and divorced him (I suspect this had nothing at all to do with the UFO incident), he was fired from his job as police chief, vicious rumors were circulated that it all had been a hoax, and that a person had been dressed in an aluminum suit and photographed to give the appearance of a spaceman. Various fire suits were positively identified as having been the suit used. Jeff was discredited. Finally his trailer was burned down.

Before the trailer was burned, a friend of mine here in Huntsville, Warren York, visited Jeff and made photographic slides from the original polaroids with Jeff's permission. Shortly after that I had a chance to study these first generation slides for several hours, and some interesting things turned up.

The tulpoid's left hand is positively reversed in a mirror image fashion; it opens outward instead of inward as does a normal hand. (This cannot be seen on the photos shown here, but on the first generation slides it is readily seen.) Being an aikidoist, I am totally familiar with the degree of bending and flexing of most human joints, particularly the arms, wrists, and hands. And the mirror imaging of the left hand of the tulpoid is beyond question.

Furthermore, one can establish a clear shoulder line in some of the other photos, and a line just under the hat or "nazi-helmet" portion of the figure. From the other photos a remarkable thing emerges: there are only two places between the edge of the helmet and the chest that are sufficiently wide and sufficiently thick to contain a human head. The person would either have to have a neck about twelve inches long, or he would have to have a neck shorter than a Neanderthal's, with the head lolling down completely on the chest. Again, this can be clearly established in the original first-generation slides.

Finally, I have a letter in my files that establishes as a falsehood one of the rumors about Jeff. One person had admitted dressing in the suit and faking the incident, when in fact what actually happened was that Jeff went to his house immediately after the incident to ask this person to accompany him back to the area and search for the spaceman. When confronted in late 1977 by his family and friends, this person broke down and confessed that he had lied about the incident.

Finally, some other investigators dressed a person in an aluminum foil suit and photographed him, and there is no resemblance to the tulpoid photo. And Warren York investigated all the firesuits supposedly used in the hoax, including new suits used by the various fire departments and also by NASA at Redstone Arsenal. None of them resembled the tulpoid photo.

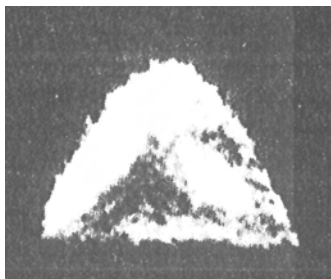


Photo 22. Spanish UFO.

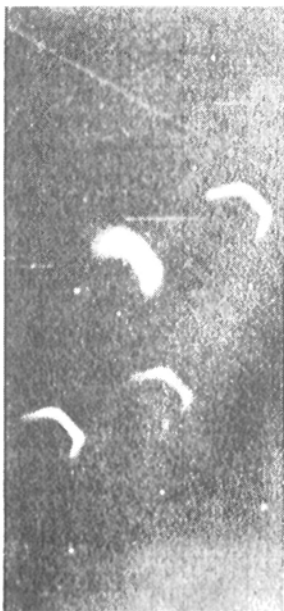


Photo 23. Ohio UFO.

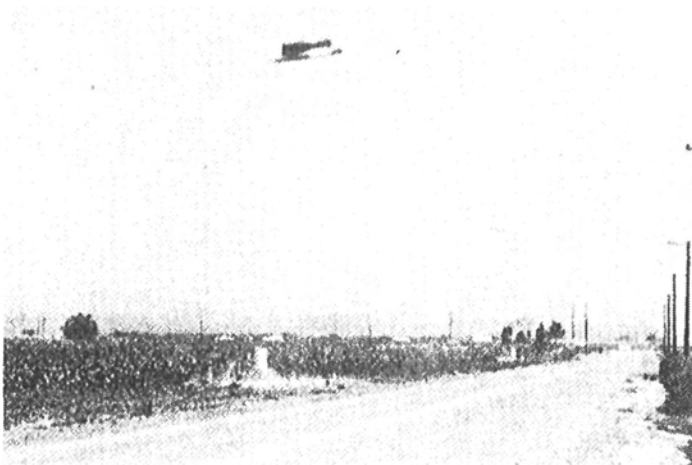


Photo 1

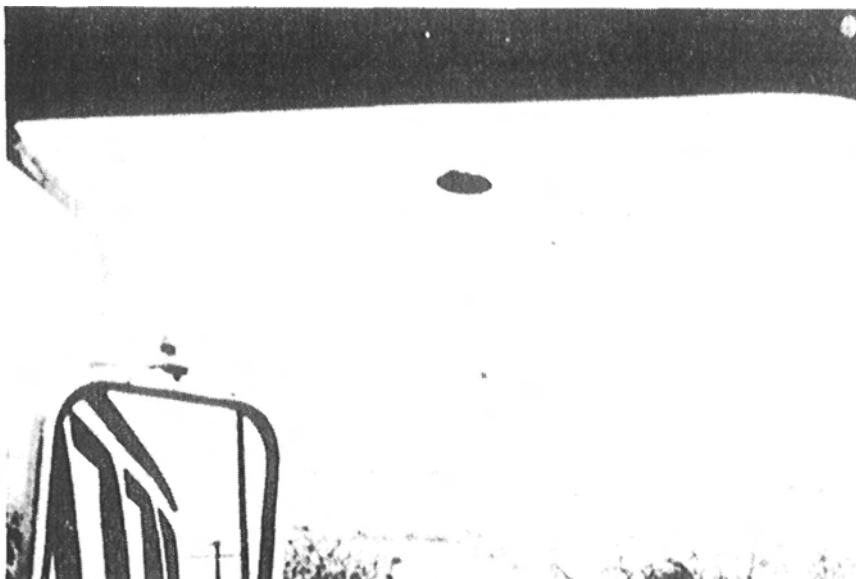


Photo 2.

Photo 24. Heflin UFO.

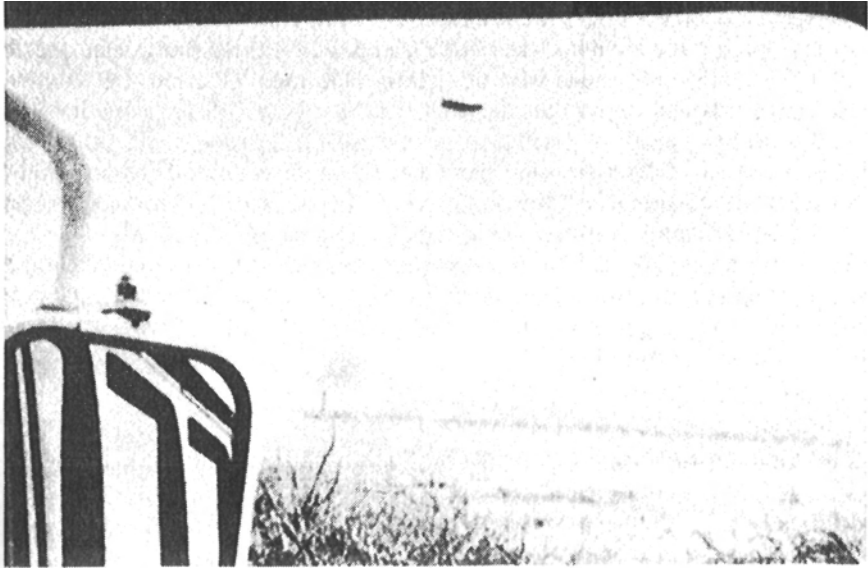


Photo 3

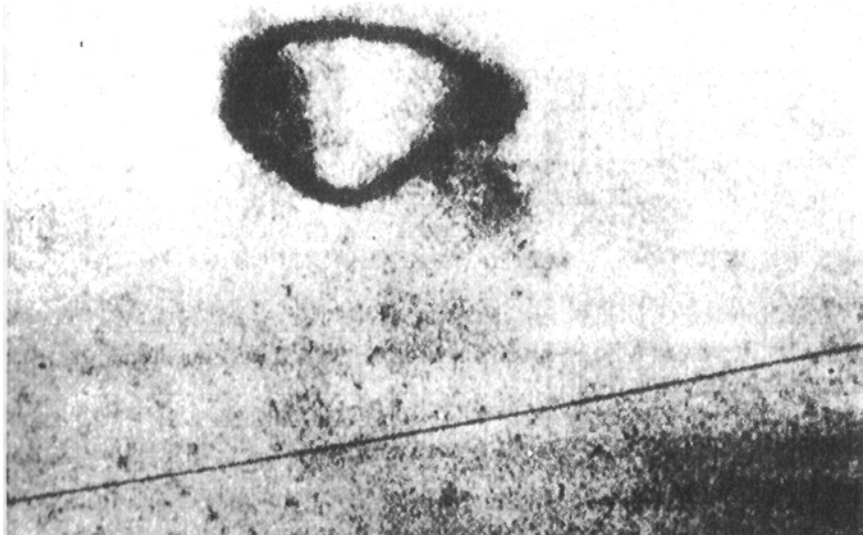


Photo 4 (enlarged)

Several photo experts have concluded that the photos are false, and several have concluded that they are not. A computer analysis concluded that they were false. However, what exactly could a computer show that would differentiate between a normal physical object and a well-materialized tulpoid?

In my opinion the incident was a fake *if and only if* three things can be established; (1) an individual exists with a horribly deformed left hand that is mirror-image backwards and opens outside away from the body; (2) the same individual either has no neck at all or else has a neck almost a foot long; and (3) the same individual can run forty-five miles per hour, faster than any other human in the world. Such an individual — if he existed — would be readily identified, and there would be no difficulty in ascertaining that he was the one involved.

There are other things about the case that I am not at liberty to divulge at this time out of respect for Jeff Greenhaw's confidence and privacy. But even so, the incident has a very high probability of being tulpoidal, and Jeff Greenhaw stands fully exonerated, in my opinion.

MEN-IN-BLACK

The kindling of virtual state tulpoidal forms into the zeroth bioframe of a physical reality (materialization) can result in the materialization of living, breathing, functioning forms. There is essentially no limit on the format that may be obtained. Sasquatch, Nessie, fairies, demons, angels, mothmen, skunkmen, yeti, kangaroos, etc. are just a small sampling — as indeed are UFOonauts such as little green men, space-suited astronauts, androids, robots, etc. These (usually) fleeting phenomena are physically real when in the materialized state (zeroth bioframe); unfortunately the tuning which is accomplishing the collection and kindling is usually unstable, and the stability to maintain the materialization lasts only a short time.

One of the consistent phenomena experienced by many UFO investigators is that of men-in-black. Typically, oriental-featured men in dark suits appear and demand the investigator's material, instructing him to cease his efforts. Usually they have almond-shaped eyes that never blink, and speak telepathically without moving their lips. Variations, of course, occur.

Here is an incident that happened to a friend of mine in the city where I live (Huntsville, Alabama). At the time my friend was an ardent UFO investigator and even wore a radiotelephone so that he could be contacted quickly at any hour to go and investigate UFO incidents in the field. He is the friend who investigated the Jeff Greenhaw case and took slides of the original Greenhaw photos before Greenhaw's trailer was burned.

A friend of his, a girl with psychic abilities, was approached one evening in her apartment by two medium-sized, almond-eyed men of oriental cast, in typically dark suits. These tulpoidal gentlemen's eyes never blinked and they spoke to the girl telepathically without moving their lips. They handed her an envelope containing two ancient coins and instructed her to give the coins to my friend, and inform him that he must keep them on his person at all times. After other messages that completely frightened the girl, the two tulpoids left, never to be seen again.

In tears from fright, the girl contacted my friend and between fearful sobs urged him to take the envelope and get it away from her, as she never wanted to see it again or the two men who had brought it.

My friend picked up the envelope and later examined the two coins. I also personally examined them: to anyone who is sensitive, the coins radiated an invisible unpleasant tulpoidal energy.

The investigator then photographed the coins, and daringly placed one on a string around his neck against my own advice to seal them up against light. He promptly broke out in a rash from head to foot and was shortly forced to remove the coin and seal it away. Interestingly, photos of the coins seemed to have about half the effect of the actual coins.

For a period of two years I kept my copies of the photos sealed against light and stored in a file cabinet. To my surprise, several times when I went to retrieve the photos, they would alternately be there and not there. I simply state what occurred, without any change or justification. Eventually, however, their effect seemed to decay, and at that time there was no longer any problem in recovering them from the filing cabinet.

The men-in-black syndrome is based on our own unconscious tuning; since each of us has some unpleasantness in the unconscious, sometimes the tuned-in men-in-black can be very nasty indeed.

I am personally aware of several good researchers into the paranormal who have been forced to retire from the field to save their own lives and the lives of their families. As late as April 1978 a very good friend of mine has been forced to do just that because of overwhelming danger to his family from materialized tulpoidal phenomena.

In my own case I have found it expedient to work closely with a group of psychic friends in the American Association of Meta-Science. This group is capable of clairvoyantly peering into the unconscious to ascertain the most unpleasant blockages present, and forming energized thought forms to go in and cleanse the unconscious of most of the unpleasantness. In this way the unconscious can be kept relatively free of unpleasant tuning that might otherwise tune in something like the men-in-black. My own life and experience has not been free of tulpoidal tuning; however, it has been free (at least so far!) of tuning in anything really unpleasant, or nasty, or threatening to my family.

But I continue to be very grateful to my psychic companions for their understanding and assistance, and I continue to avail myself prudently of their services when needed.

SASQUATCH

In many regions of the earth there exist legends of giant, apelike creatures of various sizes, hues, and dispositions. In the high Himalayas this takes the form of the yeti, a humanoid creature sometimes seen in the snows of high and remote fastnesses. Expeditions have in fact uncovered and photographed the yeti's tracks, and sightings by reliable observers have been made. Several parties have also reported hearing the yeti's strange vocal sounds.

In the remote Siberian wastes the Soviets have also reported such a manlike humanoid creature, even purporting to have captured one a century or so ago.

In the U.S. the tulpoidal form similar to this has been the sasquatch of the Pacific Northwest, known since Indian times, and observed hundreds of times by a variety of persons over the years. Nevertheless, in spite of intensive searches Big-foot continues to elude all pursuers while continuing to be sighted and leave foot-prints.

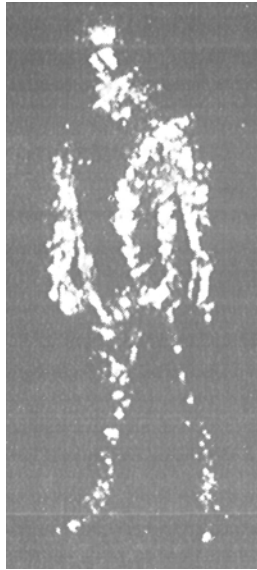


Photo 25. Falkville spaceman.

But Bigfoot cannot be caught by packs of hounds. (This has repeatedly been tried. His lair is never uncovered, nor can he be tracked to it. He has never been found dead of old age or injury. The bones of sasquatch have never been uncovered in caves or elsewhere.)

Furthermore, not just one type of footprint or one type of creature is seen; instead, a variety of shapes/sizes/types of creatures appear. This is one particular clue to the fact that we are not dealing with a species of shy and elusive wildman, but instead with a tulpoid.

Sasquatch cannot normally be found — as indeed Nessie and the yeti cannot — because shortly after each appearance he is no longer present in this bioframe.

However, as interest in sasquatch/Bigfoot grows and the effort to discover or uncover him intensifies, the kindling of the tulpoidal form intensifies. Today bigfoot-type creatures of all varieties and hues are being seen throughout the U.S., from Maine to Florida, from Alabama and Tennessee to Oregon, Washington, and California. With this intensity of kindling, it is getting easier to evoke a bigfoot-type tulpoid, and as it continues, sasquatch is probably going to be tuned in and stabilized. If so, the past itself will just be changed, and we will be able to dig up ancient bones of sasquatch, and find his lairs, and track him down with dogs and capture him. In that case, sasquatch will become a respectable animal and will stabilize in our reality. Tulpoidal activity from the collective human unconscious can be stabilized and the entire past, present, and future changed by the awesome 4×10^9 dimensional psychokinetic mastery of spacetime exerted by the species unconscious.

We also should not be at all surprised if the same thing happens to the placid Loch Ness monster. There is probably going to be a family of pleisosaurs living in the Loch eventually (and in many other bodies of water across the globe) — and spacetime will be changed (past, present, and future) in our zeroth bioframe to accommodate this small shift in the collective human unconscious. In reference to changing the past, it is interesting to note that Wheeler has recently demonstrated that, in the two-slit experiment (which contains the basis of quantum mechanics), it can be decided *after the fact* whether or not a photon has interacted with two slits or with one. Thus in at least one sense the past can be changed!

After several years' intensive search for and pursuit of the elusive Bigfoot in the Pacific Northwest, Roger Patterson finally obtained a short movie strip of a very large, seven-foot tall female with pendulous breasts and crested head, walking through a forest clearing with giant strides. This is perhaps the best frame from that movie strip. Sasquatch tulpoids have been known since ancient time by the Indians who lived in the area. It would be interesting to see what results could be obtained in materializing or partially materializing the Bigfoot tulpoid with a Reichian cloudbuster.

Bigfoot-like creatures are materializations from the collective human unconscious shaped and formed by the layers (race, culture, nation, territory, state, region, family, etc.) between the collective unconscious and the individual unconscious minds of the observers. The exact format depends on all the higher level "kneading" of the "dough" that is being forced out into materialization.

In the Pacific Northwest the Indian knew of the sasquatch long before the coming of the white man; in that region, a great deal of tuning has been accomplished, and the sasquatch is a rather well-tuned animal form, having well-

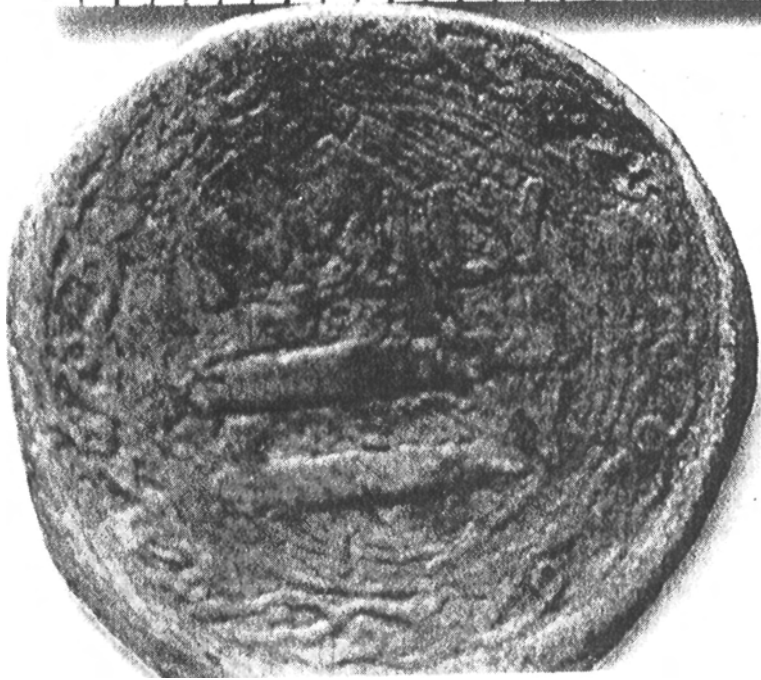
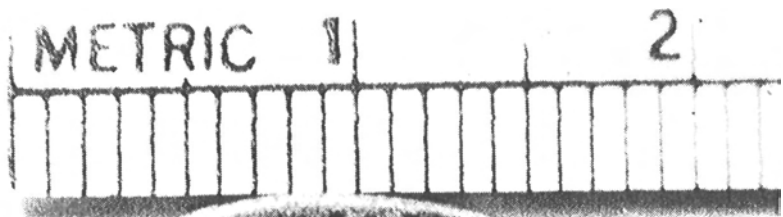


Photo 26. An ancient coin handed to a psychic friend of a UFO investigator by tulpoidai men-in-black.

defined footprints as shown in Photograph 28. In the East, the yeti has also been tuned for centuries, and a cast made from his footprint is quite well formed — though also quite different from that of a typical Pacific Northwest sasquatch. In New Jersey, on the other hand, for the last two or three years there have been a large number of Bigfoot sightings, but here there has not been the same degree of tuning for several centuries, and consequently the footprints look rather messy, like blobs left by the creature before it vanished back into dematerialization. Finally, in one case a person well-known to me stumbled into dematerialization phenomena of a very strong nature. One of the incidents involved the materialization of a really gigantic "superfoot" creature, which walked around all over the base of a mountain, leaving giant footprints two feet or so long. Though monstrous in size, superfoot is really ill-tuned and thus ill-defined, with footprints that are decidedly blobby in form.

UFO's OVER THE SOVIET UNION

In 1961 locomotive engineers on a freight train from Moscow to Golytsino, when about forty kilometers from Moscow, sighted a disc-shaped object topped by a cupola approaching the train. The object slowed to pace the train and escort it for about one kilometer. Suddenly the locomotive engines went dead, and could be restarted only after the mysterious object disappeared.

On December 29, 1967 an Iliouchine 14 aircraft enroute from Zaporozje to Volgograd sighted an approaching UFO. As the UFO neared the aircraft, suddenly the aircraft's engines stopped in midair and the plane began slipping sideways toward the earth, carrying its panic-stricken crew to certain destruction. When the crippled aircraft was about 700 meters from the ground, the UFO abruptly disappeared. At the same instant the aircraft engines sputtered and roared to life again. The pilot righted the aircraft as lift returned, narrowly averting a crash.

On September 24, 1962 first one oval object then several others escorted a TU-104 airliner enroute from Vorkouta to Omsk and maneuvered around it with astonishing speed and agility. The eerie aerial escort continued for most of the flight, and the objects were extensively observed by both the passengers and the crew. The objects positively could not have been other planes, balloons, satellites, celestial objects, or other known natural phenomena.

In Latvia in 1965, R. Vitolniek, a well known astronomer, together with several scientific colleagues, sighted a triangular-shaped formation of four spherical objects, one at each of the points of the triangle and one a little larger in the middle of the triangle. Two of the scientists, Ian Mederis and Robert Vitolniek, made immediate calculations and insured that the objects were not satellites or normal orbital objects. The objects steadily shrank in size, leading Vitolniek and his colleagues to conclude that the objects were traveling away from the earth into outer space.

At least two Soviet astronauts, Colonel Bykovsky and V. Terechkova, have observed UFO sightings and reported them to the Soviet authorities. Many other UFO sightings have occurred in the Soviet Union and the Iron Curtain countries; **these** are just a sampling.

In fact, on several occasions Soviet defense forces have been committed into massive action against UFO's.

In 1959 numerous UFO's flew over Soviet rocket launchers at Sverdlovsk. In addition to being visually observed by a large number of personnel, they were detected and tracked on Soviet radars. Soviet military units were ordered into action immediately. Interceptors and antiaircraft artillery batteries went into action and the air defense missile units opened fire. In spite of the fierce engagement of the elusive UFO's, none were hit or damaged and no results were obtained by the Soviet combat forces. Men, machines, guns, rockets, missiles and radars could not cope with the UFO's. The impact in the Soviet military of several such military actions must have been enormous.

In fact, such incidents as this probably were responsible for the establishment of an extremely high level and highly classified Soviet investigation of UFO phenomena. Given the decision to launch such an investigation — and it would be inevitable for the Soviets to take such a step when their air space was under open invasion by possibly hostile forces — the Soviets would have assembled a formidable scientific team to tackle the problem. Furthermore, given the highly classified military reports of such encounters, reports of UFO incidents at other Soviet installations and by other Soviet military personnel, and the steady occurrence of the normal range of UFO sightings and incidents over cities and villages, the Soviet system would have tolerated no scientific nonsense in opposition to the mission to discover the nature of the phenomena. In other words, the Soviet team from the beginning would have concentrated on finding the explanation and nature of the phenomena, not on whether or not such phenomena were real or were occurring.

In my opinion, a connection between UFO's and paranormal phenomena — and the new psychoenergetics which also was formulated by 1959-60 — was realized about 1960. The high classification of the Soviet psychoenergetics program then led directly to an official Soviet policy to debunk UFO's and paranormal phenomena if the work of any outside research group became too serious. Some Soviet scientists who had no connection with the weapons programs were allowed to work a little on paranormal phenomena and on UFO's. This was simply to provide a deception plan for Western scientists; in their contacts with their Soviet scientific colleagues, these Western scientists would see only a rather puzzling collection of simple laboratory experiments on telepathy, ESP, simple psychotronics, psychokinesis, etc. A limited number of Soviet papers dealing with these subjects, but of no particular theoretical content or very exact statement of experimental apparatus and conditions would be permitted in the open journals. However, close scrutiny of such activities would be maintained by the Soviet state, and no real breakthroughs would be permitted to occur or to be transmitted to the West. Ziegel, Dubrov etc. owe the limited work they were permitted to do to this Soviet deception policy.

They also owe the surveillance and harassment they have undergone to the Soviet policy of insuring that they would be permitted to do nothing significant, or to communicate nothing significant to their Western colleagues. Meanwhile, a rigorously controlled and highly classified Soviet psychotronic weapons development program continued apace. And the radiation of the U.S. Embassy (and the U.S. ambassador to the Soviet Union) in Moscow with weak radiofrequency microwaves containing psychotronic modulations began about 1959-60 and con-



Photo 27. Sasquatch.



Photo 28. Bigfoot cast.

tinues to the present. As explained elsewhere, this radiation was in fact another very clever Soviet intelligence probe: By observing how the U.S. reacted, they could determine whether the U.S. had any knowledge of psychotronics and thus whether or not the U.S. had developed secret psychotronic weapons and counters of its own.

The Sighting over Petrozavodsk

Even more spectacular phenomena have occurred in Soviet skies and are continuing to occur.

For example, a mysterious phenomenon of great magnitude occurred in the skies over the Soviet city of Petrozavodsk at about 4:00 A.M. on September 20, 1977. Petrozavodsk is in Soviet Karelia about 130 miles from the Soviet-Finnish border.

First, a gigantic mass of light flared up in the skies over the city, glowing brilliantly, and hovered there. Fantastic streamers of light poured from the glowing hemispherical dome of light and radiated down towards the city. Tass, the official Soviet news agency, reported that it looked like nothing so much as a shining "jellyfish sending down a multitude of fine beams." It gave, Tass said, "the impression of a torrential rain of light." Where these fine beams touched windows, many windows were broken or perforated with small holes.

Later the glow died down and the jellyfish became a single giant bright semicircle. It then gradually moved off in the direction of Lake Onega. But all was not yet over. Even after the bright hemisphere had moved away, great gray clouds appeared over the city with a semicircular aperture bright red in the center. These phenomena lasted for ten minutes or longer.

Being over the city and lighting up the sky so fantastically, the phenomena were seen by a large number of Soviet citizens and reported by them to the Soviet authorities. In fact, Tass admitted in its initial release that informative reports from witnesses were still pouring in and being analyzed. This interesting phenomenon is worthy of some remarks by way of explanation.

Not only is pressure from the Soviet threat transmitted through the collective human unconscious (ZARG) to the skies of Europe and North America; in addition, a backpressure is generated, which provides the impetus for initiation of appropriate phenomena over the Soviet Union and the Iron Curtain countries. Psychologically, it may not be accidental at all that the original shape resembled a giant jellyfish; the implication is that the psychotronic sting will also be transmitted to the Soviet Union by backlash whenever the Soviet psychotronic weapons are unleashed on the West. The shapes are also psychologically significant. First the Portuguese man-o-war's stings will be applied (this accounts for the tentacles toward the city); then the all-seeing eye (symbolized by the bright hemisphere) will check the results. And the results will be gloom and despair (gray clouds), surrounding death, blood, and destruction (the red center) left in the aftermath.

Thus in this materialized symbolic dream event of ZARG's, there is a clear warning and an omen to the Soviet Union about the end result that awaits it on its present course to attempt to conquer the world and unleash a great psychotronic barrage in the process.

Since so many Soviet citizens saw and reported this fantastic phenomenon in alarm, the Soviet regime could not ignore it or simply debunk it. The Tass release

thus tried the oblique dodge: the phenomenon was still being evaluated, reports were still being received and checked out, and an official of the Petrozavodsk observatory, Yuri Gromov, was quoted as saying the phenomenon was still a mystery but was confirmed by a large number of eyewitnesses. The Pulkovo observatory in Leningrad was quoted by Tass as speculating that the phenomenon was due to a meteor. And of course there one can expect the matter to be left in limbo.

An interesting development related to this UFO sighting occurred in the U.S. The October 3, 1977 issue of *Aviation Week and Space Technology* magazine carried a brief disposal of this phenomenon. The brief insert, Spook Show, referred to a "Soviet press ballyhoo" of the incident and stated that the incident was actually the launching of the Soviet Cosmos 955 classified military satellite from secret launching facilities at Plesetsk. This AWST insert is credited to Washington Staff.

My comment is that the launching of the Cosmos 955 may well have been the initiator of the event — a rocket firing does produce a tremendous ionized trail of burning exhaust gases rising up into and out of the atmosphere, and this is a bio-energy collector par excellence. However, a simple review of the time sequence of the phenomenon, its location, and its shape is sufficient to destroy any notion that one could mistake it for a simple rocket launch. And rocket launches had occurred there many times before, with no such phenomena or mass reportings by the population, and with no such news release by Tass.

FRENCH EXPERIMENTS WITH PSYCHOTRONICS

Aime Limoge in France is building some truly unusual gadgets that are being tested and that work. Limoge travels widely in the Soviet Union, and attempts to duplicate some of the unusual Soviet devices he has been permitted to see. Some of Limoge's devices have a partially psychotronic nature, although none of his reports mention this.

One of his gadgets, a portable and battery-powered electroanesthesia device, was considered for purchase by the U.S. Army.

Another of his gadgets is a magnetic inductor of hypnosis, which has been used in medical treatment by L'Institut de Recherche d'Electro-anesthesie. Limoge is reported to have seen such a device in the Soviet Union, possibly because one part of the Soviet psychotronics deception plan calls for the deliberate release of information of this kind, in a manner to suggest that this is the latest state of development in the USSR. In fact, their research efforts probably go far beyond this point. However, we should note that this device can be used as a most efficient brainwashing instrument.

DOWSING

To understand how dowsing works, we must first understand something about higher dimensional spaces. It should be evident that, if there is a type of energy being sensed by the dowser, that energy must be coming in or arriving from outside this three-dimensional world, since our ordinary science deals with the energies existing in this world, and none of these ordinary energies can explain dowsing. However, because of the work that has been done showing that dowsers are extremely sensitive to magnetic fields, this energy must be somehow related to the ordinary magnetic or electromagnetic fields known to science.

In the human being the mindworld must itself have a coupled kindling system to cohere its changes and kindle them into electromagnetic energy and energize the physical body. The body system which does a great deal of this is the acupuncture system of points, plexuses, and meridians. Also, all powerful emoters, such as the endocrine gland system, are deeply involved in the kindling of the biological organism's mind energies into electromagnetic energies to energize the physical body. The body and its biorhythms form a coherent tuner in the time channel to accomplish this kindling of time-nested vital thought energies into ordinary energy. Because a great deal of mind energy kindles into only a minute amount of normal electromagnetic energy, our minds normally have only a small effect in this particular three-dimensional world. So we can normally psychokinetically move a few electrons in our brain and nervous system, and generate an input signal to our otherwise inert physical servomechanism. Ordinary inert physics and amplification takes over from there, and we can only deduce the kindling as mental intent from observing many, many quanta of physical change, i.e., from macroscopic behavior. At any rate, the dowser has learned to detect, focus, and sense very fine levels of electromagnetic fields, which means that at these low levels the kindling of mental energies can represent a much greater percentage of the field than normal. Thus the practiced dowser can now discriminate many of the particular types of fluctuations or changes in these weak fields due to mind kindling.

Furthermore, I would like to point out that, since mind kindling comes into this universe orthogonally, normal distances do not apply. The entire physical frame appears to the mind world as a point, and thus is totally inside the mind of the operator/dowser. It is for that reason that a dowser can establish a coherent tuning (intent) between a map and the actual ground, or between a picture and an actual object, or between a rod and a person's physical body when sensing medical illnesses. In the mindworld frame, the dowser is only dowsing or detecting himself, and himself includes this entire physical world — the earth's surface and beneath it, the sun, the moon, the stars, or whatever.

Just as the body used electricity, magnetism, and electromagnetic signals long before man knew of their existence, it has used kindling of bioenergy from higher dimensional frames for a very long time, even though these have been unknown to mankind. And dowsing is a very old art indeed; the ancients used magnets without knowing of magnetic field, and they used dowsing without knowing of hyperspaces and hyperfields.

THE STROBE EFFECT

These five pictures show one of the more interesting effects demonstrated by many tulpoidal forms: strobing or "coining." What happens is that, much like a flat rock skipping across the surface of a pond, the orthorotating tulpoid skips in and out of its intersection with our three-dimensional frame.

In the first picture a glowing spherical tulpoid is shown to skip or strobe several times while the camera shutter is open. It does not move in a linear pattern, but rocks around and back-and-forth.

In the second photo, an aerial photo, a UFO in photonic form (first bio-frame) reveals itself to be strobing or skipping. (In university classes on the paranormal, I often refer to this type of action as *coining*, since it resembles a bright quarter or nickel that is photographed by stroboscopic light while rolling around.)

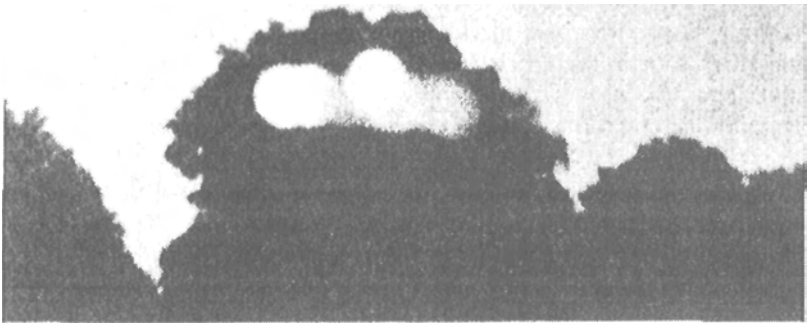


Photo 1



Photo 2

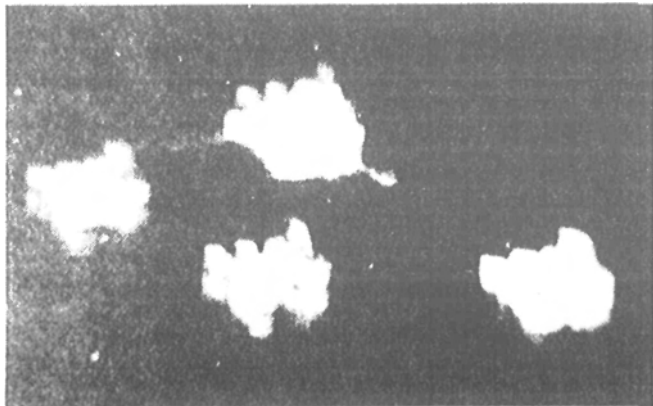


Photo 3

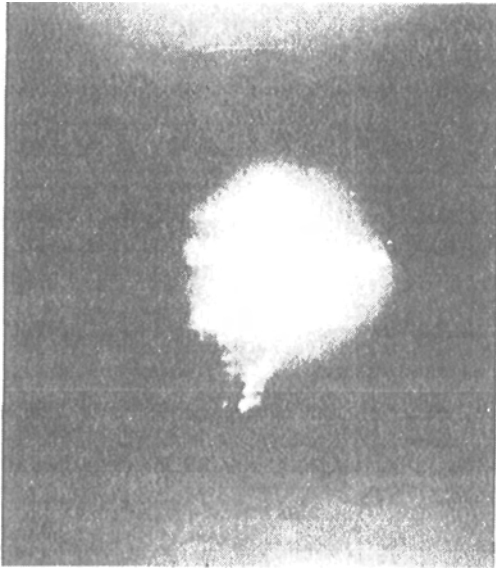


Photo 4

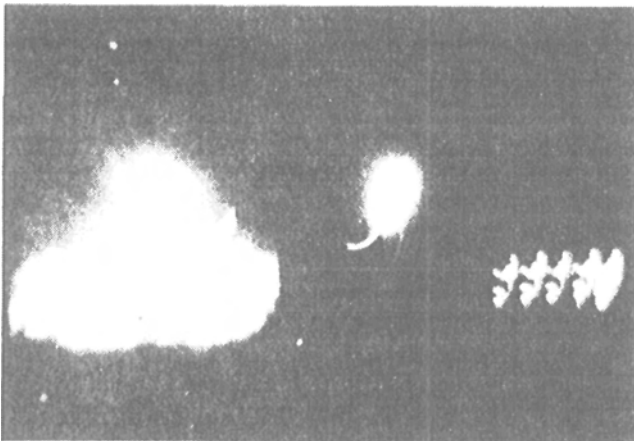
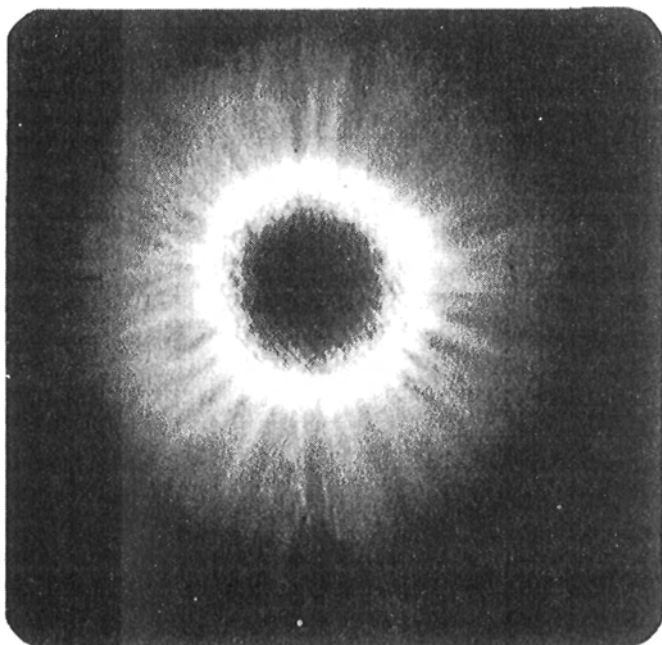


Photo 5

Photo 29. The strobe effect.

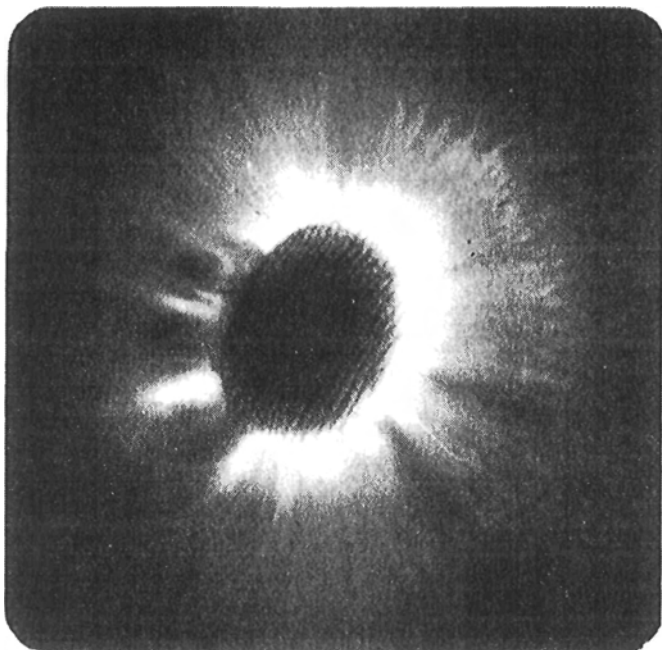


1. Even dischargo from Inert object (dime).

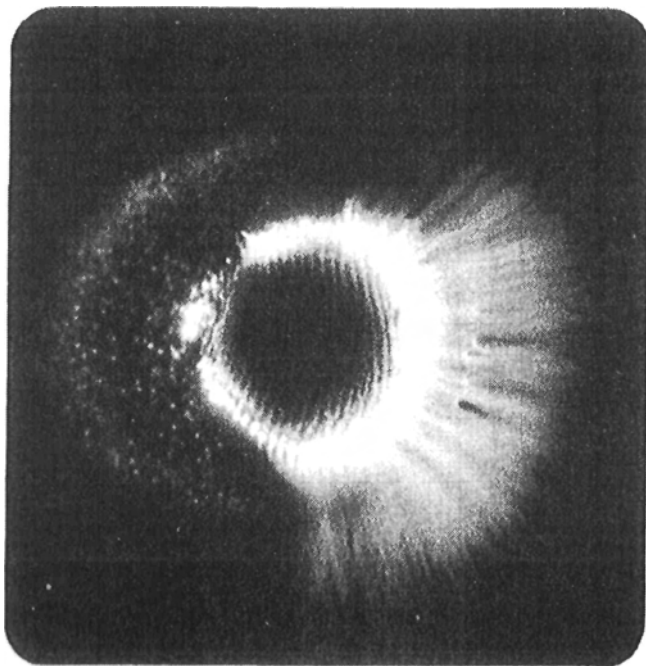


2. Healthy person in calm state

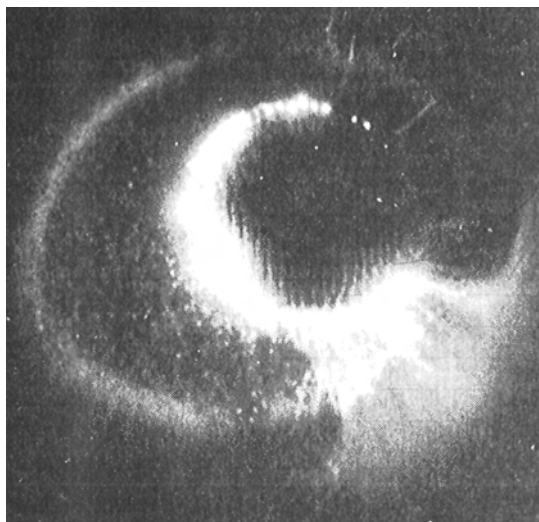
Photo 30. Kirlian photography.



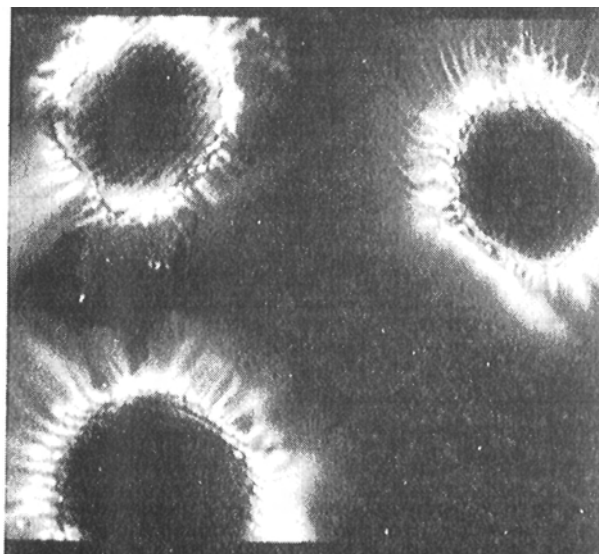
3. Person in meditaton



4. Angry person.



5. Person with London flu.



6. Interactions between three persons.

The third photo shows a more striated form. In fact, these forms show kindling and strobing at the same time. In addition, the physical size of the strobed intersection with our three-dimensional space changes during the photo exposure.

The fourth photo clearly shows both the striations due to strobing and also the variation in size of intersection in the zeroth frame by the hyperdimensional tulipoid.

Photo five again shows these effects, with the addition of the two "bursts" in the upper part of the left tulpoidal object and in the center tulpoid.

Significantly, psychokinesis also often demonstrates stroboscopic movement.

KIRLIAN PHOTOGRAPHY

These six pictures show some major characteristics of Kirlian photography: (1) an even discharge from an inert object (a dime); (2) a balanced, gentle, even discharge from a healthy person in a calm state; (3) a gentle outgoing discharge enhanced on one side, and a gentle indrawing on the other, from a person in a meditative state; (4) strong bunching and outgoing discharge from an angry person (the word "emote," after all, means "move outward"); (5) choppy (as if out of control) bunched and outgoing discharge from a person ill with London Flu, with strong suppression of the normal, relaxed blue component at the lower right; (6) interactions between three persons, showing differing degrees of outgoing and barrier reactions.

The film itself only records ordinary photochemical interactions; it specifically does not record the aura. However, changes in the discharge patterns can be and often are induced by kindling bioenergy into the first biofield (electromagnetic field), inducing changes in the sparking pattern and intensity. Furthermore, this can occur fairly readily on such a high voltage series of discharges, which are excellent collectors for kindling.

As a final note, it should be pointed out that David Faust *et al* have published a technical paper in the scientific literature detailing the fact that Western experimenters have not yet duplicated the Soviet equipment and methodology used in their Kirlian photography. While David formerly pointed out in *Science* that experimenters must carefully control the variables—particularly moisture (water is an excellent collector for kindling)—he has been widely misinterpreted as having proved that water vapor was responsible for all Kirlian effects. This he has not done at all, nor did he intend to, since he himself is one of the most competent investigators in electrophotography.

INTERACTION OF BIOFIELD, THOUGHT, AND SPARK DISCHARGE

These photographs are strong examples of the kindling mechanism. The subject tested was Uri Geller, a person with strong inceptive ability. In photo 1, the top two exposures are for control purposes, while in the bottom exposure, Uri is concentrating on the image of a circle. In photo 2, again there are two control exposures shown at the top, while in the bottom exposure Uri is concentrating on the image of a triangle. In photo 3, exposures are taken of Uri and a wristwatch; this is

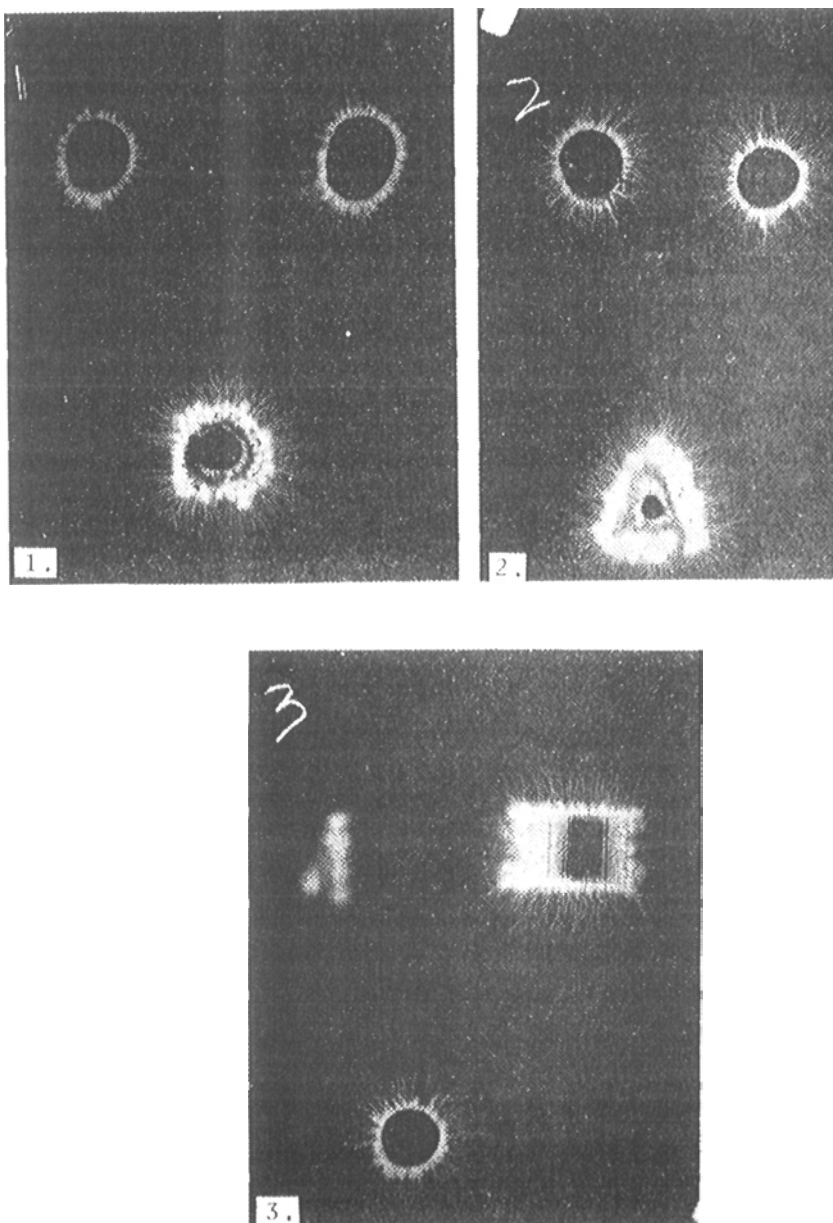
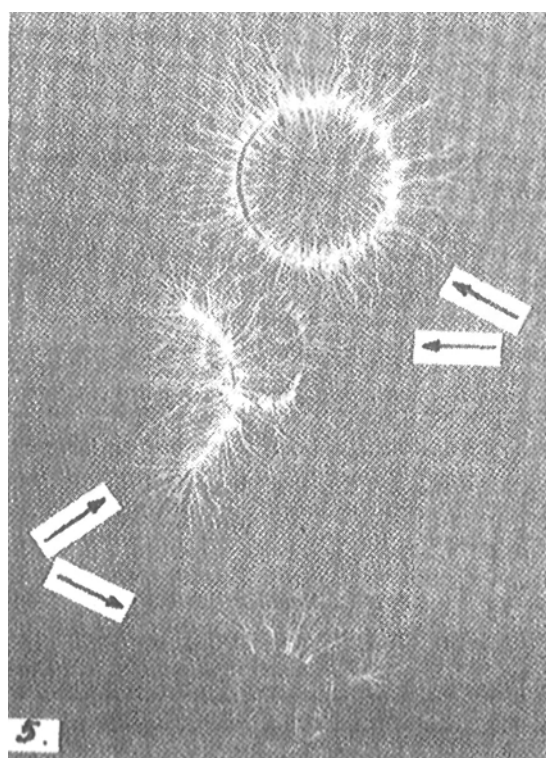
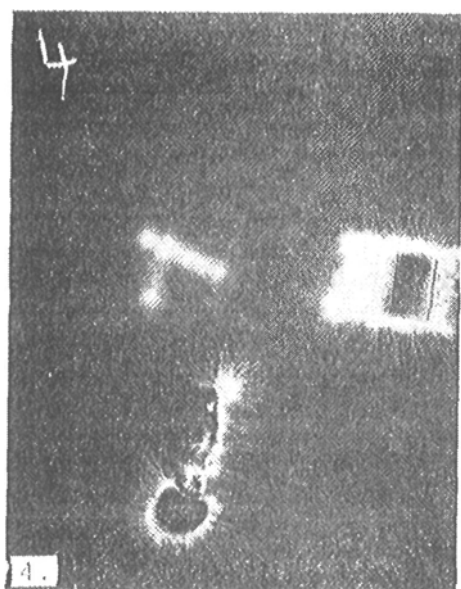


Photo 31. Interaction of biofield, thought, and spark discharge.



a control photo. In photo 4, Uri is attempting to send energy toward the wrist-watch, and a correlated change in the discharge patterns from his finger is evident. In photo 5, the arrows at the right point to control exposure of Uri and a silver ring; the arrows at the left point to the exposure made with Uri attempting to bend the ring psychokinetically without contact. The direct kindling of bioenergy in a force-field line intersecting the ring is striking. In such an intense kindling, note that the nuclear currents inside the nuclei of the silver atoms — where positive charge is being shuttled back and forth between protons and neutrons — are also being strongly kindled. Reductions in the positive charges steadily reduce the charged exchanging particles to quarklike particles, severely affecting the structural integrity and crystalline lattice directions of the base metal. By this means metal bending — or even breaking — is accomplished.

KERVAN EFFECT

A direct and repeatable experiment showing that living systems can kindle bioenergy into ordinary energy and material effects has been made possible by the fascinating work of Louis Kervran. Kervran showed that chickens, fed a diet deficient in calcium but containing excess potassium, will have no calcium deficiency, since they transmute some of the potassium into calcium. Kervran's pioneering work has been duplicated in Japan and elsewhere, and the same effects have been demonstrated by living plants.

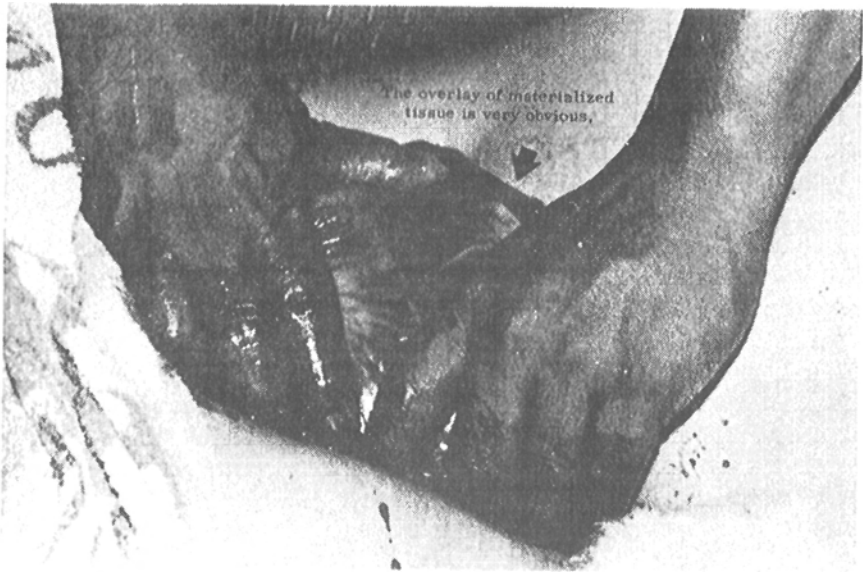
We may consider a neutron as a sort of bound system of a potential proton and a potential electron. Psychokinetically killing the charge on the potential electron converts the electron into a neutrino, leaving behind a proton now freed. For the one percent or so of potassium that is a calcium isobar, this process can produce ordinary calcium. Thus in a potassium-rich diet the chicken can psychokinetically transmute enough potassium into calcium to remain healthy.

Kervran was nominated for a Nobel Prize in 1977 by the Japanese researchers; his work is direct proof of the ability of living systems to violate present physics, and of the ability of mind energy or bioenergy to affect matter psychokinetically.

PSYCHIC SURGERY

These two photos taken by Sigrun Seutemann in the Phillipines show materialization of large lumps of tissue brought about by Tony Agpaoa on a patient from an educated Western culture. The minds of both the patient and the surgeon are involved in the process, according to the psychic surgeons themselves. "Western patients are strongly conditioned to believe that medicine involves bloody tissue, so this is what results in the particular form of the materializations. For native patients who are steeped in the lore of shamanistic medicine, apports may consist of substances such as leaves, coconut fibers, feathers, etc.

The legitimate surgeons, working in a religious group structure, are often able to generate sufficient kindling to fully materialize such unconsciously structured thought forms, and also to dematerialize and rematerialize the tumor from inside the patient's body, the tumor usually appearing or emerging from an opening which appears in the apport tissue. In the surgeon's view he is also being helped by powerful spirits — and continual charging of such thought forms with kindled

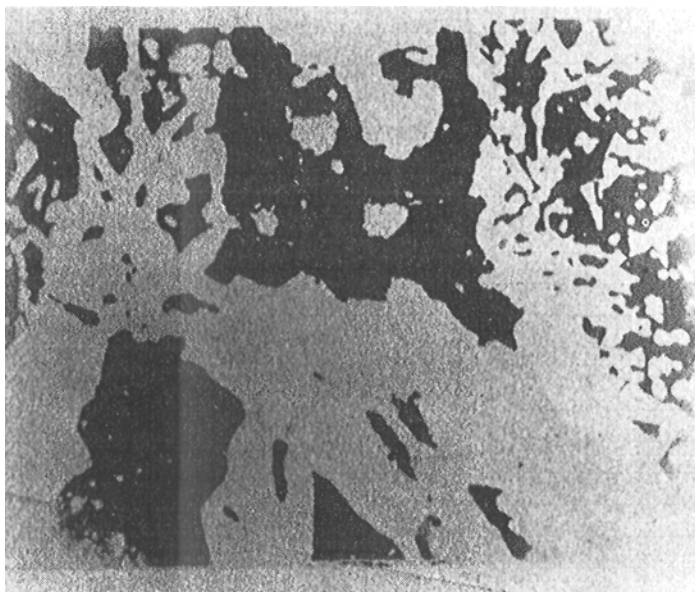


1. Materialization of apport tissue while removing a tumor from the abdomen.



2. Materialization of apport tissue while working in the hip region.

Photo 32. Psychic surgery.



This highly unusual photograph resulted in the following manner: Mrs. Baune is a devoutly religious lady, and on this particular day she had spent a great deal of time in prayer and a Christian attitude. Snow was gently falling on the shrubbery in her yard, and she and a neighbor were admiring the beauty of the fresh snowfall. The neighbor borrowed Mrs. Baune's camera and snapped a photo of the snowfall. When the photo was developed, the falling snow had formed a pattern of Jesus on the shrubbery in Mrs. Baune's yard.

Photo 33. Kindling of thought bioenergy in snow.

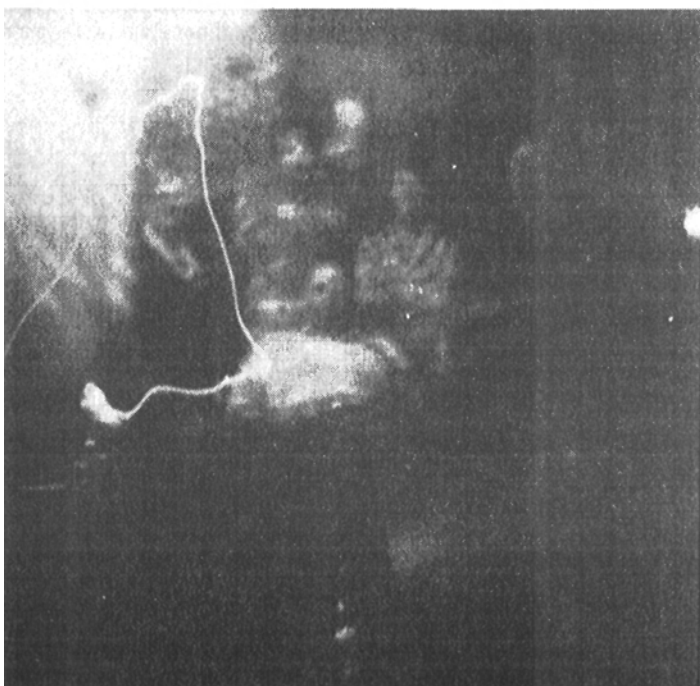
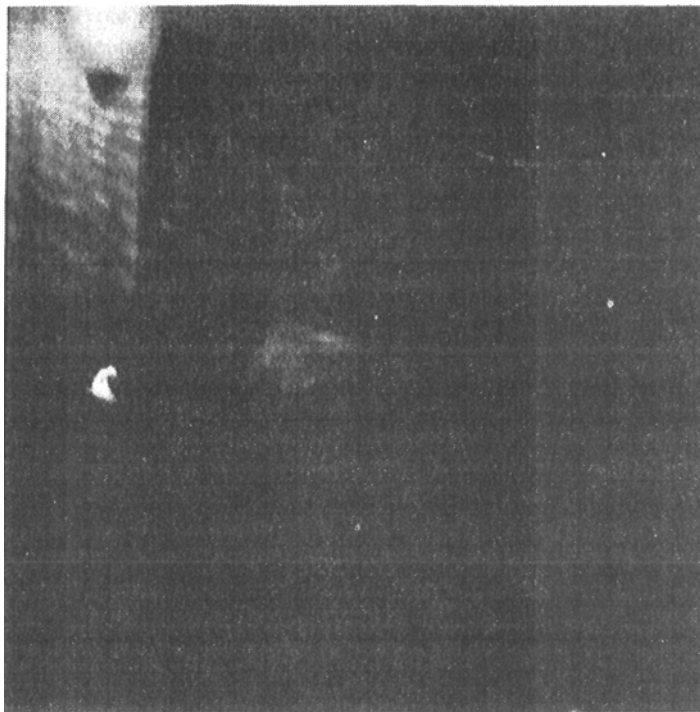


Photo 34. A deliberate experiment with kindling.

energy indeed can yield bioenergetic formats of more intense energy than a single talented individual can usually muster in an unaided or unaugmented state. Almost every religion, in fact, still occasionally exhibits miracle healing accomplished in somewhat similar fashion, though possibly less dramatically.

The apport tissue is a materialized tulpoid, precisely as are sasquatch, the yeti, the Loch Ness monster, and UFO's. Apports are normally more stable than these latter materializations — but they have also been known to disappear, as have the "angel hair" apports associated with UFO's.

A DELIBERATE EXPERIMENT WITH KINDLING

I and other members of the American Association of Meta-Science performed a series of experiments in kindling thought or psychic energy into electromagnetic energy, and photographed the resulting light energy on film with an SX-70 camera. The two photos shown here are from one of those experiments. In the left picture, bioenergy is just at the "burst" point where it is being collected on a candle flame. Here the camera lens is not quite fully opened. Only a single 40-watt lamp illuminates the room, and several AAMS members have been engaged in about two hours of psychic exercises. In the second picture, the lens of the camera is fully opened, and a "burst" of kindled energy occurs as the lens shutter is operated. None of this is visible to the naked eye. The polaroid film, however, is sensitive to some infrared and ultraviolet frequencies, so that bioenergy kindling into electromagnetic energy at IR or UV frequency can be photographed even though not seen by the naked eye.

FAY CLARK'S "FIREFLIES"

Fay Clark experimented with an ultrasonic generator in a darkened fallout shelter and photographed the most interesting results. At one particular frequency, dynamic dots of light appeared, grouped themselves into formations, and demonstrated movement and growth. At times they seemed to respond to thought, as if they were somehow intelligent, sentient creatures. This is a beautiful case of kindling using ultrasonic frequencies as the collector mechanism. While Fay is no longer sure of just exactly which frequency produced the fireflies, he does know that he used frequencies in the 38—40 kilohertz region, among others. This may be significant, since the Vestigia experiment encountered electromagnetic frequencies in the same region in their historic study of a mystery light. The frequency region 38—40 kilohertz is a strong candidate for one of the magic window frequencies between bioframes where kindling is much easier than at other frequencies. Furthermore, since it is thought energy or mind that is actually being kindled, one would expect the possibility of sentient behavior. Clark's experiment occurred in the dark, so the squelching effect of visible light was not present. Finally, Fay Clark is a known psychic himself, and so this should have eased the kindling difficulty even further. The value of rigorous laboratory experiments based on the lines of Fay Clark's pioneering "firefly" experiment is strongly indicated.

"FOO" FIGHTERS

When large groups of people are under strong external pressure, one result is often tulpoidal "popouts" from the collective human unconscious.

A war is a typical example of a situation where the group consciousness of a country is under enormous pressure. In such a situation, the "targeted" population is often exposed to tulpoidal manifestations from time to time.

In World War II, for example, the Germans thought at first that the glowing lights darting around their planes were secret Allied weapons; and the Allies thought the same thing of the Germans when they saw such unusual phenomena. The French dubbed them "feu" (fire) fighters, which became "foo" to American soldiers in Europe.

"Foo" fighters were a common phenomenon in World War II, particularly in cloudy, overcast skies.

WATER MONSTERS

In the oceans and in every large body of water on earth, water monsters have been reported for centuries. Loch Ness in Scotland is of course one of the most publicized examples, but creatures of different shapes and sizes have been seen in large lakes and streams everywhere. This is not at all surprising when one realizes that a large body of water is a most excellent kindling reservoir, and bioenergetic forms are more readily kindled in such locations.

The large dead creature in photograph 36 was hauled off the bottom of the sea by Japanese fishermen in their nets, photographed, and then thrown back to prevent contamination of the catch of fish and to get rid of the stench from the decaying carcass. It is a pleisosaurlike creature's remains, not similar to anything else known on earth. Predictably, scientists were almost immediately at odds as to what it was, and the carcass has been called a shark, a whale, a large elephant seal, a genuine pleisoaur, etc., by various "experts." Nonetheless it was real and physical, and a good photograph was obtained of it.

Photograph 37 is one of the underwater photographs of the Loch Ness monster taken by a team from the Academy of Applied Science, Boston, Massachusetts on June 20, 1975. As can be seen by a detailed study of the photograph, this tulpoid is not clearly tuned or clearly formed. Many other photos of the Loch Ness monster have been taken, and various shapes and sizes and degrees of tuning have been recorded. In the Doc Shiels photos taken in 1977, Nessie is well formed but entirely different from the Academy photo. Also, Doc Shiels' photo was subjected to computer analysis by Ground Saucer Watch, and the image exhibited a transparency that was disturbing to the analysts. On the other hand, such a transparency is to be expected from a partially materialized tulpoid which is not completely ortho-rotated into the zeroth bioframe.

In the Academy photograph, one can see — particularly on the color original — a form which has several conglomerated faces, which exhibits eyelike structures in several locations to suggest first a cowlike face and then a horselike face, and incoherently tuned earlike and hornlike appendages in several places. In fact, the Academy photo bears little resemblance whatsoever to a pleisosaur or any other more normal and coherently structured mammal or fish.

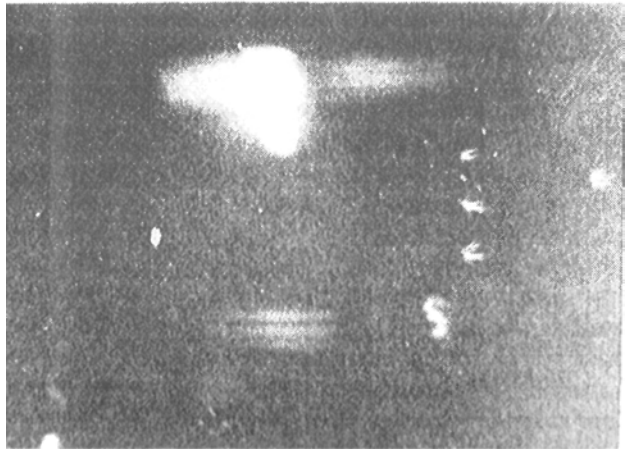
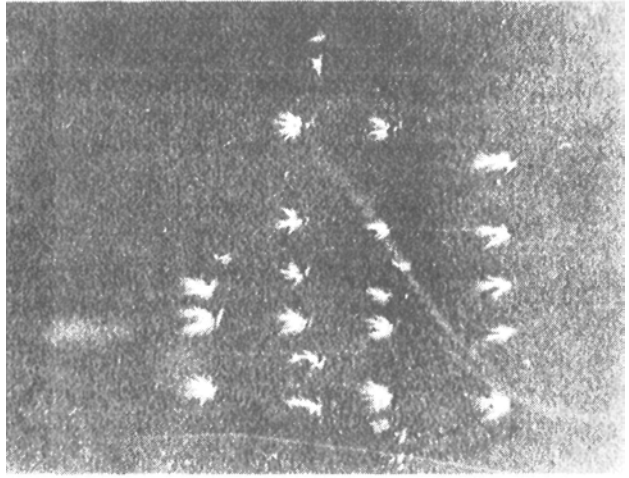
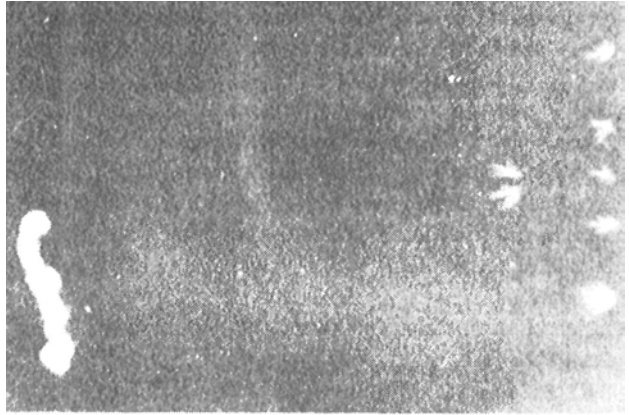
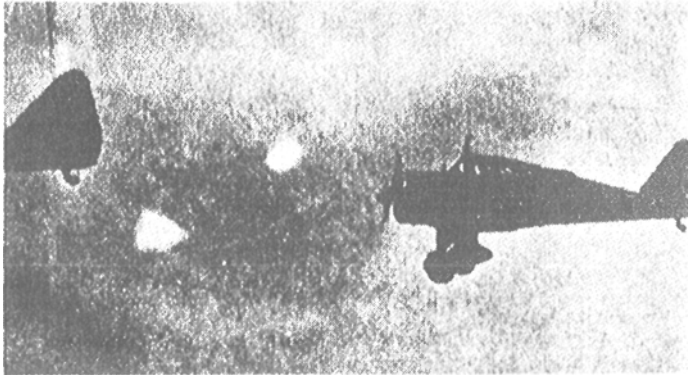
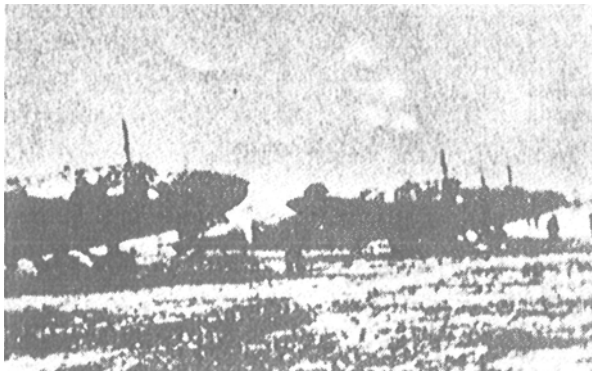


Photo 35. Fay Clark's "fireflies."



"Foo fighter" tulpoids pacing Allied aircraft in World War II.



"Foo fighter" tulpoids over an airfield in China in World War II.

Photo 36. "Foo" fighters.

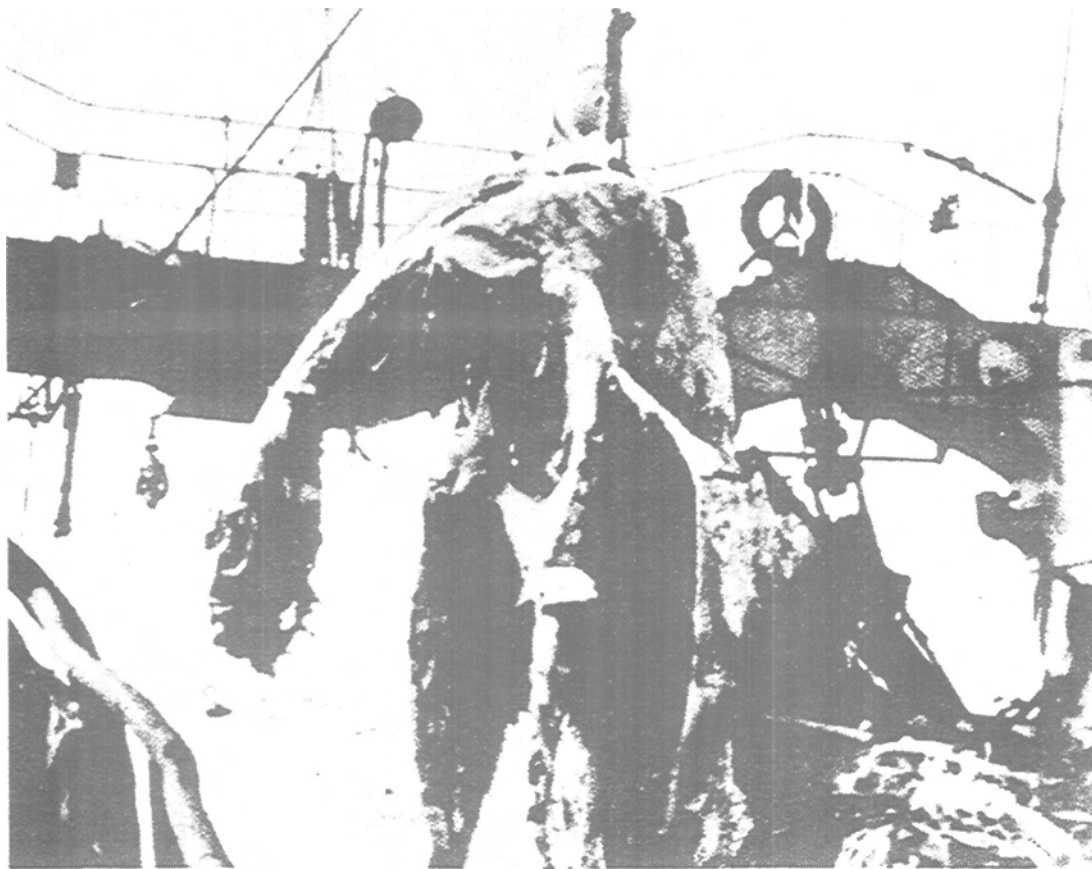


Photo 37. Pleisosaur-like creature hauled from the sea by Japanese fisherman.

The Loch Ness monster is definitely a tulpoidal form, and the format varies appreciably from reception to reception due to distortions and variations in tuning. Nessiteras rhombopteryx is a much stranger beast than anything the dedicated Nessie seekers, researchers, and scientists have yet suspected. In Part Two I will examine the scientific basis of tulpoidal forms.

CATTLE MUTILATIONS

Over 9,000 cattle mutilations have occurred in the U.S. alone since 1973.

The cow is a female symbol par excellence — our children drink cow's milk, and our babies feed on the milk from the cow's breast. The U.S., being a natural fortress, is a "female" symbol, for in primitive human evolution the females stayed in the cave or protected fortress while the males went forth to hunt or do battle. (This symbolism will be fully discussed in Part Three.) Violation of the female means that the heartland U.S. shall be violated.

Teats are cut off — the children of the West shall lose their sustenance; lips, ears, and tongues are removed — freedom of speech and hearing shall be excised; sexual organs are removed — no more fruit of the womb shall be evidenced in the West; sharp, surgical incisions are made — the operation shall be accomplished swiftly (blitzkrieg war) with surgical precision; zig-zag cuts — deception shall be used as to direction and intent; blood is totally drained — the lifeblood of the West shall be totally drained; edges of the cuts are often seared as if by a laser — advanced, futuristic weaponry (psychotronic weapons) shall "seal the end."

The cattle mutilations are materialized precognitive nightmares indicating the horror of the Armageddon to come, and these nightmarish paranormal mutilations reveal the true nature of the times. Yet no orthodox scientist or governmental agency is equipped or able to deal with a phenomenon such as this.

In ancient times the wise men knew how to do a metapsychological analysis of the species unconscious, and knew that tulpoidal phenomena were often symbolic signs of that which was to come.

Where are our wise men today?

BIG MAMA

UFO phenomena have also been associated with the cattle mutilations. One of these UFO-type tulpoids has been labelled Big Mama, because of its characteristic behavior of spawning smaller UFO light-shapes that split away and speed off to an area in which a cattle mutilation then occurs. The "spawned" UFO's then return and link up or join with Big Mama, and Big Mama then withdraws.

The photo shown here is a typical appearance of Big Mama. Big Mama takes many sizes and shapes, but is a fairly reliable indicator of paranormal cattle mutilations impending.

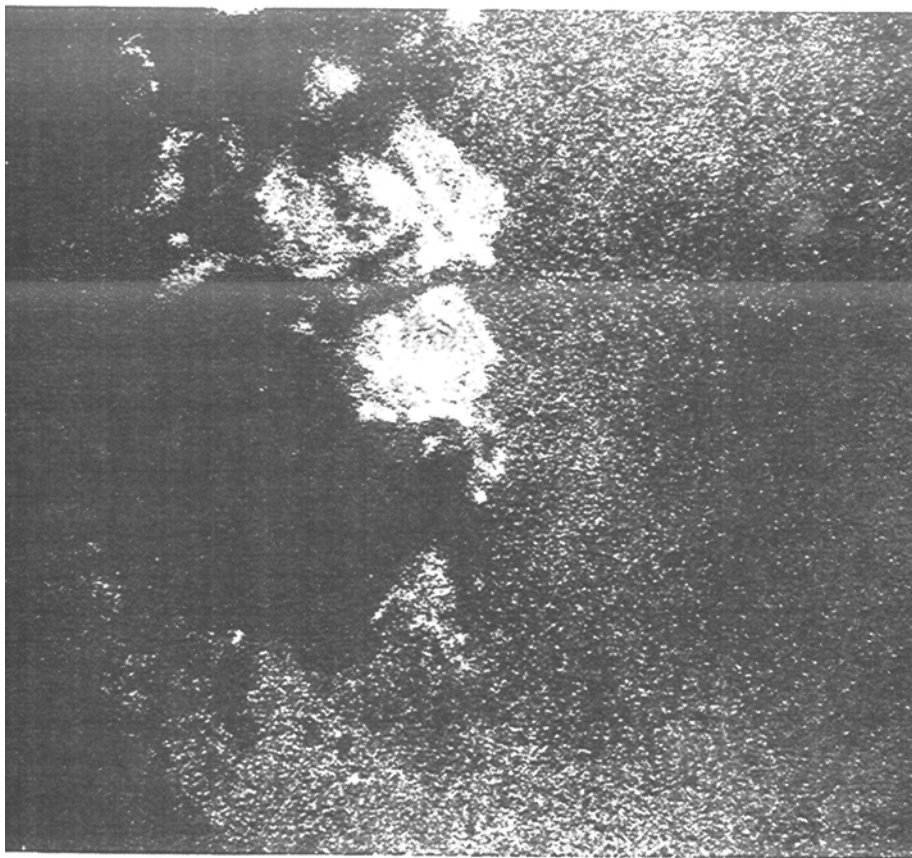


Photo 38. Loch Ness monster.

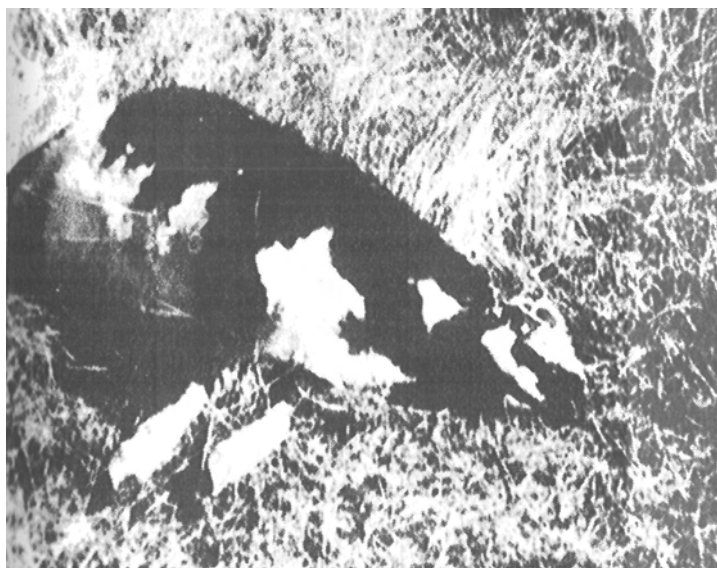


Photo 39. Cattle mutilation.

During the summer of 1978, two psychics and I — all members of the American Association of Meta-Science — spotted a Big Mama-type UFO from the top floor of a hotel in Louisville, Kentucky. Realizing what it was, we promptly brought into play a certain type of powerful psychic exercise and tried to make it dematerialize and vanish. Several times it briefly split into pieces (five to be precise), but we were unable to extinguish it. Over a period of approximately twenty **minutes** this effort continued, and all the while Big Mama slowly moved lower and **further** away, eventually disappearing behind a tall building after having become very distant.

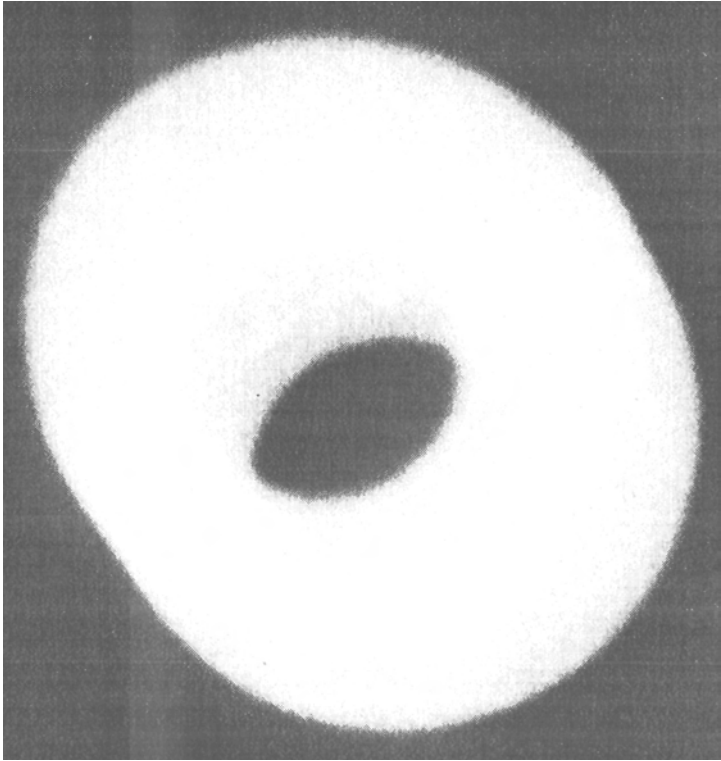


Photo 40. Big Mama.

PART TWO

A THEORETICAL BACKGROUND FOR UNDERSTANDING PT, UFO'S, AND PSI PHENOMENA

Footnote for page 132:

'With the exception that, in my theory, the orthogonal universes crosstalk with each other at virtual (subquantum) levels. Indeed, 'change' in one universe consists of the quantum coherence in that universe of crosstalk in and out of it. The 'virtual state' in one universe is due to, and consists of, subquantally coherent (quantally incoherent) crosstalk in and out of that universe.

Psychotronics, unidentified flying objects (UFO's), and paranormal phenomena such as psychokinesis, telepathy, and precognition all have one thing in common: both mind and matter-energy are involved.

Hitherto, mainstream science has insisted on a rather arbitrary separation of mind and matter-energy. However, as we shall see, this separation is not based on good observation. For example, everyone exhibits in himself the ability of mind to affect matter. While theories of computers, control systems, and physics can explain human behavior once the physical system has been given an input signal, the original signal — intent, or what I call inception — is an unexplained mystery to ordinary science.

"Psychotronics" (a Czechoslovakian term) and "psychoenergetics" (a Soviet term) have been specifically designed to provide a framework for approaching the problems of mind, matter, and their interaction. If we can understand psychotronics, we will be able to understand better the interaction of mind and matter, including all paranormal phenomena, unidentified flying objects, and Fortean phenomena.

Let us therefore start by defining psychotronics. The prefix "psycho" refers to the mind. The suffix "tronics" refers to physics and physical devices. Thus the concept of psychotronics refers to a union of physics and metaphysics. Such an audacious concept can offer a solution to almost every present problem in metaphysics, the foundations of logic, the foundations of physics, and the foundations of mathematics.

To begin with, it seems necessary to form a unified theory of mind, matter, and their interaction. It also seems necessary to reinterpret and extend electromagnetic theory. Logic itself must be advanced, for a part of reality, although "illogical" according to our present logic, is nonetheless true. In metaphysics we must solve formidable problems: the ontological problem (nature of being); the problem of mind, and the interaction of mind and body; the problem of change; and the problem of nothing.

It has been said that fools rush in where angels fear to tread. To tackle the problems of psychotronics demands the audacity to rush in where even fools fear to tread!

At this time, it may be appropriate to point out that all Western science, mathematics, and logic are founded upon three simple laws of logic, proposed and formulated by Aristotle. Since the entire universe cannot be described by these three laws — parts of reality are known to violate one or more of them and hence be illogical though true — it appears that we must be audacious enough to tackle and change the three laws of logic, if a new paradigm is to be constructed to solve all the presently unsolved problems.

SOME UNEXPLAINED MYSTERIES OF PHYSICS

First, no one knows what mass really is; we do not know for sure whether inertial and gravitational mass are one and the same. General relativity says it is, **and** we know from experiments that if any difference exists between inertial mass **and** gravitational mass that difference is very small indeed. But we do not know positively that there is not some small but finite difference. And we have no idea

why the mass of a moving object increases with respect to a static observer. It is simple to calculate in special relativity how much the mass increases as a function of the velocity, but no one has the foggiest notion why this happens. Particularly so since an observer standing on the moving object and moving along with it sees no increase in its mass at all.

This poses a real paradox; if we try to assign some absolute notion to the idea of mass, then any object has an infinite number of masses, all at the same time and all different. There are two ways to determine mass: (1) by its resistance to a disturbing force, and (2) by its ability to occupy three-dimensional space. The latter requires that mass be volumetric, i.e., that mass be L^3 dimensionally.

But look at the weird properties of a photon! If we measure its resistance to a disturbing force, we find that no force on earth can accelerate or decelerate the photon. If we measure the mass of a photon by the first method, it appears to have infinite mass. Yet if we measure it by the second method, it can have no mass at all, because a photon is not volumetric; it is two-dimensional. It therefore has infinite mass and zero mass simultaneously.

Furthermore, we can take the viewpoint that whatever its mass is, it can only have one. If that is so, then infinite mass and zero mass must somehow be the same thing! Which contradicts the three laws of logic. However, this should not concern us too greatly; many things contradict the laws of logic and are nonetheless true. So while it is presently "illogical" for infinite mass and zero mass to be identical, we should hold on to the idea that this may very well be true.

Additionally, one of the great cornerstone assumptions in physics is that gravitational field and electric field are mutually exclusive — i.e., they are totally different things. Yet a physicist named Santilli has proved that this is not so, and that they are either partially the same thing or totally the same thing. And there the matter stands, so we do not fully understand what electric field and gravitational field are, or how to go about turning one into the other, although Santilli's work seems to imply that this is at least theoretically possible. We must therefore invoke a new concept of reality.

URI GELLER

Uri Geller has demonstrated numerous capabilities: he has affected a magnetometer inside a Faraday shield; bent and broken metal objects; caused a fresh flower to wither and dry in seconds; permanently changed the crystal structure of nitinol; altered magnetic programs on computer cards; influenced a Geiger counter; dematerialized matter; and demonstrated the inceptive Cyborg effect, thought-photography, telepathy, and the Geller effect (the sympathetic stimulation of a psi-positive).

It is useless to attempt to explain the feats performed by Uri Geller in terms of the ordinary fields and effects of known physics. Nothing short of a new physics paradigm will suffice. This new paradigm must encompass both mind and physics within the same theoretical framework, if it is to succeed in explaining how mind affects matter.

In terms of present physics and logic, the mind is regarded as totally separate from matter. For mind and matter to interact, some aspect of mind must be the same as some aspect of matter, i.e., to move matter, a force is required. Force is the time rate of change of momentum. To generate a force capable of moving matter, mind must be able to change momentum. But since momentum can only be obtained from something which possesses momentum to give up, then the mind must somehow possess momentum.

If this is so, then the momentum must ordinarily exist in a separate three-dimensional space, since it apparently does not ordinarily exist in laboratory three-dimensional space. Such a situation requires at least six spatial dimensions and one common time dimension, such that the mind (mental phenomena) is a set of objective physical phenomena existing in an ordinary objective three-dimensional space, but one which is three orthogonalities away, spatially, from the laboratory three-dimensional space.

Mental changes upon physical objects would thus imply orthogonal rotation of mental objects from the mental three-dimensional space into or closer to the laboratory three-dimensional space. Everett's many-worlds interpretation (MWI) of quantum mechanics contains a structure where such representation is possible, and the MWI is consistent with the entire experimental basis of modern physics. Thus from the MWI it is possible to objectively model the mind and matter, and from that, psychotronics as well.

MY APPROACH TO PSYCHOTRONICS

In twelve years of intensive work on this question, I have evolved a conceptual approach, which is consistent with present physics but extends it. A new concept of reality is involved, however, and severe demands are made on the individual to stretch his framework of comprehension. The perceptron concept is an abstraction that allows the modeling of perception itself—either mental perception or physical detection. The fourth law of logic (to be explained shortly) involves the age-old identity of opposites whose apparent necessity has baffled logicians, philosophers, and scientists for centuries. With the perceptron concept, we can at last comprehend how the identity of opposites is accomplished, and when it is accomplished.

This immediately solves the age-old philosophical problem of change. The fourth law also closes logic into a complete, closed metalogic, encompassing both physics and metaphysics.

Let us use as a definition of reality: *reality is that which can be conceptually and mathematically modeled and fitted to the phenomena existing in one or more minds*. Physical reality is that which can be modeled and fitted to the phenomena existing in all minds. Mental reality can be modeled and fitted to the phenomena in one mind. Mental and physical realities comprise "normal" reality. Complex or "paranormal" reality is that which can be conceptually and mathematically modeled and fitted to phenomena which exist in more than one mind, but not in all minds.

From perception theory I have succeeded in deriving a great deal of the present basis of physics, including Einstein's two postulates, Newton's laws, the law of gravitation, and the solution to the ontological problem. (Unknown to me at the time, Ives had already done so for Newton's laws, the law of gravitation, and Ein-

stein's postulates. His work has unfortunately been ignored.) In addition, the photon can be seen to be an ordinary three-dimensional particle existing in a three-dimensional space that is orthogonal to the laboratory three-dimensional space frame. A stationary particle in the laboratory frame appears as a photon to the orthogonal spatial frame.

Einstein's second postulate is usually stated as "the speed of light is the same for every observer." Restated, this becomes "every photon in an inertial frame is moving at the speed of light, c , with respect to every particle in that inertial frame." The corollary then follows immediately: every particle in that inertial frame is also moving at the speed of light, c , with respect to every photon in that inertial frame. In a single three-dimensional space, this is incomprehensible. Taking two orthogonal three-dimensional spaces, with the photons in one frame and the electrons in the other, it is perfectly comprehensible.

From pure nothing — empty vacuum, absence of thing — one can generate everything, the presence of thing. Here is direct proof that ultimately opposites are identical. But to a mind rigidly programmed in three-law logic, such a truth is abhorrent. Physicists consequently have done nothing with the idea that all our physical laws — or at least most of the great ones — can be straightforwardly derived from a special kind of a "piece of nothing" which I call a quiton. And they have not seen that this constitutes a statement of a fourth law of logic—the identity of opposites on their common boundary.

It is interesting to note that the paper which was handed to an American reporter, Robert Toth, by a Soviet scientist, and which caused the KGB to seize Toth and charge him with receiving Soviet state secrets, contained just such a theory as the basis of a unifying theory of psychotronics. Yet none of our intelligence analysts seems to have picked up the overwhelming importance of what was in the paper, and Toth himself appears to believe that his KGB arrest was simply harassment. In fact the paper did contain material on the basic Soviet approach to psychotronics — and thus to psychotronic weapons — and it was indeed state secrets that had been given to Toth.

Everett's many-worlds interpretation of quantum mechanics, with which very few physicists are familiar, provides a needed correction to the conventional monocular interpretation of relativity, and it allows a theoretically sound basis to be constructed for psychotronics.

The conventional interpretation of relativity considers only a single observer at a time. But if you can accept so simple a concept as that both you and I exist simultaneously, regardless of how we move with respect to each other, then I assure you that physics is startlingly different from what you may have studied in the ordinary university physics text book.

Everett, originally a student of the world-renowned physicist Dr. John Wheeler at Princeton, for his Ph.D. thesis considered the problem of multiple simultaneous observers and worked out what this did to physics. His highly innovative thesis provided a totally new interpretation of quantum physics and defined a startling new kind of reality in which all possibilities are physically real and exist. This new physics is indeed very strange, but it is totally consistent with the entire experimental basis of physics today.

I discovered that all my perception theory could be fitted precisely onto Everett's many-worlds interpretation.¹ On that basis, a theory or schema of bio-

fields was derived that provides an approach to a unified field theory. In fact, it predicts that any kind of field can be turned into any other kind of field, merely by correct and precise time synchronization. It also offers a physical and exact model of mind and mental phenomena and a mental and exact model of physical phenomena!

On this basis, a framework can be provided for psychotronics which is consistent with what we know of ordinary physics but which does not contain many of the limitations of ordinary physics. In a strange sense Everett wrote the physics for the all-mind or the Supreme Creator's mind because an unlimited mind, so to speak, must already have thought of everything possible, and for an all-creative mind to "think" a possibility is for that possibility to be real.



Fig. 3. Reality: a paranormal bridge with two ends

1. Reality as a Paranormal Bridge with Two Ends

In Figure 3, I show the nature of the problem of paranormal phenomena. To understand it, we must first define more precisely some of the present concepts.

First, what do we really mean when we talk of "physical phenomena"? To go into this, we must first destroy the notion that there exists some sort of separate, concrete reality totally apart from mind, for that notion is simply the old Cartesian assumption. It has long been refuted as far as having any absolute validity, and this is well-known to philosophers and to foundations physicists. According to Lindsay and Margenau in their *Foundations of Physics*, "physics has nothing to say about a possible real world lying behind experience."

What is true is that we can experience and detect and know only a mental change — a change in the mind itself is all we ever experience directly. For experience invokes the mind; we do not experience phenomena until the mind — used in the greater sense of the word to mean any mental detection — changes.

Any detector detects or experiences only an internal change, never an external change, and this is true of the mind as well as a physical detector.

So we never experience external physical phenomena; we experience only our own minds. Specifically, each of us experiences his own mental phenomena.

But here we must be a little more precise about what we mean by "mental phenomena." What we usually refer to are the mental phenomena in a single mind. And so we will take that as the primary definition: *mental phenomena are the phenomena or changes in a single mind.*

But then what do we mean by "physical phenomena"? For indeed this refers to something that is often remarkably different — or seems to be — from the phenomena or changes going on in our own heads. Before we jump to the extreme conclusion that physical phenomena are simply mental illusions, we should recall the Zen master's approach. He demanded of the student whether or not physical phenomena were real, and the student replied that they were not real, but only illusions. Whereupon the master gave him a resounding knock on the head, and asked him whether or not the blow was real. The student replied that the blow was indeed real. Whereupon the master sent him back for further meditation, for he had learned nothing. He had not understood that "mental" and "physical" are not mutually exclusive.

If we look closely at how we may differentiate between mental phenomena and physical phenomena, we immediately hit upon a practical scheme. Physical phenomena can be shown to exist in the mind of any observer, be he human, insect, or whatever, so long as he has consciousness.

Suppose for a moment that I have a piece of chalk in my hand, held between my fingers. I can touch the chalk, feel it, and see it. I can even taste it if I wish. And so I hold up the piece of chalk and say: "This piece of chalk is not just a mental impression, it is physically real." How can I prove it? And when I prove it, what exactly have I proved?

Now suppose you do not wish to believe the chalk is real. You simply bring in another observer; he looks at the chalk, he touches it, he tastes it, and he rolls it between his fingertips. He confirms that he also detects or experiences the chalk. Then a little bug flies in and lands on the chalk, crawling around on it, and poking at it with his little proboscis. He also by his actions confirms that he has it in his own little mind. In fact, we could bring in any sort of mind, and that mind could experience the chalk.

And this of course is the clue. What we have been calling physical phenomena can be shown to exist in every mind. And when we say something is physically real, this is all we actually mean. Nothing more, nothing less. And this is why physical phenomena are so solid and concrete; they are infinitely repeated. However, what we refer to as mental phenomena are in only one single mind and thus are not repeated at all.

Now let us do a little thought experiment. Suppose I have lapsed into some peculiar mental state because of the toxins from an infection I have contracted, and I am hallucinating vividly. Suppose I pick up what I vividly see, feel, touch, and taste as a piece of chalk, and I claim that it is real. Indeed, to me it is very real. And then suppose a second person comes into the room. He will not see the chalk, touch it, feel it, taste it, and it will not be real to him. Then suppose a third person comes into the room, and he does not see the chalk, he passes his fingers right through where I am seeing the chalk and does not contact or feel it, and he indeed cannot find it. Thus what we call a "mental phenomenon" can be shown to exist in one mind only. In this case of a vivid hallucination, the hallucinatory phenomenon was absent from the other observers' minds.

But now let us change our thought experiment a little. Suppose now that I am absolutely fit and fine physically and mentally, and am not hallucinating. And suppose all the observers we bring in are also fine both physically and mentally, and not hallucinating. And suppose we get the following results: some of us can see,

touch, taste, and experience the chalk, and others of us cannot see, touch, taste, or experience it, no matter how we try. In that case, what kind of phenomenon do we have?

Well, we cannot exactly say the phenomenon is exclusively mental or exclusively physical. But we also cannot say that it is exclusively nonmental or exclusively nonphysical. In fact, we have an example of a third class of phenomena which are presently not recognized by science. *We simply have a paranormal phenomenon*, one which can be shown to violate our definitions of mental phenomena and physical phenomena.

And we can in fact take this as the definition of a paranormal phenomenon: *a paranormal phenomenon can be shown to exist in more than one mind, and it can also be shown not to exist in one or more minds, i.e., paranormal phenomena exist in more than one mind, but not in all minds*. Our conventional science recognizes purely mental phenomena and purely physical phenomena; it does not recognize the third kind, since by the ordinary three laws of logic the third kind does not exist. Paranormal phenomena constitute a bridge across a river between two banks; our present science does not recognize the bridge, but only recognizes the two banks, as shown in Figure 3.

Paranormal phenomena thus appear erratic to ordinary objective science, for objective method after all is specifically designed to select only those phenomena that can be reliably repeated, and the nature of paranormal phenomena is such that they often (in fact usually) cannot be reliably repeated, except sometimes in a great many trials. Normal objective method, if rigorously applied, can only discriminate a statistical effect from a great many trials. Furthermore, if rigorously and lengthily applied, it will accumulate so many failures that it will cast serious doubt on whether the odd case that was paranormal was in fact nonaccidental.

It is for this very reason that orthodox science, which is devoted to scientific method and rigorous protocol, has remained so comfortably adamant that paranormal phenomena do not exist. The tool must be changed to fit the problem, and the present scientific toolbag does not fit precisely. The tools are useful, but they themselves are not decisive within the bounds of present protocol. The necessary change is quite simple: we must allow for the effects of mind, and for a union of both mind and physics, just as there exists in physics a union of both wave and particle. In other words, paranormal phenomena must be repeatable *sometimes*, by competent experimenters and observers, but not necessarily *always* by all observers.

"Ah ha!" the materialist is likely to exclaim, being unable to contain himself any longer. "Solid concrete reality always is solid and concrete, however, and you cannot change that. As long as that is true, then the laws of ordinary physics hold, and all is right with the universe. We can always select our phenomena which are present in all minds, and this after all constitutes immutable physical reality. In the face of that fact, all your arguments about mental phenomena in one mind and another kind of half-mental, half-physical phenomena are meaningless, for you are simply calling the superposition of purely mental phenomena on purely physical phenomena a third class, but it is a separable mixture, not a completely new kind." And we may even be tempted to stir up a small bit of sympathy for the materialist's view.

However, let us propose a resolution. If we can show that concrete, solid, real

matter can become absolutely nonconcrete, nonsolid, and hence nonphysical, then that ought to settle the question. In a recent experiment it has been conclusively shown that two colliding protons pass right through each other in total violation of all physical rules, if their spins are exactly antiparallel. Protons are the central building blocks of all matter. In the nucleus of an atom, the protons and neutrons are continually switching identities, so even a neutron keeps turning into a proton, etc. And these fundamental constituents of everything solid and concrete and real just go right through one another, without any effect whatsoever, simply by aligning their spins properly. Collision theory fails, electromagnetic theory fails, and our concept of two particles bumping together fails. This experiment totally annihilates the idea that physical reality is something absolute. In fact, it establishes that physical reality itself is a function of the relations between the interacting participants; changing the relationships can simply cancel physical reality.

So perhaps our definition of physical reality has some merit after all, and perhaps there really are three classes of phenomena. The paranormal phenomenon is a bridge between mental and physical phenomena; specifically, every paranormal phenomenon must consist of an inseparably welded compound of the two. And the objective method and its consequent experimental protocol must be changed to reflect this fact, if we are ever to develop a viable theory of paranormal phenomena.

2. A Fundamental Correction to Classical Logic

Let us now make a fundamental correction to Aristotle's three laws of logic. First, there is no independent existence to mental phenomena; there is a perception operation involved when we think. There is no independent existence to physical phenomena; there is a perception operation involved when we observe physical phenomena. Furthermore, it takes a finite piece of time for the perception process to occur. The logic symbol also requires a separate time interval; it represents a series of separately perceived operations that together comprise a decision algorithm. So let us impose this criterion upon logic itself so as to constitute "logical perception" or the "logic of perception" or the "perception of logic." We begin with Aristotle's third law of logic, A or $\text{not-}A$, the law of the excluded middle.

We still insist that there is no such thing as A per se, but rather that there is a perceived A where A is the output of the perception process. Similarly, there is no such thing as $\text{not-}A$, but rather there is a perceived $\text{not-}A$ where $\text{not-}A$ is the output of the perception process. Let us think of a square box symbol as an abbreviation for the fact that perception has occurred, and anything written inside the box represents the output of that perception operation. We can speak of the box either as mental perception, a description of thought, or we can speak of it as physical detection, a description of an instrumentation system that detects and measures. Also, since each box requires a finite time to occur, we must carefully keep up with the individual little pieces of time, the delta t 's.

So applying this to Aristotle's third law, we have A perceived or outputted in time one, and $\text{not-}A$ outputted in time two. Note that to ascertain that A_1 and $\text{not-}A_2$ actually differ requires a series of operations in a separate time interval, in time three, that is assumed by the *exclusive* or symbol. Looked at in this way, Aristotle's third law actually is the law of monocularity; it states that only one thing at a time is perceived. Actually we had assumed this when we assumed that perception was a

1. $A \vee \bar{A}$ ARISTOTLE'S LAW OF THE EXCLUDED MIDDLE
2. DEFINE \square AS "IS PERCEIVED"
3. $\square A \vee \square \bar{A}$ LAW OF THE EXCLUDED MIDDLE
4. EACH PERCEPTION IS A FINITE OPERATION AND REQUIRES A FINITE TIME TO OCCUR.
THE LOGIC SYMBOL ALSO REPRESENTS A DECISION ALGORITHM: A SERIES OF OPERATIONS PERFORMED IN A SEPARATE TIME INTERVAL.
EACH FINITE TIME INTERVAL MUST BE ACCOUNTED FOR.
5. $\square_1 A \vee_3 \square_2 \bar{A}$
6. THE LAW STATES THAT PERCEPTION IS A MONOCULAR PROCESS IN TIME 3.
ONLY ONE-THING-AT-A-TIME IS PERCEIVED.
7. NOW NOTE THAT SEPARATION OF A AND \bar{A} DOES NOT OCCUR IN

$$\square_3 (A_1, \bar{A}_2) \equiv_5 \square_4 B$$
8. SO $A_1 \equiv_3 \bar{A}_2$ $\left| \begin{array}{l} \text{BOUNDARY IDENTITY OF EXACT OPPOSITES} \\ 4,5 \end{array} \right.$
9. AND EQUATION 8 CONSTITUTES A FOURTH LAW OF LOGICAL THOUGHT.
IT SIMPLY STATES THAT PERCEPTION THREE IS BINOCULAR, AND EXCLUSIVE SEPARATION OF EITHER A OR \bar{A} IS NOT PERMITTED.

Fig. 4. A fundamental correction to classical logic

finite process, so it is nice to find that Aristotle's third law justifies our assumption, once we understand the third law. The *exclusive or* symbol assumes a third operation in time three, whereby it is determined that perception output one and output two actually differ. But such an operation itself requires multicocular perception — i.e., collecting two outputs at once — and that in itself is a violation of Aristotle's third law. The third law thus contains its own contradiction, and indeed each of the other two laws also contradicts the third law when one examines them meticulously. Each can only be established as true by invoking or involving an operation wherein the third law is not true.

In time three we gathered up what had been perception output in time one, A_1 and what had been perception output in time two, A_2 , which we do not yet know is different from A_1 , and put them both through the perception process, getting only one output — let us call it B — in time four. By the nature of B in time four, we thus say in time five that the outputs in times one and two differ or not. In either time one or time two, there is no indication whatsoever of difference or sameness existing between output one and output two. Likewise, in time three there is no separate output one and output two, hence no indication of the sameness of, or difference between, outputs one and two.

So here we have arrived at the identity of opposites. There is no perception of difference between A_1 and *not*- A_2 in time three. And this constitutes a fourth law of logic: the law of the boundary, or the boundary identity of exact opposites. All that is necessary to identify opposites is to lose all perceptual distinction between them. And that is accomplished by multicocular perception, of perceiving the presence of both at once unseparated, hence the absence of either exclusively present. If A_1 and A_2 are exact opposites, then $B_4 = O$, and $[A_1, A_2]_3 = O$. We thus have the solution to the problem of nothing. Nothing simply consists of the presence of the totality of all opposites.

Almost all the philosophers who have struggled with the problems of being, mind, and matter have faced the necessity for the identity of opposites, but none of them could understand how opposites could be identified. By careful accounting of the separate time intervals required for finite monococular perceptions, the mechanism for identifying opposites is immediately clarified and revealed. The laws of logic are simply laws of the operation of perception — nothing more, nothing less.

The new system of logic is closed. All present paradoxes — contradictions of one or more of the first three laws — are resolved by the fourth law, which contains the negation of each of the first three laws. The fourth law is in fact the law of the paradox. Note also that the hidden time-three operation, which has actually been the application of the fourth law all along, is implied in each of the first three laws. Identity or nonidentity between time-one and time-two outputs can only be established in a time-three operation. The fact that either A or *not*- A exclusively exists can only be established by a separate operation which establishes that nothing else is there. If separation of A and *not*- A is not permitted, then A and *not*- A cannot be distinguished.

Since these laws refer to perceptual operations, one can think of them operationally, or vectorially. To close the vectorial system prescribed by the first three laws, the opposite or negation of each of the three vectorial statements must be present, i.e., this follows simply from the definition of what constitutes a closed system, vectorially speaking. Since the fourth law contains the negation of each of

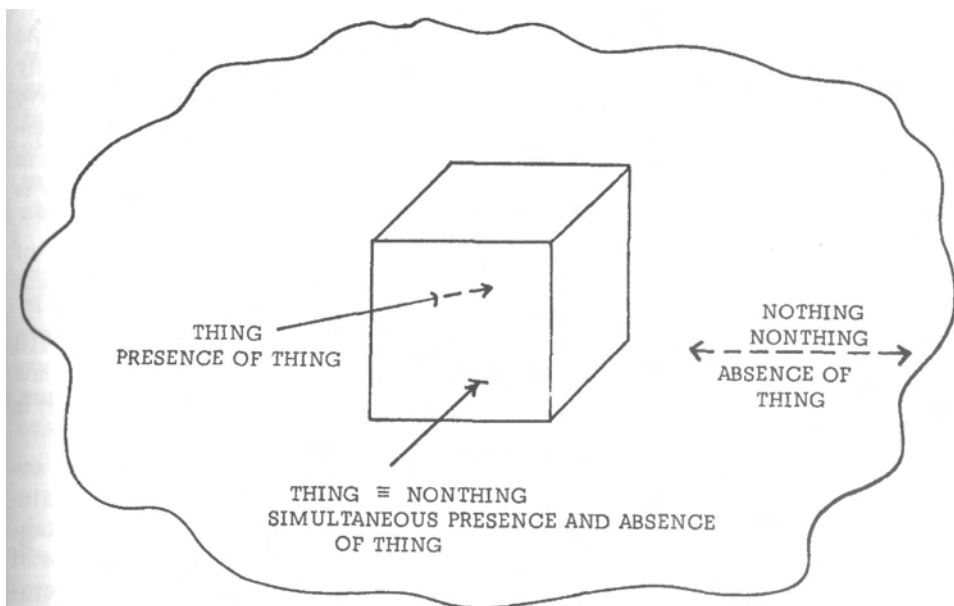


Fig. 5. A physical example

the first three laws, then the four-law system is indeed closed, and the logician's dream of a closed metalogic is realized. Furthermore, anything which contradicts any combination of the first three laws automatically is covered by the fourth law, which is the law of the paradox.

The new logic works as follows: either the first three laws apply (separation of *A* and *not-A* is permitted), or the fourth law applies (separation of *A* and *not-A* is not permitted). The fourth law applies only to — and in fact *creates* — a boundary. The first three laws apply only away from a boundary.

3. A Physical Example

Take the surface of a cube in deep space (Fig. 5). Call the cube "thing," a three-dimensional concept. Call the empty space around the cube "nothing," a three-dimensional nothing or absence of thing. If we are standing inside the cube and look at its boundary surface, we cannot find a single piece of that boundary surface that does not belong totally to the cube. So we can very reasonably proclaim that by the first three laws of logic each piece of the boundary belongs totally to the cube, to "thing." But if in a different operation we are standing outside the cube, we cannot find a single piece of that boundary surface that does not belong entirely to the space surrounding the cube. So in this case, we can claim by the first three laws of logic that the boundary surface belongs totally to "nothing."

Then in a third operation we can state that, by the first law of logic, each and every piece of the boundary surface is identical to itself, and of course we thereby identify what was thing with what was nothing. Specifically, what was thing in perception time one and what was nothing in perception time two have been

identified, by all distinction and separation between them being removed, in time three. Identifying opposites simply consists of "packing together" two previously separated perceptions into a single third unseparated perception. And all we have done is apply the fourth law of logic, the law of the boundary. Every single perceived thing has a boundary, where it both begins and ends its exclusive presence in perception output. And at that boundary, the fourth law applies. Thus the law is universal. The fourth law defines a boundary.

In fact, in any perception, all four laws are applied. They are applied in one of two fashions: (1) the first three are explicit and the fourth implicit, or (2) the first three are implicit and the fourth explicit.

There are more examples that have baffled mathematicians and logicians. All of these are simply boundary statements, i.e., statements involving the fourth law of logic. For example: "It is true that this statement is false"; "A line (length) is composed of points (nonlengths)"; "In a hologram, each part is the whole."

Since logicians used only the first three laws, none of these statements was acceptable or understandable. By the fourth law, there is no problem with these statements. The first merely refers to the boundary between the operation used to establish "truth" and the operation used to establish "falsity." There is another class of operation where neither truth nor falsity exclusively applies — i.e., a class of operation which cannot distinguish between "true" and "false."

The second statement has long been a painful trauma to logicians and foundations mathematicians. Today foundations mathematicians seldom attempt to define line or point. Instead, they simply say: "There is a class of entities called lines. There is a class of entities called points. Lines are made up of an infinite number of points." This way, they avoid trying to explain how "length" (line) can be made up of "nonlength" (points).

However, they could easily have avoided the difficulty, and still retained the definition of a line as a length, and a point as a nonlength, in the following manner. "There is a class of entities called lines. A line is and has length. There is a class of entities called points. A point is and has nonlength. We may have a separate perception that shows nonlength, and another separate perception that shows length. In yet a third perception which infolds both the first two perceptual characteristics, we may say that a line is comprised of points so long as we realize that line and point do not separately and exclusively exist in the comprised-of state."

By the same token, we can say that "the whole is comprised of the sum of the parts" only if we realize that "whole" and "part" do not separately and exclusively exist in the comprised-of state, but instead they inseparably and nonexclusively exist therein.

4. New Definition of Zero

To a monocular perception process, multiple presence constitutes absence of the exclusive presence of any particular one. Therefore such a multiple presence is monocularly unperceivable, and hence becomes a zero to a monocular detection process. This allows new definitions of zero, and a solution to the problem of nothing.

Consider that a monocular detection process asks the question, "Is there a single exclusive thing present in my input?" If the answer is yes, an output is generated and perception occurs. If the answer is no, no output is generated and perception does not occur. The answer "no" occurs in two fashions: either total absence, or presence of two or more simultaneously. For either of these cases, monocular perception gives no output, and perception does not occur, i.e., the absence of perception occurs.

Now note that the monocular perception cannot tell any difference in the two input conditions. To it, there is no distinction between the two conditions. The lack of any difference at all constitutes identity. Thus to a monocular perception process, condition one is identical to condition two when they are infolded together in condition three. That in fact derives the fourth law of logic. Total absence and multiple, unseparated presence are identical insofar as a monocular detection process is concerned.

5. Einstein's Postulate

As an example of strange problems we can deal with in a four-law manner, let us examine a little more closely one of Einstein's postulates of special relativity, which states that the speed of light is the same for every observer. Let us restate the postulate as "every photon is moving at the same speed relative to every particle." We can pick any electron in the laboratory frame. Every photon in the frame is moving at the speed of light with respect to the electron, by Einstein's postulate. Now let us pick any photon. By Einstein's postulate, every electron is also moving at the speed of light with respect to this photon.

Now we can look at the situation from the viewpoint of the photon. With respect to it, every electron in the laboratory frame is moving at the speed of light, which violates the common interpretation that ordinary objects cannot move at the speed of light. In fact, three-law logic is violated but four-law logic is not violated. In four-law logic, an object can have infinite mass and zero mass simultaneously. The electron's frame and the photon's frame are rotated orthogonal to each other. What we were calling a photon in the laboratory frame, is a perfectly ordinary three-dimensional object in its own frame, which is orthogonal to the laboratory frame. The electron (lab-frame) thus appears as a photon in the rotated frame of what we previously called a "lab-frame photon." Either an electron or a photon is both three-dimensional and two-dimensional simultaneously — in fact, the concept of separate, exclusive dimensionality only applies after one or the other dimensional aspect has been exclusively separated (observed).

Mass is determined by the resistance an object poses to an accelerating or disturbing force. Mass is also tied to three-dimensional objects; i.e., it is an L^3 concept dimensionally. A photon, moving at the speed of light, can neither be speeded up nor slowed down; hence in one sense it exhibits infinite mass. On the other hand, the photon (which is a three-dimensional object in its own frame) has lost a dimension in its intersection in the laboratory frame, due to orthogonality. Therefore the photon appears as a two-dimensional L^2 entity in the laboratory three-space. And in that sense, the photon must have zero mass since it is only two-dimensional. By

the fourth law, the boundary opposites are identified. Thus at the orthogonal boundary of three-space, zero mass and infinite mass become identical. And the photon exhibits both zero mass and infinite mass simultaneously because it is an entity that is on the boundary of the L^3 "mass exhibiting" world. The photon has always happily behaved in a four-law manner, even though physicists could not comprehend its behavior with the three-law logic ingrained in their heads.

6. Synchronicity of Concepts

As is so often the case, two persons appear to have derived the new logic simultaneously, myself from perception theory and Hubbard from manifold theory.

Dr. J. Hubbard was one of the scientists who first developed the atomic bomb. His profound work fully substantiates the new logic and the new reality paradigm. Dr. Hubbard believes that the system includes language, logic, and the interaction of life-bearing systems. In short, he believes it includes psychotronics. The relationship between mind and matter is, like Santilli's electric and gravitational fields, not mutually exclusive; they are either partially or totally one and the same thing. According to my research, they are both partially and totally the same thing, i.e., they are of exactly the same nature totally — a closure of the entire physical universe — but only partially intersecting, by a fraction of approximately 10^{-42} . In the same fashion a mind is an entire physical world, but it only minutely intersects this physical frame, and then only in a portion of this physical plane.

Dr. Hubbard has shown that the four laws of logic emerge in the form of set relationships, that the single dimension parameter generates the second, third, fourth, fifth and up to N th dimensions of the manifold, by repetitive operations on itself. This allows a firm basis for orthogonal intersections of one less than the dimensionality of the lowest-dimensioned intersector. It provides a firm basis for orthorotation and for my approach to psychotronics.

PRIMITIVE PERCEPTION

Let us now discuss how we form our concept of objects and their relationship. All our basic perceptual concepts are essentially built on primitive observation of the macroscopic universe, which is the primary reason that so many final arguments of philosophers appeal to the "natural man," i.e., to how a primitive observer would react to the argument. The very idea of an object — a perceived object — is conditioned. Everything else we think of is then conceived as some sort of object or relation between objects. And that is why sets (of perceptual objects) and their relationships form the basis for axiomatic logic, mathematics, and physics. Set theory is simply the synthesized and abstracted game of elementary perception of the macroscopic world. Thus even the most abstruse mathematics forms a part of the game of perception and can be applied to perceived physical phenomena. This macroscopic, primitive perception is the basis of our concept of objectivity, and of our physical concepts of "observed" and "observable." But if we examine

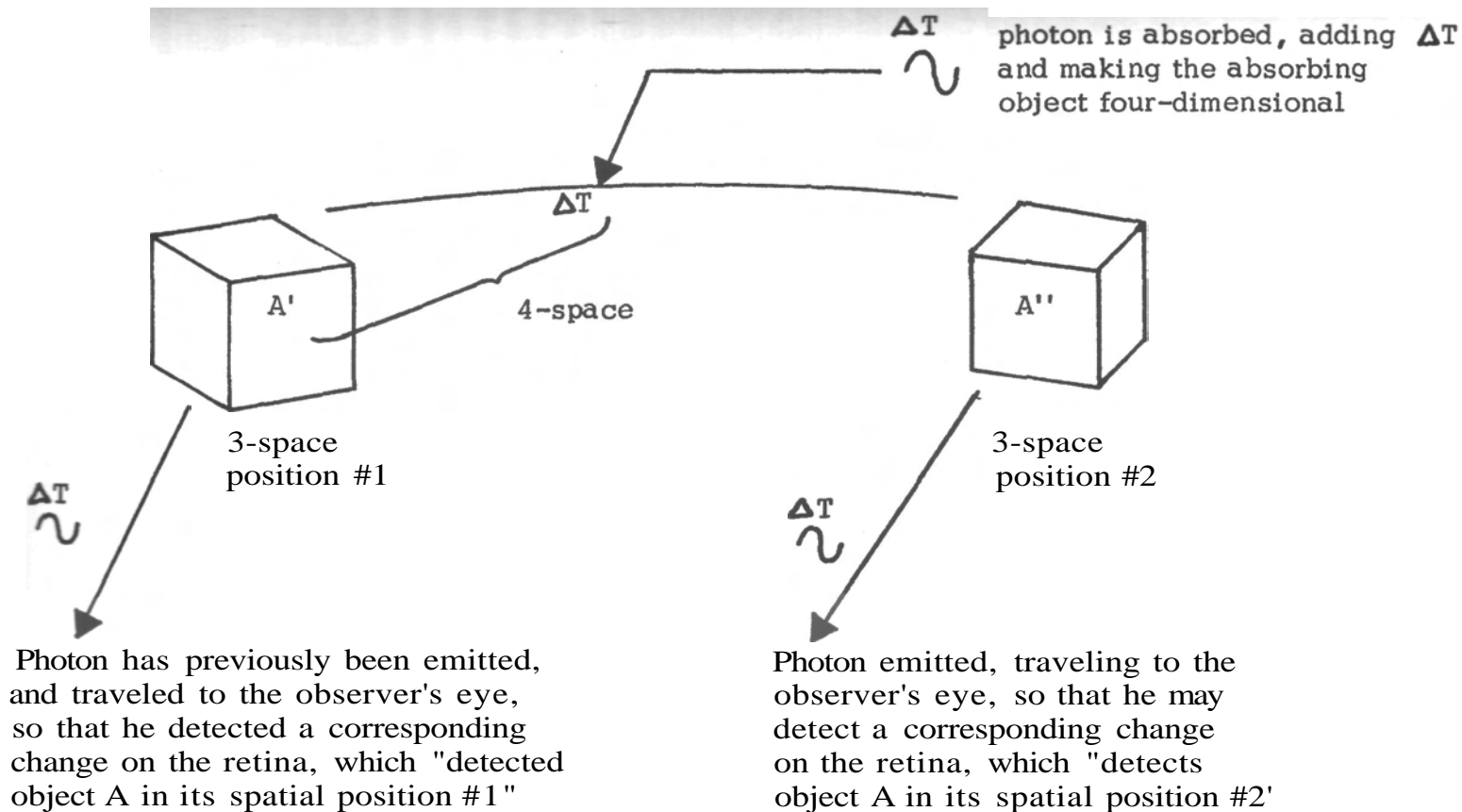


Fig. 6. Primitive perception

carefully exactly how we perceive an object in the macroscopic world, we realize that it is seen by means of photon interaction. We think of light being absorbed onto the surface of the object, and then emitted or reradiated from the surface, eventually entering the eye. There the photons are again absorbed by the material on the retina. The photoelectric effect then moves what are called electrons, producing a signal that goes to the brain for interpretation

What we see as an object has twice undergone interaction with photons of light. Furthermore, light itself cannot be detected, only its interaction with matter (in this case electrons). Thus the primitive perceptual operations of the human brain are correlated one-to-one with photon emission and absorption interactions, usually paired interactions at the object reality domain. The concepts of object, mass, three-dimensions, and observation are directly correlated to the photon-mass interaction, and ultimately to the photon-electron interaction occurring in the human retina.

The ideas of boundary, surface, and change in primitive perception thus involve two contradictory and simultaneously mixed interactions, absorption and emission. Because they are constantly intermingled, primitive perception cannot separate the two. Thus the primitive concept of a boundary consists of a simultaneous duality. Here the object both begins and ends. Here opposites are identified. This is the basis for the fourth law of logic, the law of the boundary.

The dimensionality and orthogonality (spatially) of the primitive perception process are also interesting. Photon absorption constitutes spatial integration for the photon, dimensionally speaking, *e.g.*, one additional dimension is gained by the two-dimensional light wave in turning itself into the three-dimensional mass state. The photon also adds its piece of time to the absorbing mass, converting the mass particle to mass time or space time—adding the fourth dimension. Photon emission constitutes spatial differentiation, dimensionally speaking. One spatial dimension is lost by a little hunk of three-dimensional mass turning itself into a two-dimensional wave. Going from outside the object toward the inside (to track along with photon absorption), the boundary marks the end of the two-dimensional wave region, so the object (or, more precisely, the interaction region) is spatially two-dimensional on the outside, and spatially three-dimensional on the inside. It also occupies the time dimension on the inside, but not on the outside. (This directly accounts for a difference in the spacetime inside and the spacetime outside, and that is why mass may be regarded as a curvature or change in spacetime, in general relativity.)

Going from inside the object toward the outside, the boundary marks the end of the spatially three-dimensional region and the beginning of the spatially two-dimensional region. So the object is now spatially three-dimensional on the inside, spatially two-dimensional on the outside. The inside now does not occupy the time dimension, while the photon emitted (the outside) does. So on the boundary, one spatial dimension is gained going in, and one spatial dimension is lost going out. Time is gained going in and lost going out, by the mass absorber-emitter.

Gain or loss of a dimension is accomplished only by orthogonal rotation between orthogonal spatial frames. Photon absorption constitutes orthogonal spatial rotation one right angle turn into the laboratory frame, while photon emission constitutes orthogonal spatial rotation one right angle turn out of the laboratory three-space frame.

This constitutes the observation process (primitively) per se, and this is what is hidden in Einstein's postulate that the speed of light is the same to every observer. Every observer goes through this same process. Furthermore, rotations orthogonal to a three-space frame are orthogonal to all three-dimensional spatial physical entities in that three-space. As Einstein himself once pointed out, velocity can be regarded as simply the measure of rotation of an entity in a higher dimensional space; thus an orthogonal turn is a fixed velocity. Since light is orthogonal to the entire space, then the speed of light is the same to every observer in that space.

While Einstein was apparently speaking of regarding the velocity of an object as a measure of its amount of rotation toward the time axis in four-space (from the direction of its velocity vector in laboratory three-space), it can also be regarded as rotation toward a fourth spatial axis in a five-space (four length dimensions and one time dimension, all orthogonal). If one checks this, one will see that the projections in three-space are the same; i.e., to the laboratory frame observer, there is no difference observable. Thus the photon interaction may be modeled as orthorotation of an entity spatially in a five-space.

To the laboratory observer, this orthorotation constitutes pure dimensional integration and dimensional differentiation, and it constitutes or creates an object in the first place. The concept of object *a priori* involves the photon interaction as stated; if the photon interaction is not invoked, then the existent entity does not exist as a three-dimensional object at all, in the primitive sense. Outside this primitive process (dimensional integration and differentiation imposed upon the same region, which constitutes an object), all exists in the Omega nothingness void, without frame or form.

Ultimate reality (specifically, action) is dimensionless in the objective sense; for the objective sense exists only after an operation has been imposed. A quantum itself is lengthless (and has no exclusive energy, time, or momentum) until differentiation is imposed upon it. Only after a quantum of action is fissioned does there exist a discrete piece of (change in) length, time, energy, mass, momentum, etc. I have already shown that perception itself can be modeled in terms of action quanta fission and fusion, and that most of the basic laws of physics can be derived from that model. (See my *Quiton/Perception Physics*.) Fission and fusion of action quanta involve orthogonal rotation between orthogonal three-spaces sharing the same fourth dimension (time) in common. The words *change*, *interact*, *localize*, *superpose*, *operate*, *move*, *oscillate*, *act*, *cause*, and *determine* are only a few of the words used in physics to conceal the basic occurrence of orthogonal rotation in higher dimensional space.

Finally, it should be stressed that i , the square root of minus one, itself constitutes an orthogonal axis, hence an extraspatial dimension. The addition of this quantity to electromagnetic theory allowed the resolution of formidable problems, and led to the direct formulation of electromagnetic theory. Thus electromagnetic theory already includes higher dimensionality and orthogonal rotation in hyperspace. In that sense, inductance and capacitance are merely vector statements of amounts of rotation, one in a positive direction and the other in a negative direction, toward an orthogonal axis in higher dimensional space.

The forming (beginning and ending) of a three-dimensional spatial object constitutes a time differentiation invoked on four-dimensional Minkowskian space,

i.e., the process of observation or detection itself involves

$$\partial/\partial T (L^3 T) = L^3$$

dimensionally speaking. This process is accomplished by orthogonal rotation, and the very concept of an object that has been observed, detected, or perceived implicitly involves this time differentiation invoked on a four-space.

Velocity also represents a statement of the switching of time into length, and length into time. It is therefore a measure of rotation of the spatial three-dimensional frame, as Einstein pointed out. By this switching (orthogonal rotating, orthogonal flipping) of the chopping of time or beginning and ending of a small piece of time, we create a little delta T , just as we do each delta L for an object.

But the photon interaction process is monocular. Each photon must attack matter individually, and live or die in the process. Each photon born from matter is also born independently. Thus the primitive observation process is monocular, since it is totally in one-to-one correspondence with photon interaction that is monocular. Thus the observed world is monocular, quantized, discretized. Because of the particular one-to-one correspondence between our primitive concepts and a single interaction, we can conceive the world in no other fashion, unless we change the very basic factor of one-to-one correlation. This in fact has already been done for physics by Everett, whose theory of the universal wave function incorporates multiple simultaneous observation, and hence direct insight beyond the limitations of the monocular correspondence to the photon interaction. My theory does the same thing in the fields of logic and mind.

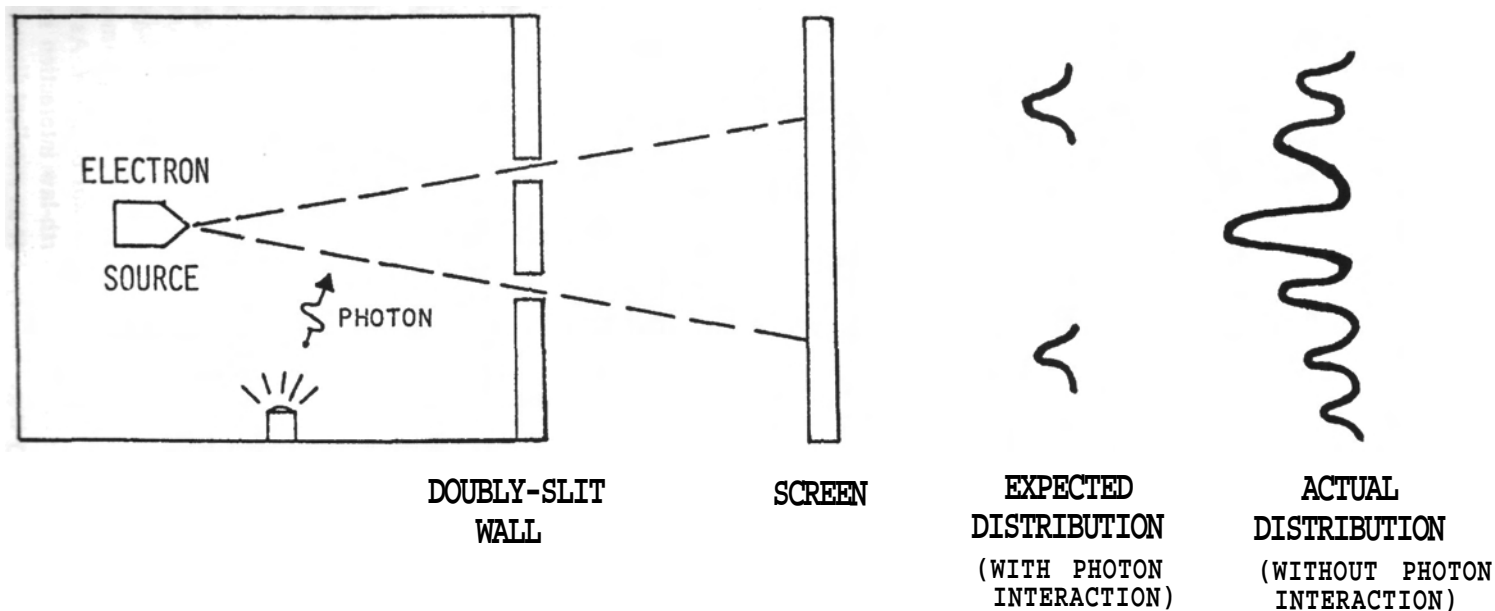
TWO-SLIT EXPERIMENT

This experiment is fundamental to all of modern physics. Feynman, Nobel prize winner in physics, has stated that no physicist understands this experiment, and that it cannot be explained by any classical means. The reason is that it cannot be monocularly comprehended, i.e., the first three laws of logic cannot explain it. The fourth law can and does.

In the experiment, electrons are emitted from a source and travel past a doubly-slit wall region on their way to a screen. The apparatus is shielded against light. If one believes that the emitted electron is a little three-dimensional particle, much like a tiny baseball, then it should go through one of the slits and not the other. It would then hit the screen at one of the two spots indicated as the expected distribution, with a little scatter from those that chip the edge of the slit a bit. Electrons which do not hit the holes but strike the wall are absorbed.

We do not get this expected pattern. Instead, the pattern is essentially the same as the one we would get if each electron were a wavefront passing through both slits at once. However, each electron still strikes the screen in only one point; the distribution of these points fits the actual distribution pattern shown.

This stunned the physicists. They did not believe it at first, so they set up a photon gun and hit every electron with a photon as it left the emitter source and started over toward the two-slit region. That is, they determined precisely when a little electron was on the way, and the fact that it was like a tiny baseball and in just one



NOTE: IF THE ELECTRON IS HIT BY A PHOTON BEFORE IT REACHES THE TWO-SLIT REGION, IT DOES NOT EXHIBIT THE WAVE INTERFERENCE EFFECT, BUT INSTEAD ACTS AS A CLASSICAL OBJECT AND GOES THROUGH ONLY ONE SLIT, YIELDING THE "EXPECTED DISTRIBUTION" PATTERN.

Fig. 7. Two-slit experiment

place. And this time the electron only went through a single slit, and it gave the expected pattern after all. And when the experiment was repeated and only a fraction of the electrons were hit with photons, then a mixture of the two patterns emerged.

It is simple to describe the results mathematically, but no one has understood why things happen as they do in this experiment. The principle of complementarity evades the issue. This principle is simply a monocular statement dealing with one aspect of the problem at a time, with the determined, exclusive, monocular past only. It does not apply to the present or to the future. If we think in terms of the present, then the third law of logic is violated and the fourth law applies. The two states, two-dimensional wave and three-dimensional corpuscular, both exist simultaneously but nonexclusively in the present. Thus in physics terms, the entity becomes nonobjective (nonspatial), probabilistic and undetermined, and this is automatically a wave concept, i.e., since waves are not confined to one place and determined or localized, they may exist in the nonconfined, nonlocalized present.

Note that photon interaction must be excluded whenever the so-called quantum effect is exhibited. If photon interaction is invoked, classical reality emerges. Photon interaction creates classical objectivity. Photon interaction is a time-differentiating operator imposed on L^3T four-space. Specifically, since light carries time, photon emission from an entity strips away T from the L^3T nonobjective entity, converting it to an L^3 or spatial object.

The very concept of an object comes from primitive perception's one-to-one correspondence with photon interaction. After photon interaction, the first three laws of logic apply to an entity. Before photon interaction occurs, the fourth law applies. In the fourth-law state, the time portion of an entity can interact with any number of time portions of other fourth-law entities if the time aspects of all of them coincide.

A free electron born and released at the emitter is four-dimensional (L^3T) until it is struck by a photon, after which it is three-dimensional (L^3). When the wavelength of electron and slits is specified, we have actually specified the time interval stripped out of a dEdT quantum in each quantum of fundamental change occurring. Perfect time synchronization accomplishes or constitutes orthogonal rotation. So if the length (width) dimension of each slit is very close to the wavelength of the electron, the time aspects of both slits will interact with the time aspect of the fourth-state electron if all three are brought into time phase simultaneously. If the slits are made much larger, this interaction will not occur.

When the electron interacts with both slits timewise, this will constitute a part of the past history of the electron to all future interactions or interaction possibilities. But since the interaction with the two-slits was not in the past (i.e., selected or determined), then that interaction itself is a part of the present and future probabilities chain. In physics, probabilities propagate forward in time with absolute causality until a monocular selection is made. Thus the fourth-law interaction is propagated forward with absolute causality and significantly affects any future interactions. And apparently vice-versa. John Wheeler has just shown that, in at least one sense, whether or not the emitted particle in the two-slit experiment has interacted with one or both slits can be selected *after it has occurred*. As is well known, the pattern of projection forward of this fourth-law interaction may be quite simply calculated from ordinary trigonometry. For an excellent discussion of

the two-slit experiment, see Richard P. Feynman, Robert B. Leighton, and Matthew Sands, *The Feynman Lectures on Physics*, Vol. 1 (Addison-Wesley, Menlo Park, Calif., 1963), pp. 37-1 and 37-12.

When the electron hits the screen, it encounters a region of varying time oscillations of the orbital electrons around the individual atoms comprising the screen. Thus the exact location of the orbital electron in the screen which will first precisely time-synchronize with the electron wavelength approaching the screen in four-law form will vary. Thus the place where the electron hits the screen is variably selected along the screen. The time distribution pattern of the approaching electron is recovered when the time distribution of the number of electron hits per screen length is plotted.

So one can build gadgets to cause four-law entities to multiply and interact simultaneously in time, even though the entities are normally thought of as being in different spatial locations when in the three-law state. And one can deliberately select the type of interaction to occur, four-law or three-law, simply by controlling photon interaction. The two-slit apparatus itself is a paranormal, psychotronic device.

This is the explanation of the two-slit experiment, which, according to Nobel prizewinner Richard Feynman, no one understands and which, according also to Dr. Feynman, contains the total mystery of quantum mechanics and the only mystery of quantum mechanics. The reason the two-slit experiment has not been understood is that the answer to the paradox was not present in the first three laws of logic. It requires the addition of the fourth law to explain the experiment.

And all fundamental particles — photons, neutrons, protons, electrons, etc. — exhibit the same behavior. So things, nothings if you will, can be processed in the multiplistic two-states-identified-as-one-so-no-single-exclusive state, as virtual and unobserved entities. In the multiplistic state they can be amplified, recorded, put onto tape, modulated onto RF signals, etc. And by our ordinary, objective, three-law science nothing is processed. And nothing indeed is what is there — a very special, structured, detailed, virtual set of nonexclusive, hidden-variable nonthings that is part of the new reality existing in the framework of the new four-law logic. In fact, this processable, structurable, nonobjective reality exists outside objective, three-law spacetime and is the basis for all psychotronic phenomena.

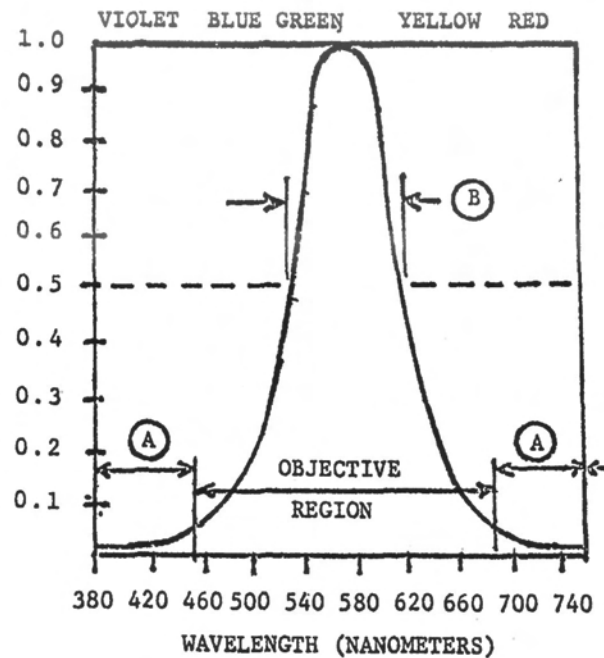
To our present monocular detection devices and monocular theory, such multiple-state entities are unobserved and hence are zeroes. They are pure vacuum, pure space, pure nothing, pure emptiness. But they are very real indeed, and they do physically exist, but multiocularly rather than monocularly.

The importance of the time interaction in explaining the two-slit experiment was noted as early as 1957 by Charles Muses in his introduction to Jerome Rothstein's *Communication, Organization, and Science* (Falcon's Wing Press, Indian Hills, Colorado, 1958). Muses pointed out that the celebrated wave-particle paradox remains a paradox only so long as the chronotopological phases of the phenomena are left unrealized in the analysis. The entire foreword by Muses is a remarkable document that analyzes the structure of time itself.

NOTE:

IN REFLECTED LIGHT,
THE EFFECT CAN BE
INVERSED.

S.L.E.



SUPPRESSION OF THE PARANORMAL
CHANNEL BY THE PHOTON INTER-
ACTION INCREASES IN THIS
DIRECTION IN PROPORTION TO THE
SPECTRAL LUMINOUS EFFICIENCY

- (A) WEAKLY OBJECTIVE REGION
- (B) STRONGLY OBJECTIVE REGION

Fig. 8. Photon quenching of the paranormal

PHOTON QUENCHING OF THE PARANORMAL (TIME) CHANNEL

The photon interaction constitutes a time-differentiating operator imposed upon L^3T dimensionally (Minkowskian reality), which results in the creation of L^3 dimensionality (objective, spatial reality). Aristotle's three laws of logical thought are based on primitive observation, which in turn is in one-to-one correspondence to the situation where the photon interaction has been imposed and the time dimension destroyed, resulting in a classical or objective or spatial reality. Hence all our present logic, science, and mathematics are based upon this particular arrangement. As shown by the two-slit experiment, if the photon interaction is not allowed to occur, a fundamental particle refuses to behave in a classical, objective, spatial object manner; instead, it behaves in a nonclassical, nonobjective, wave manner if the time element interacts with it.

Mental phenomena occupy the same time dimension as do physical phenomena; however, the spatial dimensions of mental objects do not ordinarily occupy or intersect the spatial dimensions of physical objects. However, the time dimension is recognized by physics as objective; therefore, since the mind occupies at least one real objective dimension, it is objective rather than subjective. This suggests a model whereby mind is a real L^3T Minkowskian four-space world, but one whose three spatial dimensions lie orthogonal to and outside the ordinary world's three spatial dimensions. The mindworld and the physical world then have in common the same time dimension. Dynamic movements in each world (mind and matter) result in an exceedingly small crosstalk being projected into the other world, a crosstalk so small as to be virtual and normally unmeasurable. Establishing one-to-one coherence between crosstalk from a mindworld constitutes the creation of a biological organism. The crosstalk from the mindworld and a physical structure in the ordinary world to the physical world has previously been labeled *inception* by me, and a mechanism whereby such a minute psychokinetic effect on matter can be amplified to a macroscopically observable level, or even beyond, has been derived. Thus a fundamental mechanism whereby tulpoid activity (projections from the collective unconscious materializing into the ordinary physical world, in a format determined by the collectively higher levels of unconsciousness in the race, national group, culture, subculture, and personal unconsciousnesses) is developed and explained.

Before the intervention of the photon interaction, four-dimensional reality thus has a great deal of tulpoid dither riding upon its time dimension as a minute modulation. The photon interaction invokes a time-differentiating operation, stripping away or suppressing the time dimension, resulting in a spatial reality or objective reality being perceived or observed, and in the process separating mind and body by destroying the only common connection or channel. Because of the time-squelching action of the photon interaction, we do not see time or the mind in our ordinary physical observation. Also, we do not see the incessant stream of tulpoid activity that bathes the time channel.

The time channel is thus the mental channel and the paranormal channel. The photon interaction is the destroyer or squelcher of the paranormal channel. Apparently the squelch effect of light is not linear or constant, but is a variable and a function of the frequency of the light being utilized. From a synthesis of a variety of

data in diverse fields, the following hypothesis has been arrived at to fit the experimental evidence: *The quenching of the hyperchannel (the paranormal channel or the time channel) by photon interaction is proportional to the spectral luminous efficiency of the eye of the average human observer in the interval from the infrared to the ultraviolet.* Thus the form of the paranormal squelching effect of the photon interaction is given by the operator ϵ where

$$\epsilon = m E T$$

and where m is a parameter which varies as some function of frequency. This hypothesis specifies m over the region from the ultraviolet to the infrared. In other regions of the frequency spectrum, the form of m must be determined by experiment.

There are several experiments which fit the hypothesis:

1. The induction of death and disease patterns from test cells to environmentally shielded healthy cells by Soviet scientists.^a
2. The invoking of specific tulpa living forms and photographing them in the invisible state with infrared film by Trevor James Constable.^b
3. The visible light revival of appreciable fractions of cells killed with ultraviolet light and kept in the dark — dormant, unreproducing, for up to twenty-four hours.
4. Ingo Swann's precise differentiation of the visible light spectrum (frequency region) where psychic seeing (similar to remote viewing) is blacked out.
5. The Fox and Miller experiments, in which cell-like protein forms that reproduce (i.e. are "living") are generated when a primeval soup in the laboratory is bathed in ultraviolet light and exposed to strong electrical spark discharge (strong bioenergy collections).

A corollary to this hypothesis is that, under certain conditions, reflected light may reverse the effect. Thus the effect of the full moon, which reflects a great deal of sunlight, can immediately be appreciated. The effect is to the time channel, hence stimulation of this channel stimulates the mental effects. The effects of the full moon on romantics, lunacy, and deeper life functions controlled by the unconscious is grounded in a factual basis.

Thus there is a very good reason why animal eyes tend to operate very closely to the infrared, visible light, ultraviolet region, with the eye usually adapted for the visible light region. In the infrared and ultraviolet regions, tulpa phenomena would be readily visible or detectable, and an animal whose eye operated exclusively in one or the other of those areas would so often be distracted by the mental tulpa activity that it would prove disadvantageous to his survival against animal predators operating in the strongly squelched, visible light region. By the same token, animals whose eye operates further into the infrared or the ultraviolet than does the human eye are notoriously sensitive to paranormal phenomena before their manifestation to human observers.

The stimulating effect of reflected light, and particularly of light reflected from the surface of a planet or of the moon, also concerns several of the common practices of UFO investigators. It is common practice to dispose of a sighting once

^aV.P. Kaznacheyev et al., "Distant intercellular interactions in a system of two tissue cultures," *Psychoenergetic Systems*, Vol. 1, No. 3, March 1976, pp. 141-42.

———, "Apparent information transfer between two groups of cells," *Psychoenergetic Systems*, Vol. 1, No. 1, December 1974, p. 37.

^bTrevor James Constable, *The Cosmic Pulse of Life* (Merlin Press, Santa Ana, Calif.)

it becomes apparent that a planet lay in the direction of the sighting and was particularly bright at the time. However, such an optical condition can in fact serve as an initiation point for tulpoid activity to enter the ordinary reality frame. And in fact such conditions — and conditions when stars are very bright and twinkly in their reflections from the particles of the atmosphere — are conducive to UFO appearances, and this should be realized and taken into account. UFO's in a great many cases will be observed to start or come into being from such appearances.

If we realize that the paranormal channel is the time channel, then the fundamental two-slit experiment of physics is itself a paranormal manifestation experiment. Thus when the photon interaction is invoked, a classical object and classical behavior result. When the photon interaction is not invoked, a nonclassical entity and nonclassical behavior result. The more interest is taken in a particular tulpoidal manifestation, the more the format is impressed in multiple minds and multiple unconsciousness layers and the more frequently the format is tuned in. Eventually a repeatedly tuned tulpa can become stable and permanent. Candidates for such tulpoids presently on their way to being stabilized are the Loch Ness monster and the sasquatch. Particle physicists may in fact be creating their own reality by the same process, as suggested by Josephson.

The process whereby visible light revives cells killed by ultraviolet light is presently considered under the term "photoreversal." It is a moot point whether cells are living if they have laid dormant for several hours or even twenty-four hours without any cell divisions having occurred. The effect of a given dosage of ultraviolet radiation on cells is known to be greater when the radiation is flashed than when the radiation is continuous. This has been interpreted as due to a thermal reaction following a primary photochemical reaction, since increasing the temperature accentuates the effect of flashing. However, I suggest that flashing is directly related to the effect known as kindling, where, when the limbic structures of the brain are repetitively stimulated, the entire nervous system of the organism responds and goes into resonance (seizure). Soviet experiments have shown that such flashing of a telepathic sender enhances the reception of telepathic information. In the 1920's and 1930's A.G. Gurvich and his students found that a yeast detector's threshold of sensitivity to mercury lamp radiation was about three orders of magnitude higher than the detector's threshold of sensitivity to radiation of the same spectrum from biological material. (For a description of more modern work which may show a violation of the conservation of energy law, see L.L. Regelson, "A Paradox of Mitogenetic Radiation," edited by H.S. Dakin, translation available from H.S. Dakin, 3101 Washington Street, San Francisco, CA 94115.) Regelson's experimental results point to the conclusion that the paradox observed with the mitogenetic radiation experiments is a universal physical phenomenon. In view of this and Kaznacheyev's results, the entire area strongly warrants intensive investigation. Regelson's group was actually attempting to find a new solution to the problem of wave-particle duality, strikingly parallel to my interest in the area.

Those frequency points where the quenching effect is minimized (i.e., where ϵ goes through a minimum value) are referred to as "magic windows" or "magic windows between worlds." Acker and Tiller have called them "interdimensional nodal points." In the magic windows, energy from one frame or biofield can be more easily collected to orthorotate into another frame or biofield, since the rotational threshold is much lower. There is a window, e.g., between 38,000-40,000

PHOTON INTERACTION CREATES OBJECTIVE AND NONOBJECTIVE

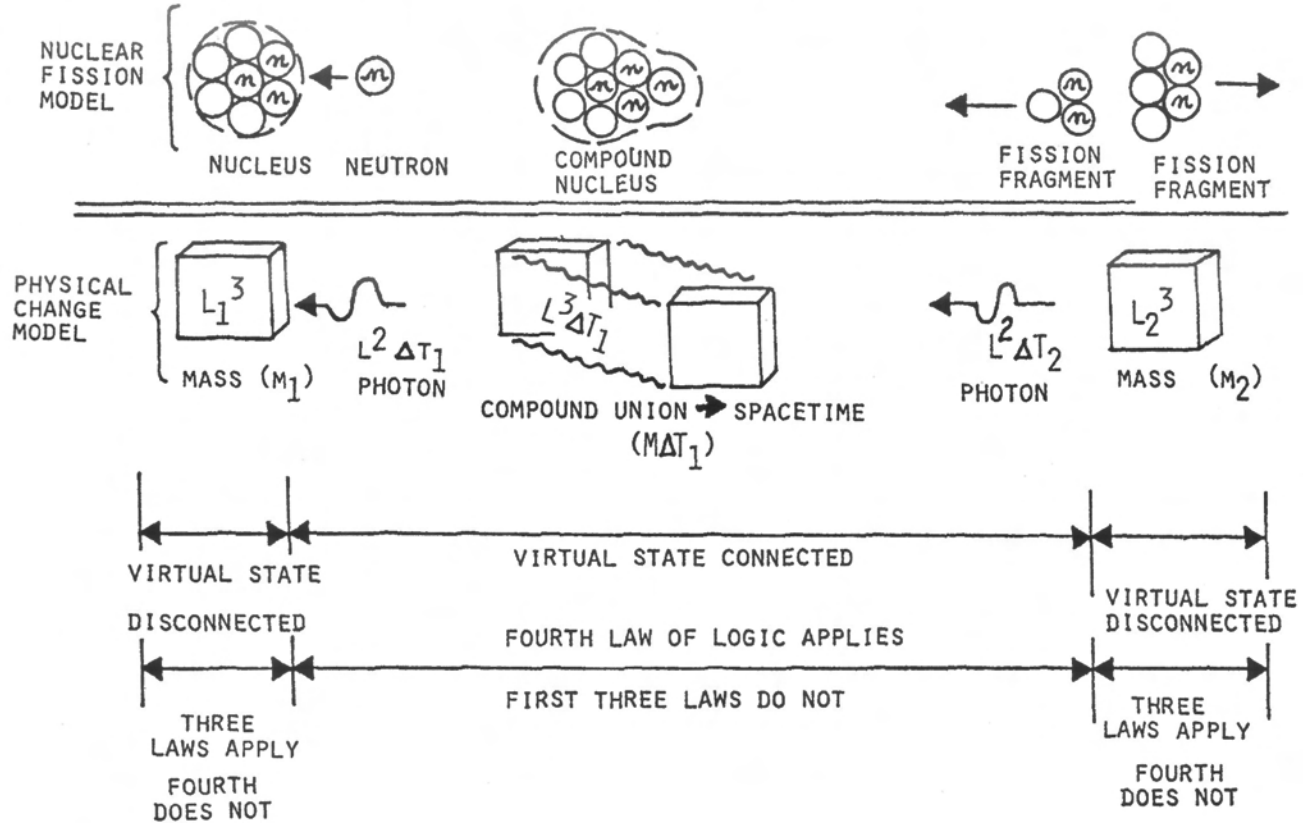


Fig. 9. Raindrop model of quantized change

Hertz, which can be stimulated with ultrasonics or electromagnetic radiation. The ultraviolet region contains a window, as does the infrared region. Many other windows apparently exist.

Trevor James Constable photographs paranormal phenomena through a filter that is open in the IR and UV regions, but opaque to visible light. Thus the filter blocks out the strong quenching effect of visible light and looks in two magic windows, IR and UV. Constable is thus able to photograph phenomena that are not normally detectable.

RAINDROP MODEL OF QUANTIZED CHANGE

What does not appear to have been realized to date in physics is that the photon interaction is the agent that creates objectivity itself, as is clearly established by the two-slit experiment. The photon interaction separates spacetime into space and time exclusively. An object, being something which occupies space (L^3), is thus timeless. Objects do not exist in time, because the union of an object with time constitutes spacetime, which cannot be perceived, detected, or observed.

Only changes in (derivatives of) spacetime can be perceived, detected, or observed, but not spacetime itself. That with which light has not interacted is not objective. This is proven conclusively by the two-slit experiment, upon which all of quantum mechanics rests. In that experiment, if an electron emitted from the cathode and on its way to the two-slit region does not interact with light, the electron behaves in a totally nonobjective manner, appearing to pass through both slits at the same time. (Actually it goes around both spatial slits in time, and since both of the slits occupy the same piece of time, the electron can interact timewise with both of them.)

On the other hand, if the electron is struck by a photon before it reaches the two-slit region, it becomes a "hard, solid little baseball" and quite objective. In that case it can interact with (go through) only one spatial hole because it cannot interact in time. According to Feynman, this simple experiment contains the total and only mystery of quantum mechanics. Furthermore, it cannot be explained in any classical manner. No physicist in the world understands it, although the pattern of repeated electron strikes on a collecting screen is quite easy to compute by simple trigonometry.

Let me now explain what happens to a mass when it is struck by a photon, absorbs the photon, and re-emits the photon. First, a mass is an L^3 object; the concept of mass is not a function of time, but only a function of space. It is thus three-dimensional. The photon is also three-dimensional, but one of its dimensions is the time dimension. The photon, being built of action, is constituted of ($dEdT$) or (L^2dT) dimensionally.

When the photon strikes the mass and is absorbed, the (AE) portion is turned into mass by orthorotating one turn and becoming L^3 dimensionally. The (dT) portion is thus united with the spatial mass to give a compound nucleus of spacetime comprised of MdT . This compound nucleus of spacetime is not perceivable. When a photon is re-emitted, it may or may not be of the same frequency and energy as the previously absorbed photon, depending on the absence or presence of any other perturbations. At any rate, a small bit of L^3 spatial mass is orthorotated to give an L^2 intersection with the laboratory frame, which turns the bit of mass

into a small piece of energy, dE . In the orthonotation, a small piece of time is bitten off and joined to the dE to give a $dEdT = h$ quantum of action, which now constitutes a photon. Photon emission thus strips away the time dimension, leaving a spatial object.

Einstein pointed out that the velocity of an object may be visualized as rotation of the object in higher dimensional space. Visualized as spatial rotation rather than rotation toward the time axis, the velocity of light in vacuum c merely constitutes the rotation of a piece of mass by an angle of 90° to the line of motion, in the laboratory space in which we visualize the photon (the rotated piece of mass) as moving. Thus the photon emitted from the mass is moving at c , the velocity of light, because of its orthogonal rotation to the laboratory frame.

Note that the spacetime compound nucleus has now once again been separated into spatial and time components. Time is moving with the photon. And that is why time moves or flows at c , the speed of light in a vacuum. Time is carried only by the photon, and photon interaction with an object produces that object's march through time. If the emitted photon and the previously absorbed photons do not have identical dE and dT components, then M_2 will be different from M_1 , and the mass will have increased or decreased. Considering the photon to consist of momentum and length components, i.e., $(dpdL)$, a similar diagram can be constructed. In that case, if the momentum and length components of the emitted and absorbed photons are identical, then M_1 and M_2 occupy the same position (M_1 has not moved). If these components are different, then the mass M_2 will occupy a slightly different position than mass M_1 , and the mass will have moved.

This, by the way, is the simple solution to the age-old philosophical problem of change. We simply identify M_1 and M_2 , calling them the same object. We cannot detect, perceive, or observe the compound nucleus of spacetime in the middle. Thus we experience change as a thing becoming something else, but still being the same thing. This totally defeats the first three laws of logic. However, fortunately we can easily comprehend it since we have developed the fourth law of logic.

The raindrop model of quantized change is taken exactly analogous to the raindrop model of nuclear fission, as shown in Figure 9.

KINDLING EFFECT

G.V. Goddard and his associates in 1969 reported a peculiar kindling effect generated by repeated, periodic, low-intensity stimulation of the limbic region of mammalian brains. A sustained periodic signal input to the brain and central nervous system eventually sets up a cumulative resonance which increases in magnitude until the entire organism is in sympathetic resonance.

A laboratory rat at first continues to explore its environment in a normal manner when it is subjected to kindling. But after repeated stimulation at the same intensity, the rat will begin to rear up and its forelimbs will convulse. Eventually these bursts of electrical activity induce similar patterns in nearby brain regions, and the threshold becomes progressively lowered. Stimulation progresses to the amygdala, to the amygdala on the other side of the brain, to the hippocampus, to the occipital cortex, and finally to the frontal cortex. Kindling can start only in the limbic structures.

While kindling was originally thought to be a model of epilepsy, John Gaito of York University has reported that a different mechanism is apparently involved since the amino acid, taurine, which suppresses epileptic seizures in laboratory animals, does not prevent phenomena caused by kindling. Also, kindling apparently causes permanent changes in the neural circuitry. Pulsed repetitions of telepathic senders have also been shown to increase the reception of telepathic messages. Thus the kindling effect apparently applies to the paranormal channel as well as to more orthodox transmission channels. (For further details, see "Kindling, once epilepsy model, may relate to kundalini," *Brain/Mind Bulletin*, Vol. 2, No. 7, February 21, 1977; pp. 1-2.)

The kindling mechanism is a far more general mechanism than epilepsy researchers have realized. Coherent time collection of bioenergy in one bioframe "kindles" toward the threshold of the next bioframe, which has a fixed threshold. When sufficient kindling occurs to reach the threshold, automatic orthogonal rotation of the kindled bioenergy occurs into the next frame. There it simply constitutes the kindling or superposition of the imperceivable subquantum state into the perceivable quantum state. This is the mechanism whereby one kind of field can be turned into another. E.g., thought energy (third biofield) can be kindled into second biofield (flux), which can be kindled into first biofield (electromagnetic energy), which can be kindled into zeroth biofield (matter).

BIOENERGY COLLECTORS

Good collector mechanisms exist in great variety, in both living and inert systems. Many good collector mechanisms exist in the human body. One mechanism that collects bioenergy and orthorotates it into ordinary electrical field with appropriate induced currents is simply the electrical current in the human nervous system. This is particularly true of the current discharges from and between the nerve endings.

Another collector for bioenergy in a living system is the mitogenic radiation between the cells in tissue. Taken as a flux, this mitogenic radiation would seem to have both a photon nature and a nonphoton nature. The cells, in their membranes and fibrous internal structures, are continually collecting and kindling bioenergy into electron currents and photons. The electron currents represent collections from the virtual state into observable state, and may in one sense be regarded as the lifting of electrons out of the Dirac sea by direct kindling (coherent superposition of virtual state energy into observable state energy). These kindled currents are thus superpositions or modulations on the ordinary electrical activity of the cells, fibers, and membranes. The mitogenic photons are also produced by direct kindling of the virtual state into observable state, in this case, by kindling virtual state photons into observable state photons.

Spark discharges, such as are used in Kirlian photography, are extremely good collectors of bioenergy. In Kirlian photography the film records ordinary photon interactions; however, the spark discharge from the finger is collecting and kindling bioenergy into ordinary electrical energy (specifically, into electromagnetic field, which then affects the electrical flux pattern). Also, bioenergy is being collected and kindled into ordinary photons, thus changing the photon pattern being emitted.

Furthermore, those photons being emitted are internally affected by the bioenergy that has not yet kindled to observable state electromagnetic energy, but is still virtual. Each photon carries the virtual state along in the little piece of time contained in the photon, and partially collected bioenergy which has not yet breached the threshold of observable photons is being carried in each emitted photon. These patterns are transferred to the grain atoms by photon absorption when the piece of time of the photon is momentarily added to the mass of the absorbing atom, and in turn are continually spread through the emulsion material atoms by the virtual photon fluxes of the charges, in both the nucleus and the orbital electrons of the atoms.

So the life pattern of a photographed object is captured on ordinary film — and indeed that pattern can be resonated through hyperspace with the object that was photographed, regardless of where the object is in the universe.

Note that there are many mechanisms inside stars and planets for the collection of bioenergy. We live in a vital, pulsing, living, breathing, bioenergetic cosmos, and life is everywhere. Patterns of life are riding in the light from the distant stars, from our sun, in the neutrino flux from the cosmos, in the graviton flux from the cosmos, in cosmic rays, etc. And so it is small wonder that living cells that form, reproduce themselves, and die can be induced in the proper primordial soup of nutrients when that soup of matrix forms and chemicals is bathed in ultraviolet light (one of the magic windows which contains a greatly enhanced transmission factor for bioenergy, hyperspatial energy, life energy), and stimulated by electrical spark discharges.

It would be interesting to perform the same type of experiments with concentrated light from distant stars, or with the mitogenic radiation from cell cultures, using environmentally shielded setups similar to those used by the Soviets in experiments with the transmission of death patterns.

Even stranger, bioenergy propagates along deBroglie waves, and so all possibilities are modulated by bioenergetic kindling and collection. Viewed in this light, Puthoff and Targ's remote viewing experiments actually provided a multitude of probability paths to the viewer, and these probability paths were indeed kindling bioenergy of the distant, as yet unhappened event. The actual event in the future contains a great many additional collection kindlings due to the additional factors involved in determination (such as collapse of the wave function). A peaking of signal exists on the more probable happenings, and this extra signal along certain paths constitutes an increased signal-to-noise ratio in that particular channel. Thus an actual mechanism exists for seeing at a distance and for seeing ahead in time.

Particular note should be made of the pi meson collection mechanism in the nucleus of an atom. Each neutron and each proton in the nucleus of an atom is continually emitting and absorbing pi mesons, and thereby the protons and neutrons are continually interchanging from one to the other by passing along the positive charge. This activity produces the strong force which binds the nucleus together against the electrical repulsion of the electric forces due to the positive charges of the protons. The fantastic structurings and currents that result provide an electrical current which can and does collect bioenergy. A skilled psychic with good psychokinetic ability can thus focus on the kindling mechanism inside the nucleus and get a signal-to-noise increase of the kindling of his bioenergy in nuclei as op-

posed to elsewhere in the material in other collection mechanisms. Several types of reactions can then occur. The protons may have their electric charges extinguished due to the extinguishing of the virtual photons producing the electric field on their pions. In such case, the atom simply loses its integrity, and some neutrons and photons are emitted from the atomic site into the surrounding material. This type of interaction thus locally softens a metal and produces severe heating in localized areas, changes in fundamental grain structure, and changes in fundamental characteristics of the metal.

It is by this mechanism and similar related reactions that metal bending can be and is accomplished by persons such as Uri Geller. The collection of bioenergy by graviton emission, absorption, and flux leads to antigravity and other psychokinetic effects. These are exhibited in rare levitation phenomena and more frequent poltergeist phenomena.

The list of collectors could be materially increased, but these should suffice to show the importance of the effect of coherent time collection, kindling, and orthorotation of one type of field into another. The collection of deBroglie waves is moving much faster than light, and for very slowmoving objects the collected and projected bioenergy on their deBroglie waves is moving at essentially infinite velocity. This accounts for the fact that Hieronymus observed an instantaneous cutoff of his monitoring signals from the Apollo astronauts when their space vehicle went behind the edge of the moon.

Looking over the list of collectors and carriers, it is obvious why even the best Faraday shields cannot shield out bioenergy communication. The deBroglie wave carrier alone will simply take the bioenergy right through any known substance — or more precisely, it will take the bioenergy around the three-space in which the barrier substance exists, since deBroglie waves are actually superluminal particles in a three-space more than one orthogonal turn away from the observer's three-space. The implications for psychic healing and psychic surgery are obvious.

PSYCHOMETRIC EFFECT

Every mass communicates with every other mass in the total universe, with hyperspatial/virtual crosstalk between all parts and all masses. This yields a mechanism for psychometry.

Inside the mass, we have a large number of collector mechanisms, of the types previously listed and explained. All objects in the universe are in communication with this object, particularly large or close objects. Those objects that come very near or touch the chosen object for a period of time are most influential.

Briefly, the internal dynamic collector mechanisms of the chosen object perform collection and kindling of the virtual state; thus each mechanism is slowly changed by the influence of other objects in the universe. This is very like the diffusion of heat. The chosen object also communicates part of the influx away, normally reaching an equilibrium with its surroundings when these surroundings are stable. As the surroundings change, appropriate changes are communicated into the internal collector mechanisms of the chosen object, and appropriately diffused away to other parts of the universe, until equilibrium is again reached.

Note that the influence of nearby or touching objects is greater than the influence of distant objects under normal spatial considerations. In hyperspatial considerations, however, this is not necessarily true at all, since this chosen object's pattern may be tuned in through hyperspace without any loss of energy due to ordinary three-space separation distance. In the absence of such hyperspatial tuning, distance is a factor, and close objects have a greater signal-to-noise ratio in the collection and kindling than do more distant objects.

Thus an individual or group of individuals in the vicinity exert mental, emotional, and bioenergetic influence on the kindling being accomplished in the chosen object. The stabilized dynamic patterns of the localized chosen object thus are conditioned and kindled to contain patterns of the actions, feelings, and thoughts of the individuals around it, as well as the natural events that occur. It is thus a very exact record of its surrounding events.

A psychically sensitive person who touches the chosen object, or in some cases merely comes near it, enters into a communications exchange with it. His body-records diffuse into the local object, and those of the local object diffuse into his body. If the psychic is sensitive enough, he can gain impressions from the recorded events of the object. This is the scientific basis of psychometry.

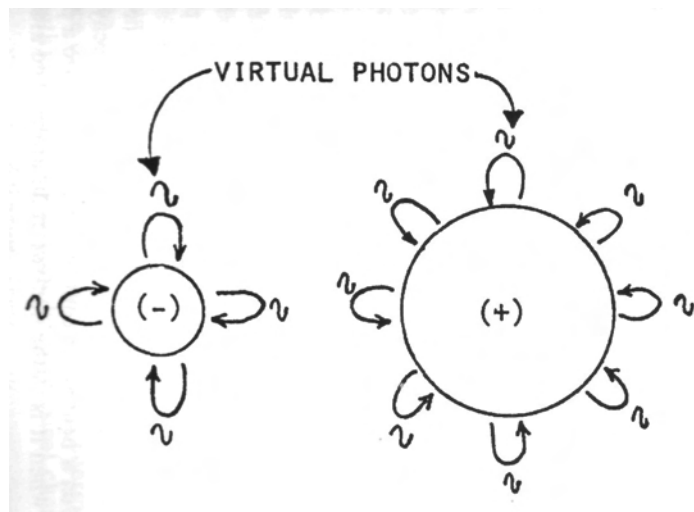
A wide variety of data support this mechanism. Psychometry has been practiced since earliest times, and is still practiced today. A photograph is particularly indicative of the person photographed, since his entire record is imprinted psychometrically on the photograph.

Moreover, the entire record of the Earth is still in the earth, in all its detail. As indeed is the record of each star and its planets, riding on the light that reaches us from that star, and on the deBroglie waves from it. With operational biodetectors, we could easily read the records of the universe. NASA would do well to pursue this alternative in its attempt to contact extraterrestrial life, rather than point huge radiotelescopes toward the heavens and listen to the kindled static from the stars. The static indeed contains the message, but not in a format in which they are prepared to look! It is in the virtual state, riding in each photon.

To a psychic who can see the human aura easily, the condition and much of the record of the person is in that aura, because the auric pattern is changed by all experience of the body, mind, and personality. Thus a good healer can see the aura of the patient, tell if another healer has been in contact with the patient (including often recognizing which other healer it was), and can recognize his own previous contact with the patient many years earlier. (See, for example, the story of Agpaoa as recorded by Sigrun Seutemann in *Healers and the Healing Process*, ed. George W. Meek, Theosophical Publishing House, 1977, p. 93.)

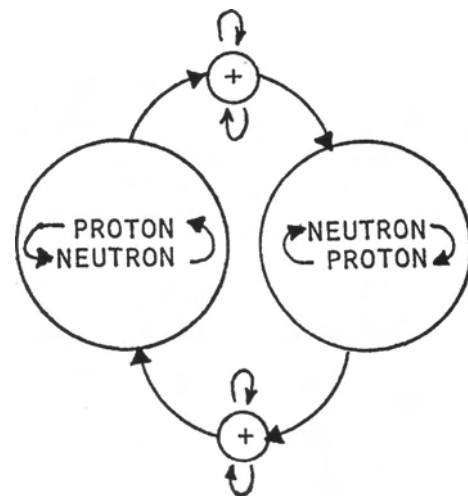
ALL MASS IS CHARGED: EVERYTHING IS ELECTRICAL

It is well known that all mass is charged; thus everything in one sense is electricity. To examine this concept, let us look again at the electron with its virtual photons being emitted and absorbed, which virtual activity creates the electric field of the electron. In classical theory the electron is visualized as if it were a little hard



ELECTRON

PROTON



IN A NUCLEUS, EVEN A NEUTRON IS CONTINUALLY CHANGING INTO A PROTON, AND VICE VERSA, BY THE EXCHANGE OF THE POSITIVE CHARGE.

Fig. 10. All mass is charged: everything is electrical

spinning sphere; the spinning of its electric field then generates a magnetic component. This concept of spin is retained, even though the electron is no longer regarded simply as a little baseball.

From our viewpoint, the electric field constitutes a steady activity of the emission and absorption of virtual photons, and the electron spin is more of an implosion or explosion in higher dimensional space. That is, we visualize a fundamental stable particle as a precise closure of the entire physical universe, like the Einstein spherical model of the cosmos. Furthermore, we visualize multiple closure; first, a very gradual macroscopic closure gives the so-called gravitational closure of the Einstein spherical model, and a closure — in the case of an electron — of about 10^{42} times as quick and small gives the charge closure. This second closure is considered to be at right angles to the first. In one direction the second closure gives a negative charge, and in the opposite direction the second closure gives a positive charge.

So in this view, spin is occurring in at least four spatial dimensions, not just three. It is more of an implosion or explosion into and out of this three-space universe frame. From such a model, we could expect that some startling physical phenomena might be possible. For example, we might visualize the implosive or explosive spin as similar to a vector flux. If these vectors are not precisely antiparallel when two like charged particles meet, then a resultant flux vector exists. Since spin is actually the quantity action (energy x time, or momentum x length, or mass x time), then the existence of a vector resultant means that enough action can exist to provide a quantum to be fissioned, which yields (creates) physical change. Thus such a resultant allows a collision or interaction to occur. On the other hand, if two like charged particles meet and their spins are precisely antiparallel, then no vector resultant flux exists. Hence no effective action exists to be fissioned and create physical change (collision or interaction). Thus two like charged particles with precisely antiparallel spin ought to run right through each other when they meet, with no interaction at all, electrical or otherwise, in complete contradiction to conventional collision theory and conventional electrical theory which states that like charges repel one another.

Such an experiment has been done, at Argonne National Laboratory, with colliding protons. When the colliding protons have antiparallel spins, they do indeed pass right through one another. And there dies forever the old idea of concrete, solid, material reality. The experiment is not predictable or permitted by present electromagnetic theory or conceptual models of the proton and proton interaction. The experiment is consistent with our dual closure holographic model of the universe, however, and is in fact predicted by it.

In a nucleus, we find both protons and neutrons (except for a single isotope of hydrogen, which contains only a single proton in its nucleus). However, these nucleons do not exactly maintain their exclusivity. Instead, a proton is continually changing into a neutron and vice versa; this metamorphosis is accomplished (in theory) by the continual exchange of a small particle of mass containing the positive charge. Thus a highly dynamic type of electrical current activity is going on in the nucleus. And in fact, this is the only way a neutron can be stabilized in ordinary matter; when freed from the nucleus, the neutron is unstable and decays in about eleven seconds or so. So even a neutron is continually changing into a positive particle, i.e., into electricity, when it is in the nucleus of an atom. And around

the nucleus, the electrons are in dynamic orbit, so highly dynamic electrical activity is going on in the outer part of an atom and also in the inner part. Thus indeed all mass is charged and everything macroscopic is electrical. And every physical change of a charged particle constitutes a modulation imposed upon its virtual photonic activity creating its electromagnetic field. These modulations are simply coherently collected to breach the threshold of the virtual (third) orthoframe, passing into the second orthoframe, then breaching the threshold of that frame, and passing into the first orthoframe, which is the frame of the electromagnetic field. The electric field is coupled by the dual closure mechanism to the gravitational field, and also to the mass. The entire mechanism constitutes the coupling of the virtual state reality to observable state reality, and the electromagnetic field plays a prominent part in this coupling. Psychotronics is nothing but the extrapolation of this mechanism and the formulation of a theory to allow the construction of practical devices based upon it. Put simply, psychotronics is *virtual state engineering*.

A FUNNY THING ABOUT ELECTROMAGNETIC FIELD

According to the present theory of physics, the electric field is due to the continual emission and reabsorption of virtual photons. Let us examine that concept just a little further, because there are some interesting conclusions we can make if we are not afraid to take the final conceptual step to the bottom line implications.

First, each ordinary (observable) photon in the universe consists of a little piece (quantum) of nonobservable action. The units of action are energy times time, or ML^2/T {mass x length x length/time}. The quantum of action in the photon is not separated into a separate piece of time and a separate piece of energy. And also, the quantum of action is a fixed, constant size or magnitude, given by Planck's constant h as

$$h = 6.626 \times 10^{-34} \text{ Joule-second}$$

All this says is that an ordinary photon has a certain size that is quite fixed, and it is made of the substance "action" which is totally nonperceivable and non-observable. Only changes in action are perceivable, observable, or detectable, never fundamental action itself. So physics already prescribes a universe made out of action, and that universe has no length, no time, no energy, no space, no concrete existence. Yet from it can be taken — by differentiation (which is simply separation) — any length, any time, any energy.

However, only a single quantum at a time changes or is separated. Quanta do not superpose. A single quantum can be split or fissioned into, say, a piece of energy and a piece of time. We can get as large or as small a piece of energy (i.e., change in energy) as we wish simply by adjusting the piece of time accordingly. The same type of separation is possible for momentum and length.

The fragments of the action quantum (say, a piece of energy and a piece of time) must then be stuck back together again (i.e., fused back into an action quantum) to get rid of them, and this particular part of the process has essentially been ignored by physicists. Anyhow, getting rid of the fragments (which gave us a piece of comparative physical change — energy versus time or momentum versus length) causes the just-completed physical change to vanish.

So at its most fundamental level, the entire universe is continually being created and then destroyed in sequence. The continual creation of a tiny piece of time and then the destruction of the piece of time makes us experience reality or change as if we were a pointer moving along a time line. We cannot see time because it is continually being destroyed by the change process, the very process of physical detection or observation itself.

Now if we invoke another kind of change, a virtual change, such that its size is always smaller than the actual quantum's size, then this kind of change cannot be detected, even theoretically. The concept of a virtual change is one such that the quantity of action that was changed was deliberately made smaller than the size required to throw the switch of detectable or observable change.

So if we have a virtual photon, it is simply a piece of action whose magnitude is always less than h . Here again, we can still get any amount of energy change we desire, merely by adjusting the size of the piece of time associated with that energy. This then means that the virtual photon is not big enough to breach the threshold of quantum change, and so cannot be observed or detected.

And here is the interesting bottom line ignored by most physicists and almost all the pragmatic scientists who run the orthodox establishments. The totally unobservable, undetectable virtual photons being emitted and absorbed are conceived as creating the electric field at the same time as observable physical change (ordinary quantum change) occurs. And the electric field, of course, can cause or induce change of sufficient magnitude to breach the quantum threshold and result in observable change. The bottom line is this: the virtual state can be collated and collected to sufficient magnitude to breach the quantum threshold and induce ordinary observable physical change. The electromagnetic field already does precisely this! And if reality can behave this way, as the physicists show, then let us simply accept that and apply it!

Note that we have now resolved the problem of negative time. The fusion process replaces the little positive piece of time that was formed in the fission process. A continual stream of such replacements constitutes a continual stream of subtractions of positive time. Hence this represents a negative time operational channel. Many of the equations of physics, e.g., Maxwell's equations of the electromagnetic field, should be reexamined with a view to this negative time operation. Dirac calculated such an entity, an electron traveling backwards in time, and noted that it would appear as a positively charged electron traveling forward in time. He thus predicted the positron which was later found in laboratory experiments. But of even more fundamental importance is that every piece of charged matter in the universe has such an opposite twin — the well known antimatter concept. So antimatter protons, neutrons, molecules, and physical structures exist. Indeed, this physical reality that we normally perceive has its antimatter twin which we are also unraveling backwards as we go. But here again the bottom line is far reaching: it means that we can coherently collect the virtual state to produce matter or its antimatter, which after all are nothing but macroscopic assemblages of quantum changes, and we can thus get free energy, materialization and dematerialization, teleportation, and antigravity by means of special modifications and developments of electromagnetic circuits. Each photon carries a small piece of time. And the entire virtual state reality is hanging onto that small piece of time as a modulation. That is where the probabilities are riding, in terms of the ordinary monocular

interpretation of quantum mechanics, all of these probabilities, and all possibilities, are concretely real and occupy orthogonal universes. Since they all share the same single time dimension, there is a time bridge or time channel connecting the universes. Each move or change in one of them crosstalks a tiny bit into each of the others. Since it is the photon which carries them, then each photon contains all possibilities and virtual states modulated upon itself. Photon interaction thus involves the communication of these possibilities and virtual states to the object with which the interaction occurs.

EXTINGUISHING ELECTRICAL CURRENTS

With psychotronics, it is quite possible to extinguish electrical currents flowing in a circuit, or in the nervous system of a biological organism. First, an electromagnetic carrier (photon) is used to carry the psychotronic modulation pattern which will quench electrical currents. The particular psychotronic pattern is modulated upon each individual photon, in virtual state form riding upon the time component of the photon. This is totally different from the ordinary scheme of modulating an electromagnetic carrier; the normal scheme merely gates the rate of passage of photons (amplitude modulation), or changes the energy-time ratio on various photons as photons continually are emitted (frequency modulation).

In this case, virtual state patterns (probabilities) are added directly to each photon, in addition to whatever is done under the normal scheme of modulation. Thus the carrier can be electrically very complex or very simple. At any rate, the carrier with its psychotronic modulations reaches the target, and photons are absorbed continually and emitted continually by the target. The absorption of the photons and their modulations continually generate compound spacetime MdT nuclei and introduce the virtual state psychotronic modulations onto the mass's electric field, the modulations now riding on the virtual photons that generate that field. When a photon is re-emitted, the compound nucleus is split again, and the dT is carried away by the photon, leaving behind a changed virtual photon state on the non-temporal mass spatially left in between quantum changes.

As time passes, the virtual photons are more and more psychotronically modulated by the kindling effect. Eventually the collection breaches orthoframe thresholds and reaches the electromagnetic field frame, changing the electromagnetic field. If the psychotronic pattern is such as to create a positive charge when sufficiently kindled, the negative electrical charge of the kindled electron is simply absorbed or quenched from within, so to speak. And in this case no ordinary annihilation photons are emitted. Instead, the electron is converted to a neutrino when its electrical field is quenched, and it simply passes rapidly away through matter with no interaction and no damage or heating to that matter. Thus the currents flowing in an electrical circuit or in a biological nervous system can be quenched, without any other damage to the system, and without any pair annihilation radiation being produced.

The UFO phenomena very often demonstrate this effect, and the Soviet Union has long since weaponized it.

A simple way to visualize this process is to imagine the virtual photons of the electron as gradually being quenched. With the virtual photons gone, the electron has lost its charge and its electric field, and is now a neutrino. As a neutrino, it zips through matter with no interaction, and on out into deep space.

This mechanism explains why the electrical circuits of autos, radios, etc. usually are not damaged when they are disrupted by the UFO phenomena. Use of normal mechanisms to change or eliminate the electromagnetic field seriously disrupts the components of the circuits, heating materials, blowing fuses, and melting wires and components. The mechanism described here does none of those things.

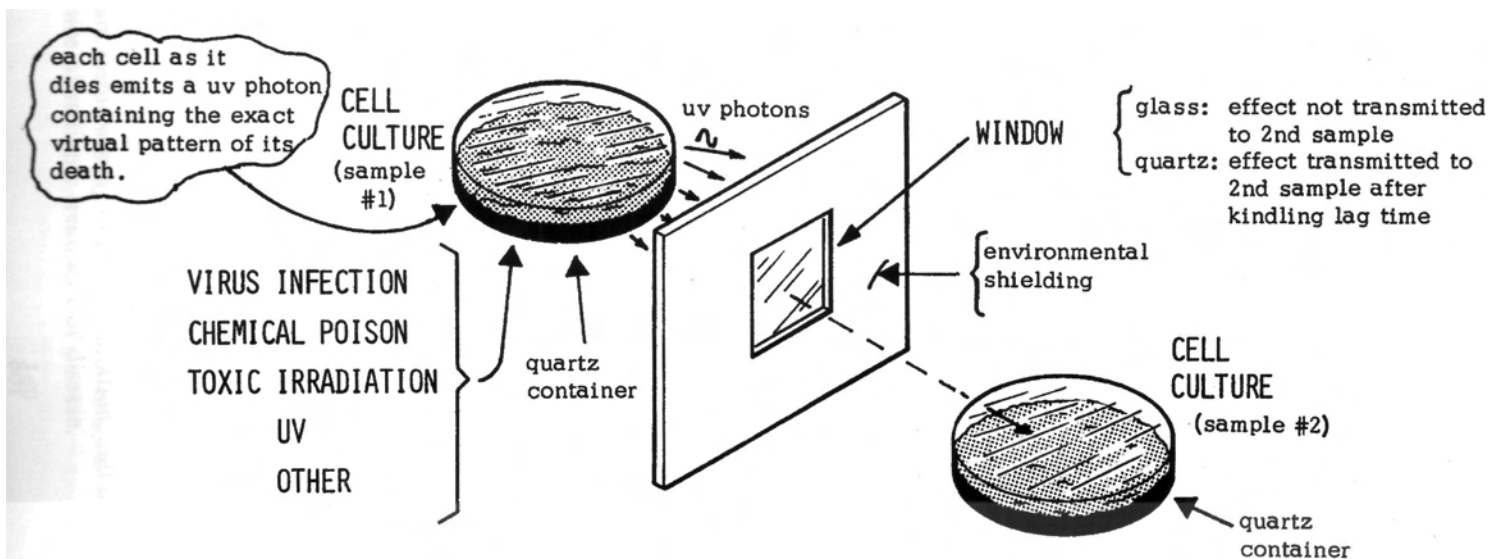
The weapon aspects are of course formidable. Small transmitters with the right modulation pattern could be dropped, planted, or fired almost anywhere, and these could be set to disrupt equipment or human nervous systems. Their use in satellites is obvious. Small transmitters of a fixed time-life broadcast duration could be fired behind enemy lines in artillery shells. Tactical missiles could carry hordes of such small transmitters and drop them along the way deep into enemy territory. Essentially everything electrical is vulnerable if radiated long enough for sufficient kindling to occur. Powerful radar beams can be modulated psychotronically to give them effects at a distance, disabling vehicles, communications equipment, and men. Even searchlights can be so modulated. Pavlita's psychotronic generators are known to generate deathdealing effects, because he has demonstrated that they can kill insects, and he has admitted that men can be killed with generators that are large enough.

An even more radical approach is to transmit the desired pattern directly through hyperspace with a hyperspace transmitter, using either a set of triads for focusing at a desired spot in normal space, or using a witness to generate form resonance with the desired target object, much like one tuning fork kindles another of the same tuning into vibration. The witness may be anything that contains the pattern of the target, e.g., a photo or a model. In the case of a living organism, each cell contains the blueprint for the entire organism, so a group of cells from the organism can be used. This applies to plants as well as to animals.

DEATH TRANSMISSION VIA THE PARANORMAL CHANNEL

As an example of the kindling effect and the variability of photon quenching of the paranormal channel, some extremely interesting experiments were performed by V.P. Kaznacheyev et al regarding the paranormal transmission of death. Briefly, two groups of cells were selected from the same cell culture and one sample placed on each side of a window joining two environmentally shielded rooms. The cell cultures were in quartz containers. One cell culture was used as the initiation sample and was subjected to a deadly mechanism — virus, germ, chemical poison, irradiation, ultraviolet rays, etc. The second cell culture was observed, to ascertain any transmitted effects from the culture sample being killed.

When the window was made of ordinary glass, the second sample remained alive and healthy. When the window was made of quartz, the second sample



>5,000 EXPERIMENTS

INSTITUTE OF CLINICAL AND EXPERIMENTAL MEDICINE, NOVOSIBIRSK

INSTITUTE OF AUTOMATION AND ELECTROMETRY, NOVOSIBIRSK

Fig. 11. Death transmission via the paranormal channel

V.P. Kaznacheyev et al, "Distant Intercellular Interactions in a System of Two Tissue Cultures,"
Psychoenergetic Systems, Vol. 1, No. 3, March 1976, pp. 141-142.

sickened and died with the same symptoms as the primary sample. The experiments were done in darkness, and over 5,000 were reported by Kaznacheyev and his colleagues. The onset of induced complementary sickness and death in the second culture followed a reasonable time — say two to four hours — behind sickness and death in the primary culture.

The major transmission difference between window glass and quartz is that quartz transmits both ultraviolet and infrared well, while glass is relatively opaque to ultraviolet and infrared. Both quartz and glass transmit visible light. Thus glass is a suppressor of the paranormal channel, while quartz is not.

By performing the experiment in darkness through a quartz window, the four-law patterns of disease, sickness, or death engendered in the primary sample are not extensively squelched by the photon interaction, and these four-law patterns are transmitted through the quartz window into the second cell culture. Since the genetic patterns of the second culture are the same as those of the first, sympathetic four-state interaction and eventual kindling occur, resulting in the appearance of the effects in the second culture.

It is well known that cells also emit mitogenic radiation, including radiation in the ultraviolet and infrared regions. Since these same regions are not strongly suppressed by the photon interaction, one may hypothesize that paranormal effects may be strongly modulated onto infrared and ultraviolet photon activity, and there is indeed evidence for such an assumption. In 1950, Western researchers found that cells could be killed in darkness with ultraviolet radiation, kept shielded from visible light for twenty-four hours or longer, and then if radiated with visible light the cells would start reviving by hundreds of thousands even though they had been clinically dead.

Specifically, every cell emits mitogenetic radiation in the ultraviolet twice: when it is born and when it dies. The UV photon emitted at death contains the exact virtual state pattern of the condition of the cell at death. The healthy cells are bombarded with death messages from those that are dying, and this diffuses the death pattern throughout the healthy culture, eventually kindling into the same death pattern there.

However, the squelching of the paranormal channel by photon interaction is never complete, or paranormal phenomena could never occur in daylight. Hence paranormal patterns can be modulated even onto visible light, although only extremely weakly. Thus we may speak of the Q or sharpness of the paranormal modulation upon photon frequencies; Q is extremely low for visible light and may be extremely high for infrared and ultraviolet. In the visible light spectrum, it is probable that extremely large numbers of near-zero strength paranormal patterns are modulated on the light radiation; hence these patterns simply consist of a very weak background noise and the kindling effect does not apply. (The patterns are so random as to be self-cancelling in the kindling effect.)

DISEASE AND DEATH INDUCTION

The base idea here is that an active agent must be involved to disrupt the ordinary healthy pattern of inceptive life functioning. Since life functioning is inceptive, ultimately the bioframes, specifically the first and second, must be distorted or disrupted. The first bioframe is the electromagnetic field and the second bioframe is a psychotronic field. The second bioframe may eventually be revealed as the *neutrino* field, but this is still uncertain at present. At any rate, it is a *virtual state* field. Virtual state patterns of a disease, for example, are carried in each photon emitted by a diseased cell. The life functioning psychotronic components are modulated on the body's electromagnetic components. Thus they have an electromagnetic carrier, which will carry the inceptive life function patterns through the photon squelching effects of emitted photons in the body.

A host agent such as a germ produces an active agent such as a toxin. The chemistry involves the particular compound of the toxin that is disruptive or deadly. But chemistry after all is rigorously based on electrical patterns. These electrical patterns of toxic chemistry contain psychotronic patterns modulated upon them by the germ, and these genetic life functioning patterns are different from those of a human cell. The foreign psychotronic patterns are modulated upon the human body's electromagnetic patterns (currents) and thus reach the cell, where they interact by the fourth law in the cell membrane, being demodulated and introduced to the cell, and orthorotated in the process into electromagnetic signals disruptive to the orderly functioning of the cell. The foreign psychotronic signals also jam the ordinary psychotronic patterns being demodulated by the cell in its inceptive operations from its mind frame or third bioframe. If this jamming is only moderate, the cell sickens; it is only disrupted. If the jamming is severe, the cell dies.

The normal electromagnetic noise bathing the cell from the cosmos and the environment contains random components that largely self-cancel or balance. The modulated random psychotronic modulations of the ordinary background environment behave similarly, and thus the normal background simply constitutes a weak noise flux which does not disrupt the inceptive life functioning. In the experiments of Kaznacheyev and his colleagues, photon squelching was largely restricted, and the psychotronic signals from the dying primary culture could go through the infrared and ultraviolet windows in the quartz as virtual state patterns on the mitogenic UV photons emitted by dying cells, and be introduced directly into the secondary culture. The kindling effect then induced the disease or death pattern after an appropriate time delay. Thus it appears that there is indeed a fundamental mechanism by means of which a disease or death pattern from one cell is introduced into others.

If this is true, then an exciting vista emerges for the treatment of hither-to incurable diseases such as cancer. The psychotronic pattern of the cancer cells in a person's body could simply be recorded, then phase shifted 180 degrees, remodulated upon an RF carrier, and radiated back into the body of the patient to cancel the cancer's signal patterns. Radiation of the body need not be severe at all; even weak radiation will suffice due to the kindling effect. At any rate, the hypothesized mechanism seems worthy of experimentation, and it seems to offer a validation of the practice of radionic treatment of disease.

DYNAMIC THOUGHT CONSTRUCTS: BIOFIELD MECHANISMS

We will discover later that thoughts and thought objects are real, physical objects in their own worldframe domain. As such, thoughts, or thought objects, or thought constructs can be and are quite functional devices in the thought world domain. In that domain, they are as physical as a rock. We will also discover that thought energy can be turned into electromagnetic energy by kindling, and can even be materialized if kindling is of sufficient intensity. As an example, thought energy from negative thoughts continually repeated or held in the mind can cause one to become physically ill. This is a well-known effect, and such an illness is referred to as psychosomatic. However, the mechanism by means of which it is accomplished is not known.

Actually the mechanism is simple: in the minute electrical currents that run through the nervous system, across the cell membranes, through the fibrous content of the cells, and through the cell water structures, virtual state thought energy is continually kindled into weak electrical patterns, which modulate, shape, and affect all the vital processes of the body. Almost all this kindled thought energy is from the content of the unconscious mind. Thus the locked-in contents of our unconscious minds eventually directly affect and change our bodies for either good or bad, depending on the particular content being kindled.

Small wonder that we suddenly acquired a chemical problem some years ago after we were saturated by thousands of hours of pill advertisements on television, which directly implanted the idea that certain chemicals such as pain relievers contain the answer to life's problems, while others such as alcoholic beverages lead to a glamorous, active, exciting life. Not only can such material implant suggestions in the unconscious for association, but it can also directly condition the response that the body itself will exhibit to chemicals and drugs.

It is now fairly well accepted that there exists a cancer personality and a heart attack personality, where the mindset is definitely and causatively involved. And from the Simontons' work, we see that the mind can be effectively used in conjunction with other therapy to reverse cancer, even terminal cancer. But unfortunately, by and large Western medicine continues to rely on mechanics and chemicals. Essentially the patient is viewed as a mechanical apparatus and a chemical factory that is damaged, polluted, or out of sorts, and treatment consists largely of mechanical intervention (such as surgery) or chemical intervention (such as antibiotics). Medicine continues to be a science of the reparation of damage or malfunction. It is the science of disease, not the science of health. I do not advocate abandoning the medical practices that have proven effective. I do advocate the augmentation of such measures by all the mind measures available. In fact, medical science ought to be vigorously pushing forward into fields of psychic healing, psychotronics, radionics, etc.

RADIONICS

In ancient development systems it was well known that the mind itself was a functional device, and that thoughts and thoughtforms could function as devices, influencing and affecting other minds and physical material. It was also understood that the thoughtforms had to be crystal clear and very stable. This demanded a great deal of practice in concentration. Eventually it was found that the stability of a physical form or device could materially assist the mind in maintaining stability. In ancient times many such devices were used: the dowsing rod, the crystal ball, the string-and-weight psychic pendulum, etc.

In the last century it was discovered that electrical devices could be used as tuning assistants. This led to the development of radionics, the name being inspired by the new electricity and magnetism discoveries, and particularly by the discovery of electromagnetic radiation. These radionics devices had a distinct advantage in the degree of precision they achieved in the tuning of the inceptive cyborg (operator's mind linked with the actual device through hyperspace). Ten resistors could be staged to give an otherwise almost unobtainable degree of accuracy and precision to the inceptive tuning. The use of variable resistors allowed rapid change of resistance, and thus rapid change of the overall cyborg tuning, and the ability to scan precisely in hyperspace, say, the emanations from a patient. In the hands of a skilled operator, such a device was often much more accurate than the finest medical test equipment available today, and infinitely cheaper and faster. In addition, such testing and diagnosis added little or no distress to the patient. This weird new radionics presented a formidable threat to the orthodox medical establishment. In the U.S. at least, the dogmatic medical establishment promptly came down hard on this potential threat to its hitherto unchallenged domination in the field of medical treatment. Its inquisition and purge was made easier by the fact that many charlatans also leaped into the lucrative field, having little or no actual diagnostic ability, and prescribing meaningless amulets and placebos for seriously ill patients. Also, the strangeness of radionics, such as the ability to diagnose illness from a drop of blood drawn from a patient thousands of miles away from the diagnostician and the radionics device, alienated many members of the medical profession who sincerely believed that no such diagnosis was possible, and that all such psychic demonstrations were frauds. Furthermore, the results, either diagnosis or treatment, were not usually repeatable by ordinary physicians and investigators since the psychic skill of the operator was directly involved. Organized medicine of course did not recognize the ability of the doctor to mentally or psychically intervene in the patient's illness, and so such practice was regarded as fraudulent and banned by the medical establishment.

The radionics practitioners were hounded into court, prosecuted, and convicted of fraud and of practicing medicine without a license. Several prominent radionics pioneers were actually hounded to death, Wilhelm Reich and Ruth Drown being the two most prominent examples. What could have been a great leap forward in medical science in the U.S., and the beginning of the development of psychotronics, was crushed by the power, ignorance, and bigotry of orthodoxy. To this day U.S. radionics has not recovered, and U.S. radionics practitioners are a rare breed, largely underground, who perform their experiments in suspicious secrecy and have only lately begun cautiously emerging from obscurity. In Eng-

land and elsewhere, radionics survived and flourished, and today one can legally receive radionics treatment in England.

PSYCHOTRONIC DEVICES: A SIMPLE SPACE (QUITON) AMPLIFIER

It is possible to speak of the smallest piece of nothing, that we will call a "quiton." It does not monocularly appear as a perceived thing. Quitons are pieces of action, in which $dEdT > h/4\pi$. Quitons are virtual entities, and very small ones.

Collection of a sufficient number of quitons results in breaching a threshold, so that a thing results. To superpose quitons ($dEdT$'s) must be of the same magnitude and time coherent.

Thus in any situation involving a particularized nothing, collecting enough pieces of that nothing eventually exhausts the nothing set and reaches its boundary, whereupon it is a thing. This is really not different from collecting all non-dimensional points in a particular sequence and finding we now have a one-dimensional line segment, or collecting all the pieces of spacetime warp in a particular region and discovering that we have now a mass.

A device can easily be constructed to process dual natured or binocular entities (quitons), which are monocularly zeroes, while excluding monocular entities. Thus we can build a space amplifier or quiton amplifier or vacuum amplifier. Two single-state excluders in a series feed or input to an ordinary single-state amplifier or processor in a shielded container. The output is fed into a device which will rotate the dual-state entity or field so that an ordinary field can result. One side or the other of the dual-state output will be exclusively present in three-space.

TYPICAL HIERONYMUS DETECTOR

The Hieronymus device, patented by Thomas G. Hieronymus in 1949, is one such device. It has an optical front end, a prism which passes waves and does not admit particles. So a wave entering the front end will go through the prism and be refracted at an angle that depends on the frequency of the wave. Inside the surrounding box, which acts as a light shield, is a small tuner, a little copper rod attached to a rotatable wheel so that the rod may be moved through the various refractive angles from the prism. The prism is mounted on the box with a thin slit in the wall, so that only a small and narrow field of view exists external to the box. The tuner rod is wired to the input of a three-stage RF amplifier where each stage is separately shielded against light—which is very interesting, because of a similar requirement in the two-slit experimental apparatus if the electron was to act as a wave. The output of the RF amplifier comes out of the box and ends in a flat coil of wire between two parallel plastic plates.

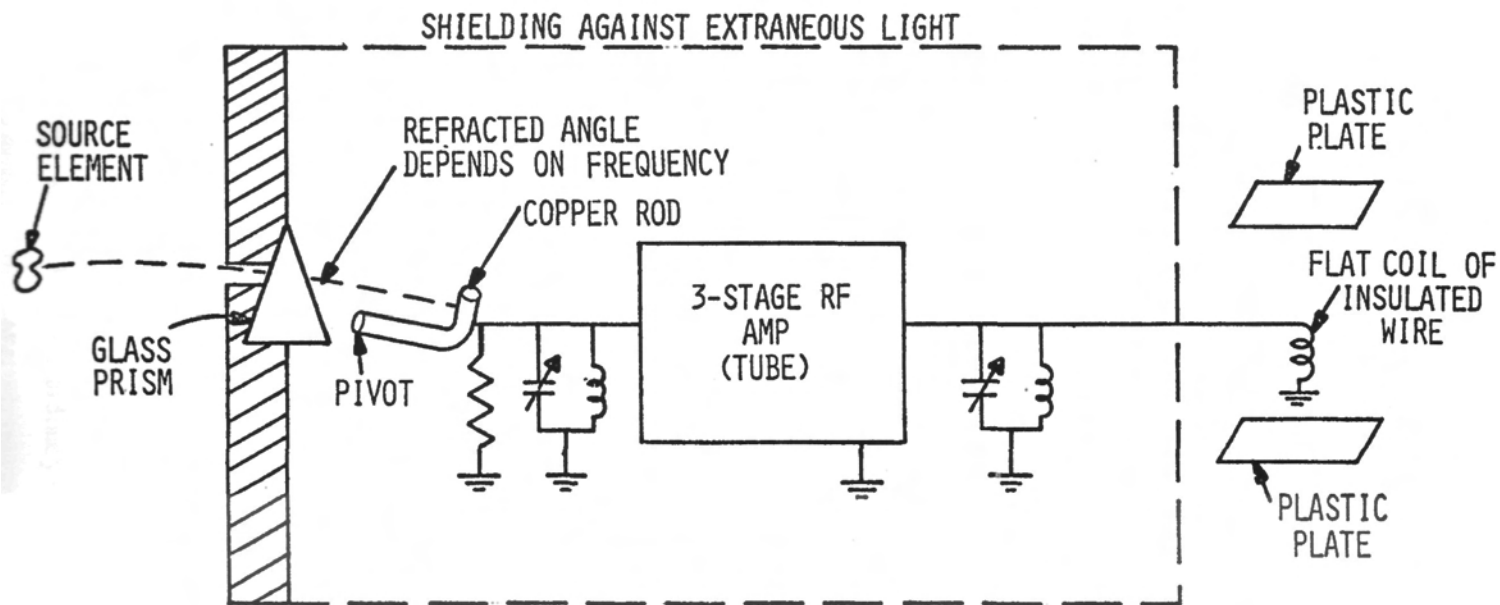


Fig. 12. Typical Hieronymus detector

Coming into the box through the slit in the prism, there can be single-state entities and dual-state entities or quitons. The physicist does not have a good name for a dual-state entity. They used to be called wavicles; today we talk about wave packets. But what after all is a wave packet? It is a three-dimensional bunch of two-dimensional waves! So that is where the physicists have hidden the idea of the dual-state wavicle today.

Only single-state waves and dual-state entities or quitons can pass through the prism and be refracted at an angle dependent upon the frequency. If we then tune the rod into the correct angle of refraction, the refracted quitons hit it, as do the single-state waves if their frequency should happen to coincide with the frequency of the quitons. Now the single-state wave dies when it hits the copper rod; it may chip a single electron or two off a copper crystalline grain, but that is lost in the thermal noise anyway, below the detection threshold of the RF amplifier. The quitons, however, simply say "Oh! Now you want us to act like a corpuscular electron, and go through those wires and conduction paths. That's all right, that is just our right hand side." So the quitons will go through and be amplified, just exactly like ordinary electrons would do. But now it is not electron energy, it is a dual-state analog of energy — let us call it anenergy, for analog of energy. (Hieronimus called it eloptic energy, since it could act as electron flow or as optical waves, but was neither exclusively.) The amplified anenergy will come out in the coil of wire and it will generate field and it is not a magnetic field, and so it cannot be measured on normal laboratory instruments. The simplest way to detect the anenergy fields is to use the human sensory system, because the human body knew about RF energy, frequency modulation, and anenergy long before we had modern electrical and magnetic instruments. (The use of anenergy is illustrated by acupuncture, a very ancient medical system dealing with the fact that a peculiar type of energy-like stuff flows in the body, and in certain points and structures of the body, it can interact with other energies and fields.)

Now if we believe we cannot sense the anenergy fields, then we cannot. We can turn the entire anenergy detection system in the body off with the unconscious mind. The negative psi effect is a well-documented effect in parapsychology. There are goats as well as sheep. Some persons do worse on psi tests than chance would possibly allow. They are the goats. They exhibit the negative psi effect, for unconsciously they want to show you that psi does not work, so they use psi effects to do worse than is possible by chance.

At any rate, the human sensory system can get a tingle from the anenergy field generated by the flat coil of wire in the Hieronimus machine's output. What type of tingle one gets depends upon one's own type of body sensory tuning. It may feel as if the fingers on the plastic plate are in thick syrup. Or as if the plastic plate were vibrating. Or it may feel greasy in a peculiar way. And the negative person does not get a tingle at all.

The Hieronimus machine has been built by many persons, and it works for those who are not negative. It processes entities that exist in the dual-state, or that obey the fourth law of logic. And we can do some almost magical things with these dual-state nonthings, these nothings, if we set our minds to it. This is what psychotronics is all about.

ANOTHER KIND OF HIERONYMUS DEVICE AND THE INCEPTIVE CYBORG EFFECT

If thought constructs are actual operational mechanisms, then there should be other evidence besides psychosomatic illness and the demonstrated ability of the mind to cure certain illnesses. In fact, the Hieronymus device can be used to demonstrate this point.

John Campbell, former noted editor of Analog Magazine, once built an Hieronymus device and tested it successfully. Campbell immediately recognized that present physics could not explain the functioning of the device. In an exchange with Arthur Young, Young suggested to Campbell that it was the mind of the operator that made the device function, and that it was the symbolic form of the device that dynamically functioned to make it work. This appeared particularly significant to Campbell since he had discovered he could make the device work even though disconnected from its power supply.

So Campbell decided to test this thesis. He carefully drew on paper in black India ink a schematic diagram of the amplifier, removed the actual amplifier hardware, and substituted the schematic drawing. To his absolute amazement, the device worked as well for him this way as it had previously. But from our standpoint, such a result is not unexpected and can be readily explained.

First, I should point out quite strongly that Campbell not only was well-qualified technically, but even more important, he had an open and unbiased mind. This of course is quite necessary; the negative psi effect is well known, and the negative person is most certainly not going to allow his mind to operate the Hieronymus machine, just as he will not allow himself to succeed at dowsing, and so on.

Furthermore, in constructing the electrical schema of the amplifier, Campbell was strongly impressing stable thought constructs in his own unconscious, which was fully aware of the function of each part of the drawing. And when he connected that drawing to the rest of the hardware, he understood the function of the connection. He thus built in a thought connection from his thought-form amplifier to the hardware in a cyborg device. It then functioned as well for him as had the actual device. Campbell had proved that mind and matter may be cyborged into operational devices.

Psychic use of a pendulum, a ouija board, a dowsing rod, a crystal ball, and a crystal skull are other examples of the use of inceptive cyborg psychotronic devices, as is the use of radionics equipment of all types. And of course the most outstanding example of an inceptive cyborg where mind and matter are linked into one functional device is a living biological system.

Frances Farrelly, working with Arthur Young, took part in an experiment using an ancient Mexican figurine with a fluted neck. She succeeded in inducing fluted ears in a laboratory mouse. The mouse was exposed to the figurine about three feet away, and the cage or the mouse was connected to the figurine with a wire. Physical objects, such as mice bodies and fluted figurines, are three-dimensional channel tuners for orthorotating mind energies. Given firm initiation by a talented person such as Ms. Farrelly, a selected grouping of tuners can be resonated to collect bioenergy, and kindle it into ordinary energy and then into physical effects.

PROBABILITY: THROW OF A DIE

The fourth law of logic is absolutely indispensable in physics. We use it every day and do not realize it in probability. But what after all is probability? Let us use a very simple example to get at the answer to that question. Let us use the face of a die turned up. How can I model that, before the die is thrown?

Now we can only think by operationalism. To operate and output something is to automatically put it in the past. It's happened, it's gone, the moment you do it. To perceive an object is to put it in the past. To determine it is to put it in the past. To observe it is to put it in the past. There is no observed, perceived, detected, measured, or determined present. That is, there is no separated, exclusive, determined present such as is specified by the first three laws of logic — the fourth law is the present, by the way — but in observational physics which deals with determined,

observed past phenomena, there exists no present. The future has not yet been observed, so it also is the unobserved. Only the past therefore is the observed. How then can one ever hope to model the unobserved present or the unobserved future?

If I look at the problem of the die with one face up, it is in the past. When I see it, it is in the past. When I think it, it is in the past. So if all I can observe, think, or perceive is the die in the past, how can I ever model it in the future? It's very simple! If I drive any problem set to its absolute boundary limit, it turns into its own opposite by the fourth law of logic, by the law of the boundary. So how do I do that with this problem of the die?

The problem set is specified by the condition "the perceived die with one face up"; this is the most recent past. Now simply find all the most immediate pasts you can get to meet the condition specified, and gather them all up together, and they then must turn into and comprise precisely the opposite, the immediate future. In this problem set, I can construct and collect six such pasts, each consisting of the perceived die with one face up. So by the fourth law of logic, those six faces up collected together as an ensemble represent the future and in fact are identical to the future. The present, which is simply the boundary between the most immediate past and the most immediate future, was specified by applying the fourth law of logic in the first place: the identity of the most immediate past and the most immediate future, being binocular, is unperceived, but it is the present nonetheless. So that is what probability is — an application of the fourth law of logic, so that the most immediate future can be represented in terms of the most immediate past — and physicists and mathematicians have been doing this ever since they have been doing physics and mathematics.

Without the fourth law of logic, there exists no rigorous logical basis for probability! So the fourth law is a very useful law indeed. We have simply failed to realize that we have been applying it all along.

The ontological problem can also be solved as follows: to state that "A is not" is to state that "A is" is not; to absent a presented thing is to first present it; to be "not-being" is a clear statement of the problem. By the first three laws of logic, the problem is not soluble. By the fourth law, it is simple since being and not-being can be identified. All distinction between present (being) and absent (not being) can be lost.

NEGATIVE TIME

Negative time does exist and is used in advanced physical theories. Dirac predicted an electron traveling backward in time, which would be observed in positive time as a positive charge traveling forward in time.

The application of negative time to philosophy also allows the solution to the problem of good and evil. In positive time we may consider an act as evil — say the act of a hungry wolf seizing a hapless rabbit and devouring it. In positive time, we might say that to the rabbit the act was evil, and to the hungry wolf the act was good, noticing in the process that good and evil are relative terms, not absolutes. Examining the situation now in negative time, a very strange thing occurs. The remains of the consumed rabbit are regurgitated from the wolf's belly, again creating a living breathing rabbit, and reintroducing hunger into the wolf. Thus the act now is beneficial to the rabbit and detrimental to the wolf.

The point is that Allness or Godness is both sides of every coin, not one side only. Omega Godness exists both backward and forward in time; it must do so if it is to be unlimited, even by time itself.

Thus to such unlimited allness, every act is both good and evil simultaneously. Thus we can understand how a perfect creator could establish and ordain good and evil, for there is a sense in which the two are synonymous.

However, such insight is a very strong dose of medicine, too strong for the average stomach. Most persons never seek the Unlimited Godness; instead, they seek a good facet of Godness that itself moves forward only positively in time. Thus they find a partial image which is limited in and by the flow of time. By such an assumption the biblical phrase "I am Alpha and Omega" is unconsciously translated into "I was Alpha and I will be Omega." Thus orthodox Christianity long ago lost much of the God-insight originally given by the avatar Jesus. Only those few cloistered individuals who still struggle with exegesis grapple with the problem of good and evil. The problem indeed has a solution, but the solution involves negative time, the fourth law of logic, and an unlimited creator.

TIME OSCILLATION, QUANTUM CHANGE, AND MASS

It is well known in physics that almost all physical theory is time-reversible, i.e., the equations hold true whether time is positive or negative.

This is important in the theory of antimatter. A positron (antielectron) may be regarded as an electron traveling backward in time. The destruction of an electron constitutes the creation of a positron, and vice versa, when we are observing in only one kind of time.

However, when we consider monocular quantum change, we realize that time can be modeled as a wave. To have any of the present physical quantities (energy, length, time, and momentum changes), a quantum of action must be isolated and fissioned into fragments. By this process we get a change in any physical quantity. This is fairly well understood in present physics, though not in this exact terminology.

However, what is not recognized in physics is that a disposal operation must be performed to clear away the fragments of one physical change before another can occur. The only way the fragments can be cleared away is to fuse them back into an action atom. Since action itself cannot be perceived (only a change in action can be perceived, not action itself) then fusing the fragments into a quantum removes the fragments.

This fusion operation removes positive time fragments (and other positive fragments) and so can be considered a negative time operation. Thus time can be considered to be an oscillatory wave because of its continual monocular discrete creation and annihilation by the quantum change process.

In fact, time oscillation may be considered to be the fundamental reality, and quantized change its result.

By the complementarity principle, time, being a wave, also must sometimes exhibit a corpuscular nature. (Indeed, all virtual state particles are nested within the structure of time.)

The Soviet work on time generating force thus is of absolutely fundamental importance. What has been released of K'ozyrev's work seems to be intentionally deceptive and of little value. His real work and that of his colleagues appears to have the highest Soviet classification, and none of this material has been released.

In the West, the only person of note who has grasped the fundamental import of time and time oscillations is Charles Muses. As early as 1958, Muses pointed out that there was no mystery in the two-slit experiment if the chronotopological features of the experiment were properly taken into account. Muses also worked out a hypernumber structure of time, but its significance seems to have escaped orthodox physics. Nonetheless, his work has direct technological implications, such as materialization and dematerialization of matter, and offers an approach to the engineering development of actual devices. Since his hypernumber theory of time structure also encompasses consciousness, it represents a union of physics and metaphysics on a common basis, and an approach to the engineering development of psychotronic devices.

Western physicists, then, would be well advised to pursue vigorously the idea of time oscillations, both theoretically and experimentally. And they would also be well advised to examine the hypernumber work of Charles Muses.

Since mind and virtual state occupy the time dimension, the nested structure of time contains the mechanisms for mental-physical interaction and for direct amplification of virtual state into observable state (or for the dissolution of observable state into virtual state).

MASS IS A TIME-DIFFERENTIATION

The most fundamental aspect of the concept of mass is that it occupies space, i.e., that it is three-dimensional. Mass thus is a time differentiation of Minkowskian spacetime L^3T . Applying the fourth law of logic, a thing does that which it is and is that which it does. Thus mass is a time-differentiator.

Because of this, we cannot see time, the fourth dimension, although we can see L^3 length, width, and height. Because we look through and detect with a mass

sensory system, the time dimension is lost in the act of looking and detecting, i.e.,

$$d/dT(L^3T) = L^3$$

and we thus see a spatial reality. Physical instruments also have mass and do precisely the same thing. For this reason, ultimately all measurement or detection is spatial rather than spatio-temporal, as is well known in physics.

Note that we do not see or detect total reality, but only a partial differentiation of it. Thus the position of the materialist's view is ironic: in his absolute insistence that reality consists in only what can be seen, touched, felt, or detected and measured with his instruments, he condemns himself to the greatest illusion of all, the notion that the outputs of his physical sensory system and his physical instruments constitute absolute reality. Also, since the only physical dimension shared by mind is time, mind reality is lost in the act of detecting, and hence only phenomena which are totally separated from mind are detected.

By the fourth law of logic, the existence in no mind at all constitutes the existence in each and every mind (nonexclusively). Thus physical phenomena are those phenomena that are processed by every mind. We will see that the fourth law enables us to deal precisely with mental, physical, and paranormal phenomena on that basis (how many minds the phenomena exist in).

REALITY IS LIKE AN OPOSSUM

Reality is like a mother opossum carrying her little baby opossums on her tail, i.e., the entire mental-virtual state is carried along as virtual constructs, nested comfortably in the delta time portions of each photon. In the piece of time that is fissioned out of an action quantum to give observable change, there are a multitude of little pieces of time still attached to subquantum virtual state entities and hanging on, exactly like little baby opossums hanging on to their mother's tail with their own tails.

The world is so built, then, according to physics. And if we include our physical model of mindchanges, every possibility in fact concretely exists in that manner, in the virtual state, timewise hanging into the time dimension of the detected physical world's four-space frame, but spacewise hanging out of the ordinary three-space physical universe of objects. So indeed all possible realities, even the wildest and the most farfetched, exist in the virtual state.

The time channel is thus quite literally the paranormal channel that connects the normal spatial world to an infinity of nonnormal spatial worldframes. Only by the continual destruction of each piece of created time (by fusing it back together with the piece of energy involved, and forming a quantum which is unperceivable) are we able to experience physical reality at all, uncluttered and relatively free from the vast hordes of infinite realities through which the ship of quantum-change physical reality sails.

Since the electromagnetic field represents a collection of this vast array of realities, then by proper selection (i.e., by coherent tuning) of multiple stages we should be able to select a particular virtual reality channel. And indeed so we can. Any scheme for drastically increasing signal-to-noise ratios should be adaptable to such a collection mechanism for the detection of bioenergy.

In another sense, reality is like a television set with an infinite number of reality channels, but only one of which is tuned in at any one time. By adjusting the tuning, however, a different reality, including even different physical laws of nature, may be tuned in.

BIOFIELD CONCEPTS

To understand the hyperframe approach to fields, we must understand the dimensionality of intersections in n -dimensional space. The dimensionality of an orthogonal intersection is one less than the dimensionality of the intersector having the lowest dimension. One intersector appears radically different to the other intersector since the second sees only a derivative of the first. It is the total projection of an intersector that is "seen" by that which it intersects.

Hubbard's manifold theory also derives these principles. The "types of reality" that these other objects appear to be will depend on the types of intersections they make with the frame of the observer.

This cannot be stressed too strongly: an observer sees his own frame, and intersections in that frame, nothing else. He does not necessarily see the entire reality of any object, and if an object is in a frame that does not intersect the observer's frame, the observer cannot detect that object at all.

Thus all types of reality are open to reinterpretation in the light of intersecting and nonintersecting frames. And to shift dimensions (increase or decrease), all we need do is add or subtract additional orthogonal intersections.

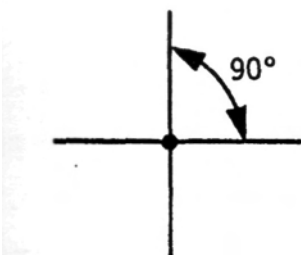
MASS, FORCE, AND 3-D FRAME ROTATION

It is well known that a moving mass can be considered as existing in a three-dimensional space which is rotated away from the line of motion of the mass as seen in the laboratory frame. Einstein in fact pointed this out.

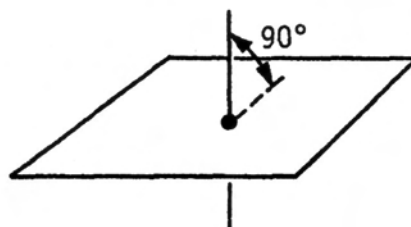
As the velocity of the object approaches c , the speed of light, the angle of rotation approaches 90° . From the bottom left figure it can be seen that a force in the laboratory frame, applied to the moving mass along its direction of motion in the laboratory frame, only affects the mass in the mass's rotated frame with a projected portion. To the laboratory observer, the mass's resistance to the disturbing force applied seems to have increased; thus to him the inertial mass of the object seems to have increased, i.e., if it is harder to push, its resistance to pushing must have increased.

But in the rotated frame, the object's mass has not increased. The rotated frame effect is *why* the mass of an object increases to one observer but not to the other.

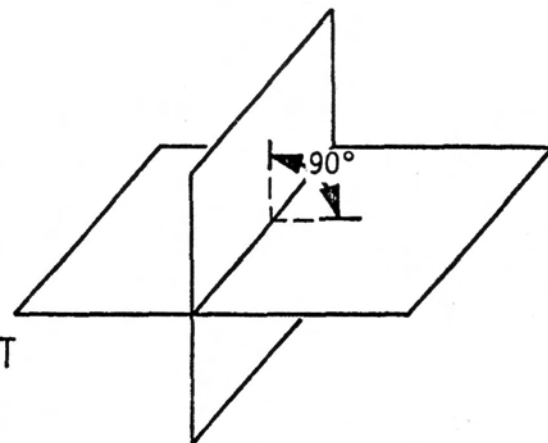
When the rotated frame can be rotated to a full 90° , no force applied by the laboratory observer can accelerate it further, because the applied force has zero projection in the rotated frame where the mass actually is. Thus the mass (resistance to pushing) appears infinite to the laboratory observer, while to the rotated observer it is still exactly the same as it always was. Furthermore, to the rotated observer, **the** force being exerted on the rotated mass is zero.



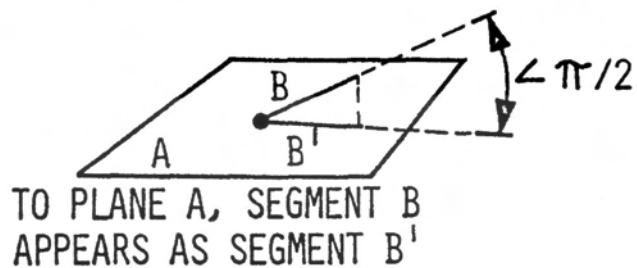
2 LINES INTERSECT
IN A POINT



A LINE AND A PLANE INTERSECT
IN A POINT

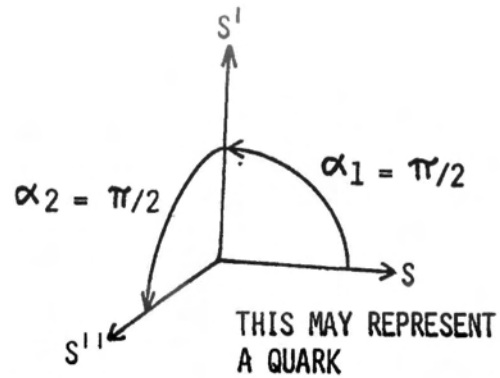
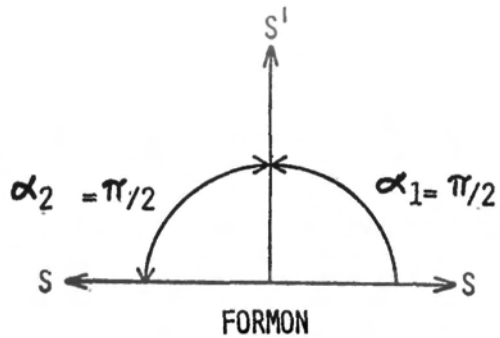


TWO PLANES INTERSECT
IN A LINE



TO PLANE A, SEGMENT B
APPEARS AS SEGMENT B'

Fig. 13. Biofield concepts



π BENDING OF A 3-D FRAME (TWO CASES).

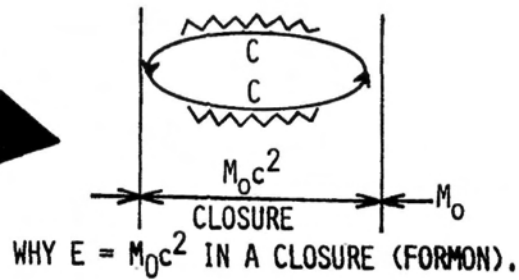
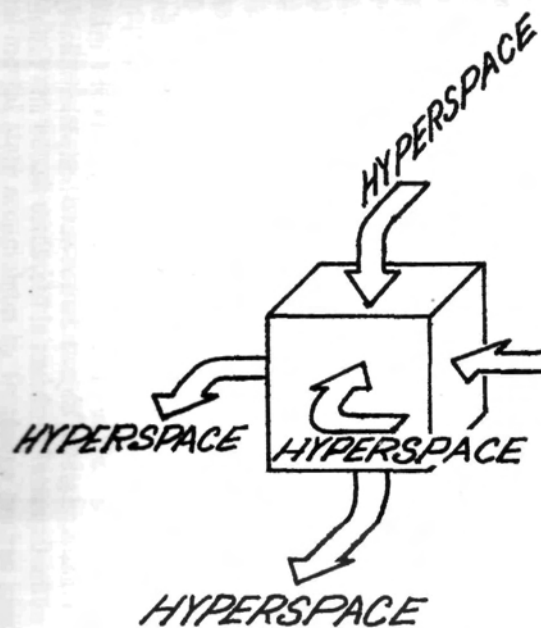
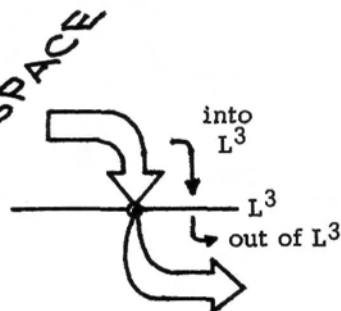


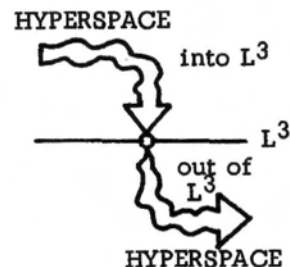
Fig. 14. Rotation of 3-D frames



MASS
 A region of
 hyperspatial flux
 orthorotating in and
 out of L^3 3-space.



MASS PARTICLE
 The flux does not
 "move through" 3-space.
 It rotates in and out of
 each individual mass particle.



JITTER
 Each flux line is not
 smooth, but jittered.

Fig. 15. Mass is π -rotation of hyperspatial flux

However, the mass's intersection in the lab frame is now two-dimensional. Since only three-dimensional objects can have mass, the object is massless to the laboratory observer. So here we have a paradox: zero mass is identical to infinite mass. This is perfectly in consonance with the fourth law of logic.

The absence of any single finite mass actually permits two indistinguishable solutions: the absence of any three-dimensional mass at all, and the exclusive presence of more than any finite mass. The two opposites are identical on the boundary case.

Thus a photon has zero mass because it is a two-dimensional object and only three-dimensional objects have mass. A photon also has infinite mass because it cannot be accelerated along its direction of travel. A photon is a perfectly ordinary three-dimensional particle existing in a normal three-space that is one orthogonal turn away from the laboratory three-space.

MASS IS π ROTATION OF HYPERSPATIAL FLUX

In Figure 15, I show that a localized mass is simply the result of orthorotational flux in and out of that localized region. This is a hyperspatial flux, since it actually is flowing or rotating in hyperspace.

This flux is related to the spin of a fundamental particle, and in one sense may be regarded as an extension of the concept of spin, i.e., ordinary spin is simply a derivative subset of hyperspatial spin (orthorotation between orthogonal three-space).

This flux does not move through laboratory three-space, but rotates into and out of it, at and for each fundamental particle of mass in laboratory three-space. As I point out elsewhere, mass itself is nothing but the absolute value summations of action quantum fission and fusion activity in a localized (fundamental particle) spatial region (*Quiton/Perceptron Physics*). Fission and fusion are orthorotations, or hyperflux activities.

Also, if we represent this hyperspatial flux by flux lines (a standard practice in physics), then each line is jittered because of its modulation by many higher-frequency components. This flux and the jitter in it play an important part in paranormal phenomena.

Furthermore, the hyperspace flux can be seen in two other ways: (1) as continual direct coherent collections of virtual subquanta to reach the quantum threshold, breaching it and becoming observable quantum change. Thus it should encompass essentially all hidden variable theories. This is the same mechanism by means of which virtual photons kindle and create electric field and the charge of an electrically charged particle; (2) as continual direct coherent collections of mind virtual state subquanta to reach the quantum threshold, breaching it and turning into observable quantum change (physical phenomena). Thus all matter is totally mind and totally alive — inert matter is just nonpreferentially alive. The resultant flux vector in an inert mass is zero since there exists as much flow out as in, and vice versa. This totally eliminates the classical dichotomy between mind and matter. It also implies that accelerated objects do not have nonpreferential type of life, but in fact have some degree of preferential life, since fission and fusion rates of an accelerated object are not equal.

Establishing sufficient pattern coherence in the parts of an accelerated system thus constitutes a preferential tuning between multiple parallel-directed directional coherences. This effect can result in establishing a one-to-one correspondence to and from one of the higher orthoworlds, i.e., it can result in a coherent circulation between that universe and the specific inert accelerated system. This circulation is easiest to establish through magic frequency windows where the channels of least resistance exist. This is the basic mechanism by means of which a living biological system is produced in and from the appropriate primeval amino acid soup in the presence of (a) magic-window induction (such as in the ultraviolet), (b) the acceleration of otherwise inert particles (such as is locally provided by lightning discharges), and (c) the strong collection of bioenergy to orthorotate it through three rotations (as is also provided by lightning discharges).

It is not accidental that life can be and has been created in the laboratory. This type of experiment, done by a team of strong psychics projecting intentional bioenergy forms, should be able to create specific forms of life. The same type of mechanism can occur inside the living body where it can induce psychomatic illness. A similar mechanism is probably responsible for the placebo effect, and possibly for the body's production of antibodies and the psychic modification of enzyme activity, psychic healing, etc.

JITTER OR DITHER MODULATES THE PRIMARY FLUX

In the continual, virtual, subquantum, orthorotational flux (crosstalk), rotating into and out of a fundamental mass particle, only those components that are coherent are additive, and only those that add to the quantum threshold and breach it become observable quantum change.

In a given observable quantum change consisting of such coherently adhered subquanta, time is produced by fission of the quantum of action. All remaining statistical subquanta which have not collected to the threshold level are virtual subquanta of action possessing unfissioned, unseparated time. These virtual subquanta, which themselves are dynamic and gradually collecting and superposing to various degrees and at various rates, are attached to and exist in the dT interval produced by fission of the action quantum. Thus each and every piece of time contains dynamic, nested, virtual subquanta. Time in observable changes may thus be said to possess an internal dynamic structure filled with such virtual subquantum mental, neutrino, and photonic entities.

At any fission time, the degree of superposition of each of these nested entities is highly variable and depends on the whole past collection history, which in turn depends on all flux components of the proper frequency that have been arriving from all the orthoframes.

Thus virtual-mental entities cohere frequency wise until they breach the quantum threshold and discharge into observable quantum change. It is much like the accumulation of a static charge until sufficient potential is reached and a spark occurs, discharging the accumulation of charge. The same sort of relationship exists between virtual-mental state and observable state. The only difference is that virtual-mental state accumulates by frequency or time phase.

Since present physics is entirely localized, local observations cannot have taken into account distant matching-frequency events in the laboratory frame, or matching-frequency events in orthogonal frames. To the localized particle of mass, the precise moment a particular subquantum superposition of given frequency will superpose to the threshold and turn into quantum change is therefore not predictable. Since the remote causes cannot be accounted for, the local effects cannot be time-ordered.

Therefore at the quantum level, the physical change is totally statistical to a monocular observer. This accounts for the fact that the quantum world is statistical rather than causal.

However, a given fundamental mass particle has a structure of physical aspects, e.g., mass, spin, locality, frequency spectrum, switch rate, strangeness, etc. All of these may be expressible in terms of orthorotational concepts, although not all of them have yet been so worked out. Muses has already pointed out that some of the present quantum numbers are actually hypernumbers. And just as $\sqrt{-1}$, the first hypernumber, is an orthogonal rotation, so are the other hypernumbers.

At any rate, one may regard a fundamental particle as simply a complicated three-space tuning pattern existing in the orthorotational crosstalk flux between orthoframes. This pattern may also be said to consist of sets of frequencies, since each orthorotational flux line has a frequency of in-out-operation. Thus each fundamental particle is a set of tuning frequencies in the flux. A stable particle is a stable spectrum comprised of standing waves. An unstable particle is an unstable set, comprised of some standing waves, which account for the duration, and some not-quite-standing waves, which account for the excited state or degree of instability of the object.

On each flux line, orthorotational flux lines exist, constituting jitter or dither. Also, every fundamental particle is a tuning. It both tunes and is the result of its tuning, i.e., by the fourth law of logic it does what it is and it is what it does. Since tuning allows frequency communication between orthoworlds, then free-energy devices are not only possible but are practical. So are dematerialization-materialization devices, teleportation devices, devices that heal or kill, and anticancer devices.

THE UNTOLD STORY OF QUARKS

We hear so much nonsense about the objectivity of science that it occasionally seems necessary to debunk the sacred cow. In fact, the quark story is a prime example.

In 1910, Millikan made his famous oil drop experiment and determined the charge-to-mass (e/m) ratio of the electron. By multiplying this ratio by the mass of the electron, the amount of charge on the electron might be computed. Thus was born the idea of a constant amount or quantum of electricity, the fixed charge on an electron. Millikan received the Nobel prize for this famous experiment.

Actually, Millikan himself did not originate the experiment. One of his brilliant graduate students, Harvey Fletcher, first conceived the idea. Millikan became interested after he saw what a stir the results were creating, and he accepted the Nobel prize without sharing the credit with his brilliant student. Later Dr. Harvey Fletcher was to become the head of Bell Telephone Laboratories and an eminent managerial scientist in his own right. He also is the father of Dr. James Fletcher, former Chief Administrator of NASA.

Incidentally, Dr. Harvey Fletcher is still alive and alert, should anyone care to check the story! Nonetheless, it is highly doubtful that this grave injustice to Dr. Harvey Fletcher will be corrected.

But the story does not end there. In the late 1930's, a German physicist named Ehrenhaft decided to change the Millikan experiment and use charged solid particles rather than charged liquid oil drops. In fact he used red selenium spheres of various sizes. Amazingly, he discovered that he could isolate and measure fractional charges (quarks) at will, and he could even control the magnitude of the fractional charge isolated on a selenium sphere by varying the diameter of the sphere itself.

His work was duly published in scientific journals, and duly greeted with derision and hostility. Ehrenhaft himself disappeared during World War II. And there the matter lay. Dogmatic scientists continued to blindly teach the indivisibility of the electric charge, Millikan retained his exalted position and Ehrenhaft's work passed into comfortable obscurity. And in sophomore physics laboratories all across the nation, the indivisible quantum of electricity held full sway, dutifully proved over and over by the oil drop experiment.

Then in the 1960's, the particle physicists, despairing because of the bewildering new array of fundamental particles that continued to pour in confusion from their massive high energy machines, turned again to the idea of fractional charge (quarks) to try to make some unifying sense of the embarrassing abundance of strange new particles. By choosing three simple quarks, they could unify the theory of almost all the new particles. (Additional quarks have become necessary in the theory since then.)

So physicists gradually began to look for quarks, but in the giant, sophisticated, cumbersome experiments and devices that were yielding all the strange particles, not in the simpleton's approach that Ehrenhaft had taken. And they could not find them! Try as they would, a quark just refused to leave its tell-tale track. But in desperation they kept looking, and kept missing them.

Then in 1972 a convention of physicists was held at the International Center for Theoretical Physics in Trieste, Italy. Seven Nobel Prizewinners in physics attended the convention, whose theme was the physicist's conception of nature. Paul Dirac, the Nobel prizewinner who had theoretically predicted the positron before its discovery, gave the keynote address to the distinguished gathering.

Amazingly, Dirac presented the work of Ehrenhaft to the startled convention! He showed some of Ehrenhaft's data, and then pointed out that Millikan had also reported a single measurement of fractional charge, but had discarded it from consideration because he felt it was probably an experimental error. Dirac remarked that it all made him wonder whether Millikan might really have had a quark in that single discarded measurement.

The die was cast, and the seed finally planted. In 1977, about forty years after Ehrenhaft first obtained his quarks, someone finally got around to using solid paniculate matter. Researchers at Stanford University tried it out using niobium, and they got a little fractional charge on their niobium. So after forty years, Ehrenhaft, who had so long been ridiculed and ignored, was finally vindicated. It had taken the establishment that long to check his work instead of dogmatically rejecting it. Yet in none of the articles I have seen on the new discovery has there been a single word about Ehrenhaft, or of Dirac's presentation of his work at Trieste.

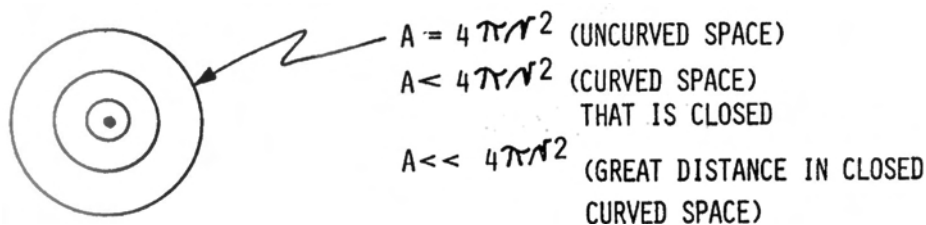


Fig. 16. Einstein's spherical model of the cosmos

EINSTEIN'S SPHERICAL MODEL OF THE COSMOS

Einstein's spherical model of the cosmos is a primary example of a holographic universe. In such a closed spacetime, each point inside the universe is also at the extreme end of the universe in any direction. Thus the entire physical universe is totally outside any of its internal points, and totally inside each internal point as well.

That is an application of the fourth law of logic. The total internal is identical to the total external. The adjective "total" merely moves one to the common boundary between the operational concepts of "internal" and "external." At that boundary, there is no operational distinction between one and the other.

The universe closure is not limited to just one occurrence or one rate of closure. In fact the universe can then proceed to close again within the same local three-space, e.g., a gradual macroscopic closure due to gravity field (or causing it) constitutes the external universe, and a second extremely sharp microscopic closure due to electric field (or causing it!) constitutes electric charge. The two together constitute a fundamental charged particle of mass. The polarity of charge is determined merely by which of two directions the second closure was made in. Considering an electron as such a dually closed entity, it is readily seen that the closure ratios are all that is being referred to by Feynman's condition. Feynman pointed out that any unified field theory must explain why the ratio of the radii of the Einstein closed universe and the classical electron, and the ratio of the electrical and gravitational forces between two electrons, were the same — on the order of 10^{42} . The model is also consistent with Santilli's proof that the electric field and the gravitational field are either the same thing or partially the same thing. In our model, an electric field is in fact a highly compressed gravitational field. Proper time synchronization should allow fantastic antigravity effects to be realized, and thus electrogravitics has a basis in this model.

A CHARGED PARTICLE IS A DUAL CLOSURE OF THE UNIVERSE

It is proposed that each fundamental particle having electric charge represents a dual closure of the entire physical universe. The gravitational field closure is slow and weak, and it is that closure which results in the so-called external physical universe.

It is proposed that all particles participate in this same closure, since it is their combined distributed mass that represents or causes the closure. (By the fourth

law, "represents" and "causes" become simultaneous at the boundary, i.e., when closure is accomplished.)

There are two directions possible for this gravitational closure: one where gravitational masses appear to attract, and one where gravitational masses appear to repel. These two directions thus form antimatter closures with respect to each other. The G closure where G masses attract is said to be the closure associated with a positive time dimension, while the G closure where G masses repel is said to be the closure associated with a negative time dimension. The direction of closure represents or causes the time dimension's algebraic sign, and vice versa (fourth law).

The electric field (E) closure is strong and fast — on the order of 10^{42} times as strong and fast as the G closure. However, its closure is in a direction orthogonal to the direction of the G closure. Since all matter is in motion, a slight deviation from exact orthogonality actually exists between the G and E closures due to crosstalk projection of components from the slight frame rotation involved in the velocity of each mass itself.

There are two primary orthogonal directions for the E closure. One direction yields positive charge and the other yields negative charge, for the positive time closure. For the negative time closure, the directions are reversed.

Such a schema, or version of it, can be made consistent with Santilli's proof, Feynman's criterion, and the observed fact that electricity can affect gravity and vice versa (electrogravitics). In fact, the electric field becomes a highly compressed gravitational field, at nearly 90° from the normal gravitational field. Liberating the compressed gravity in a flashlight battery could accomplish fantastic antigravity effects. Ironically, antigravity should be the simplest and cheapest effect ever dreamed of, once practical mechanisms for orthoshifting E field to G field are discovered.

Since psychotronics and quarks involve more fundamental components of electromagnetic field, hyperfields or biofields, psychotronic devices to yield antigravity should be quite feasible. The undisclosed extensions to Pavlita's psychotronic generators are thus of absolutely fundamental importance.

Furthermore, the ancients appear to have possessed psychotronic devices. Considering that metals, crystals, and other common materials can be used to construct psychotronic generators, and great power is attainable by the hyperchannel amplifier effect, it is quite possible that priests of several ancient civilizations actually possessed psychotronic devices to lift giant stones by antigravity, and other psychotronic devices to carve the stones like jelly. They may also have possessed psychotronic flying machines which used antigravity for lift and something like rocket propulsion for horizontal thrust. A flying machine that gets its lift from antigravity might be extremely crude in external appearance, and the use of hyperspace for travel would make it unnecessary to travel extensively through ordinary three-dimensional space. Thus many aspects of travel through normal space such as air drag and fineness ratio are of little importance to a psychotronic vehicle.

ADDING AND SUBTRACTING DIMENSIONS

Figure 17 shows the relation between total collection (integration) and orthogonal rotation in hyperspace.

Total collection (integration) constitutes orthogonal rotation
in a direction to increase the number of dimensions by one

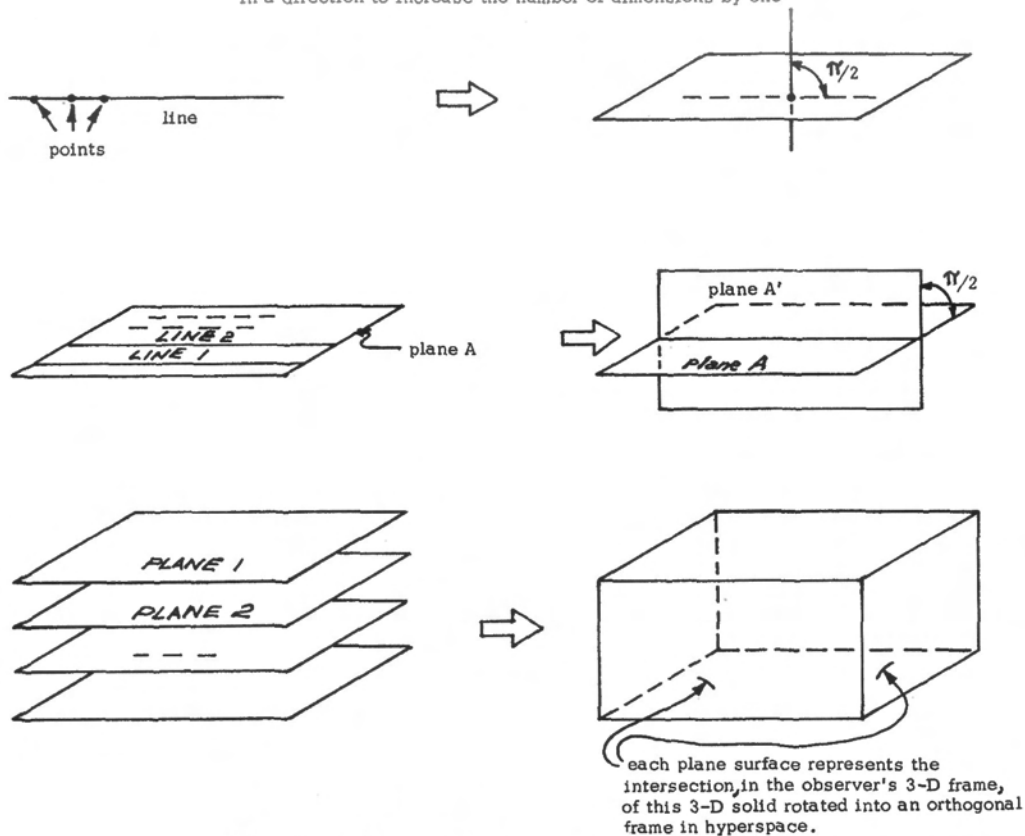


Fig. 17. Adding and subtracting dimensions

Total collection of zero-dimensional points in one direction integrates the points into a line (one-dimensional entity). This is precisely the same as if any of the points had been the plane intersection of an orthogonal line, and that line had now been rotated into the plane. Total collection in one direction is dimensional integration, and the collected entities gain an additional dimension, i.e., total collection constitutes orthogonal rotation of the higher dimensioned object into observer three-space.

A point can be considered to be, and modeled as, a line in a frame one orthogonal turn away, and simultaneously as a plane two orthogonal turns away, and simultaneously as a solid (in fact, an entire three-dimensional physical world) three orthogonal rotations away. The latter may also be considered to be, and modeled as, a mind, or even as an infolded infinite set of minds. The concept does not stop at three dimensions, but proceeds into higher realms indefinitely. However, three dimensions plus an orthogonal time dimension are sufficient for our purposes.

A converse operation also exists. Differentiation consists of a cut in an object whereby one single element (of the collection the object represents), is separated and isolated, so that one dimension is lost. It is like a closure being opened at one element. This is the same as an orthogonal rotation of the entity (being differentiated) in a direction departing from observer three-space.

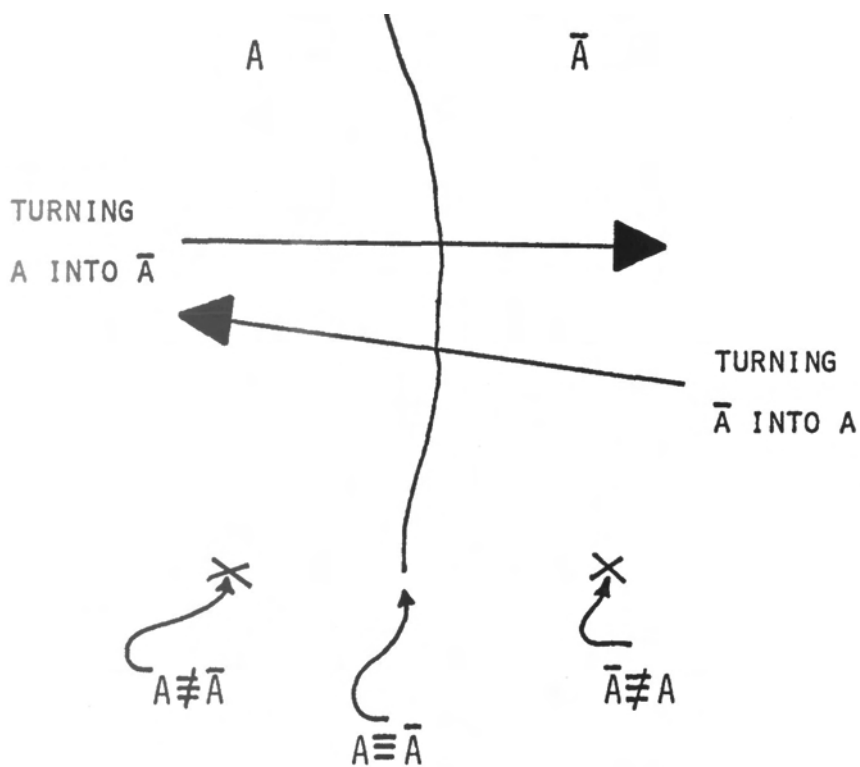
In the Figure, the lower two figures show the collection-is-integration schema for higher-dimensional figures. In the lower right figure, we cannot draw the three-dimensional object in its orthorotated position in four-space since we have only three spatial dimensions in the frame. Nonetheless, the additional dimensions exist and are simple to treat mathematically.

MIND IS OBJECTIVE

In time differentiating, mass loses the time dimension. Therefore we cannot see time with a mass perceiver, but we can see L^3 (spatial extension). But time is the only so-called objective dimension occupied or shared by mind. Therefore we also cannot normally perceive mind, because the plate (time) on which it was sitting is lost in the perception process.

Thus Descartes was both right and wrong. He was right in that monocular mind is not present in physical detection output, but wrong in believing mind and physical phenomena are totally separate. Time does not exist except with respect to between one L^3 perception and another, if L^3 is all that is outputted. Physical time is totally relative, totally mental, and exists only in memory. Mind is thus present in $L^3 T$ four-dimensional physical phenomena and is discretized along with time discreteness in the Heisenberg uncertainty relation $dEdt \geq h/2\pi$.

In fact, we can even take the extreme view that time is mind. Because to establish a delta t, a former L^3 must be established and compared to a more recent L^3 . The only place the former L^3 can rigorously be found is in memory. An event, once occurred, is in the past and is forever gone to the observer. Only in his memory can it be said to exist. But then so is the observation also of the most recent L^3 . Thus, rigorously, observed phenomena may be said to exist only in memory, and there is only a past, never a present. Thus a full four-dimensional mind is inseparable from perceived physical phenomena, and mind is quantized along with quantum change in the physical world.



**A POWERFUL EXAMPLE:
CANTOR'S PROOF THAT THE SET OF ALL SETS IS NOT A SET**

Fig. 18. Turning a thing into its opposite

THE SKIN TRANSDUCER EFFECT: TURNING A THING INTO ITS OPPOSITE

On the boundary interface, one type of field may be turned into another. The higher psychotronic field (biofields) may be turned into an electromagnetic field, and vice versa. The boundary interface serves as a transfer function mechanism for translating one kind of effect into another. Both ends of the transfer function are excitonically united in and on the interface.

The Soviet work that measured coherence of cyclic rhythms (heartbeat, breath, body electric fields, etc.) in Kulagina is significant in this respect. Kulagina induced electrostatic fields around objects that she moved psychokinetically. Her biofield, which is connected through hyperspace to the object being moved, is orthorotated into ordinary fields at the interface of the object. Thus an electric field is created, and also a momentum field that causes the object to move by ordinary physics.

The Soviet work appears to have established that man, earth, and cosmos are psychotronically and coherently linked; that the boundary of an object is a transducer coupling internal and external dynamic changes in one-to-one correspondence; that the transducer effect applies to both living and nonliving systems; and that through tuning and resonance, internal patterns can be incepted externally, and external patterns can be incepted internally.

EVERETT'S MANY-WORLDS INTERPRETATION OF QUANTUM MECHANICS

Both mind and matter can be precisely modeled in Everett's many-world interpretation of quantum mechanics.

Ordinary relativity is interpreted for only a single observer at a time. If you believe that you and I simply coexist at the same time, then the basis of physics is very different from what is in your physics book. Everett worked out what happens to physics if we insist on multiple observers at a time: all possibilities exist and are real, no matter how weird or far out; the world is a single giant universal wave function; collapse of the state vector has meaning only to a single observer; the world is composed of multiple orthogonal worlds of infinite variety, complexity, and strangeness; each world constantly splits into multiple worlds at a fantastic rate.

The many-worlds interpretation, though strange, is totally consistent with the experimental basis of physics. Most physicists have completely ignored Everett's profound and fundamental work; the MWI is a time bomb ticking away at the heart of physics.

SPACETIME CURVATURE IS TRICKY

Bent and rotated spaces give strange results. A thing in one frame can be something quite different in another frame. Just as the mass of a moving object does not increase with respect to its own inertial frame, it increases with respect to the observer's static frame.

What a thing is, is totally relative to the perceiver and his perceiving frame. It can even be nothing in a great many frames. Do you see how nothing can contain everything?

So we really can turn nothing into something if we are clever.

We can solve the energy crisis by building free energy devices which simply cohere the nonintersecting virtual-mental energy states and collect them, breaching the quantum threshold and yielding real, observable energy. To put it another way, we can tap zero-point energy.

And we can also turn a thought-object into a real, materialized object in this physical frame. Or we can dematerialize a physical object, converting it to a mental object.

MULTIPLE REALITIES (MANY WORLDS)

In Figure 16,1 show the particular selection of dimensions I take from Everett's many-worlds interpretation of quantum mechanics. Other and more complex selections can be taken, but these suffice for our purposes and allow us to complete the basic schema for connecting physics and metaphysics in the simplest possible manner. The selection and the schema developed thus provides an initial crude theory which makes predictions, develops theoretical mechanisms, and can be physically tested.

In the diagram, each three-dimensional physical frame of an infinite set at orthogonal angles to each other is shown by a single line about the plane of the bottom, much like the spokes of a wheel. The single time dimension shared by every one of the spokes or three-dimensional worlds is shown by a single vertical line, much like the axle for the wheel and its spokes.

Starting with the left spoke and going counterclockwise, the spoke worlds are numbered with the prime superscript system. The S world is the normal three-space physical world we all live in and detect; the S^1 world is the first orthogonal world, etc. Each world is also called a hyperspace or bioframe or bioworld and numbered consecutively beginning with zero for the S frame. Thus the zero-th hyperspace is the ordinary physical universe.

The first hyperspace is the electromagnetic field. A physical object in this frame is seen as an electromagnetic field to the S frame observer. Since its intersection with the S frame is two-dimensional, we immediately see that the electromagnetic field is a plane wave. Light thus travels at speed c to every observer in the S frame, because c is or represents an orthogonal rotation.

Further than the first frame, a three-dimensional object is seen by the S -frame observer as a deBroglie wave. Since its rotation is greater than 90° with respect to the S -frame, the deBroglie wave always moves faster than the speed of light with respect to the S -frame observer.

A three-dimensional object in the S^2 frame is seen by the S -frame observer as a line or force vector, i.e., simply as flux. (Tentatively, this frame appears to be the area of neutrinos.)

A three-dimensional object in the S^3 frame is seen by the S -frame observer as a spatial point, i.e., as spatially dimensionless. It is thus a mental object or a virtual object to the S observer.

The entire S^3 frame constitutes a mind or a virtual world. There are an infinite number of such S^3 frames available in hyperspace. In fact, there exists a set of three orthogonal turns between any frame higher than S^3 and the S frame, due to the nature of hyperspace. Thus in the model we are using, any of the higher bio-

frames may be considered to be only three orthogonal rotations away from the S frame.

We thus have a scheme of multiple worlds and multiple realities from which we may construct living systems, thoughts, tulpas, etc. And we may also turn one type of field into another, simply by virtual state collection or separation, as the case may be.

All frames S^3 or higher are mental or virtual frames. Physical phenomena in these frames are mental phenomena with respect to the S frame.

Note that we have deliberately evoked a system whereby a mind is modeled in terms of physics and physical reality is modeled in terms of mind. The only difference between any two entities in the various worlds is a matter of orthogonal rotation.

For the pure mathematician, obviously this entire model could be extracted into a new calculus. A symbol could be assigned to the orthorotation operation, and a sign assigned to the symbol to indicate whether the direction of turning is approaching the observer or departing from the observer. Sideways turns and in-betweenwards-turns could be represented by additional signs, or hypernumbers. I suspect that such a calculus is well worth doing, and I also suspect that it will closely resemble Charles Muses's hypernumber work when done. Using a six-dimensional geometry, the German physicist Heim has accomplished something similar, without yet realizing that he has also modeled mind. His work generates all the fundamental particles of physics and explains many features of UFO phenomena, as is to be expected from the scheme developed here.

At any rate, an exact calculus of higher dimensions and of turning one kind of field into another kind of field — with no barrier at all between physics and metaphysics — awaits the hands of the builder.

CLUSTERED ORTHOGONAL WORLDS

In this diagram, I show a sample of how various objects appear in their intersections with various bioframes. Note that an object is many things at once, and that many of the things it is are nonthings or nothings.

Everything is a thought in at least one frame. We can appreciate James Jeans's remark that the world appears less and less like a mechanism and more and more like a single thought. His intuition was in fact literally correct.

Each entity is a photon in at least one frame (let there be light!) Each entity is a line in at least one frame. Each entity is a three-dimensional spatial object in at least one frame.

By orthogonal rotation, a thing can change its face with respect to an observer, appearing to change into a totally different sort of thing with respect to a fixed observer in one frame. Reality is quite plastic and absolutely unlimited. It is only our own rigid heads that have been made of solid concrete.

Specifically, materialization of thought objects, by three approaching orthogonal rotations, exists. Similarly, dematerialization of an object, by three receding orthogonal rotations, exists. In such a case the dematerialized object appears the same as a thought object or virtual object.

A perfectly valid mechanism thus exists for tulpoids, materialized thought forms. All that is needed is a sufficient virtual state collection mechanism.

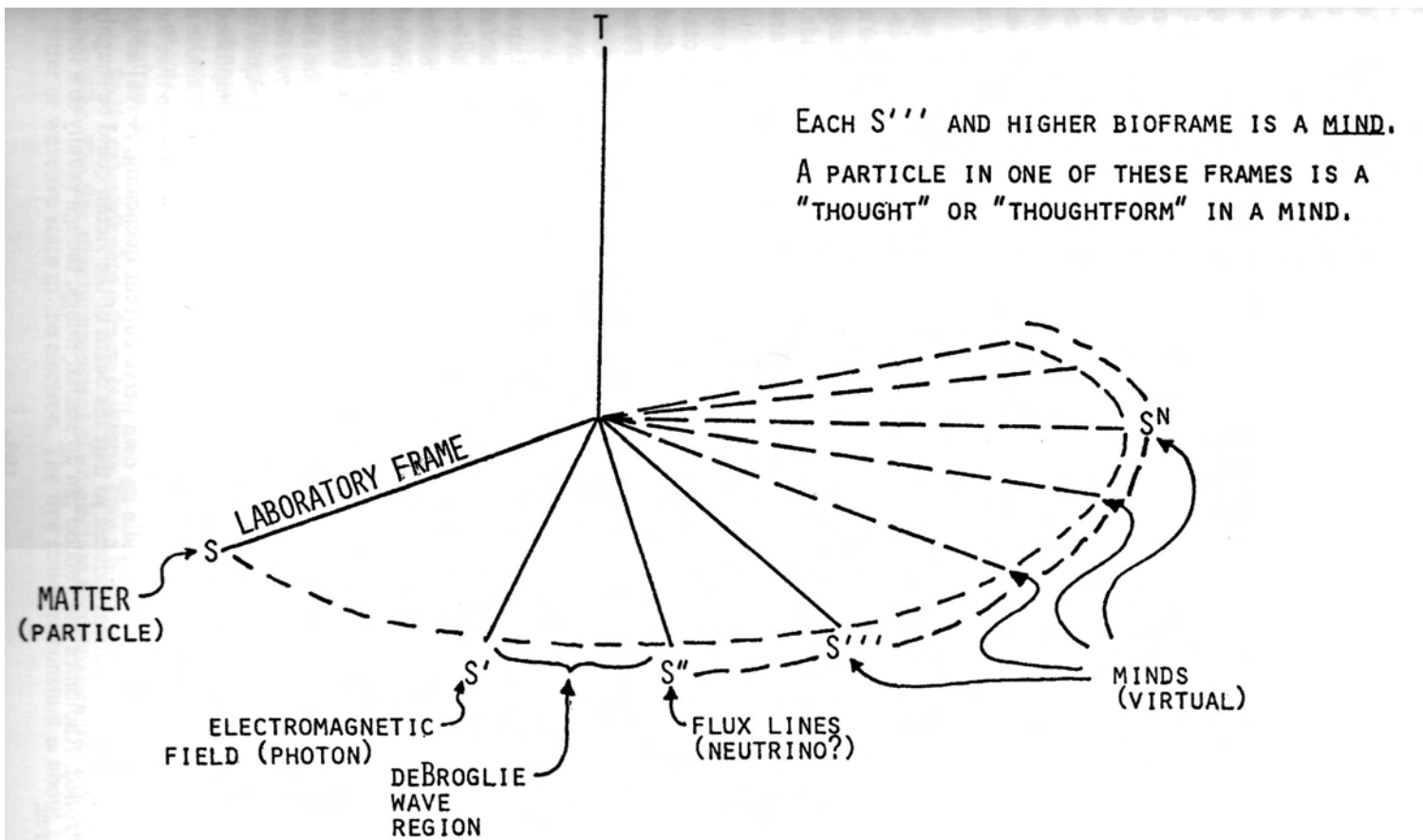


Fig. 20. Clustered orthogonal worlds

Note that an orthogonal rotation in an approaching manner is automatically accomplished by sufficient coherent collection in the remote frame. There is a finite collection threshold between two orthogonal hyperframes. Sufficient collection in one frame (by a tuning or directing mechanism in a third frame) breaches the threshold in the collection frame and the collected or quantized entity automatically appears in the next frame closer to the tuning mechanism's frame. The process may then be repeated. If sufficiently repeated, all the intervening thresholds are breached and full materialization of the object in the observer's frame (tuning frame) occurs.

By this process an object may be kindled from a remote frame to one that is less remote. Two successive applications of kindling turns thought into electromagnetic field. This is how thought photography is accomplished, and the talented individual who accomplishes it is simply cyborged to the camera film grain in an inceptive cyborg device. Many such examples, including some deliberately accomplished on demand by the study group in which I am included, are given in this book. Three successive kindlings turn a thought object into a materialized object, a tulpoid.

Such a materialized thought-object may be of an inert object or of a living, breathing, biological being. The model we are working in has eliminated any superficial difference between living and nonliving because it is a four-law model. And a materialized living being will be just as real and physical and functional as any other person on this earth. Ultimately, that is all that we ourselves are — tulpoids. Nothing exists but the thought of the infinite creator, so to speak, and we are simply part of that thought.

The coherence in multiple stages necessary to accomplish kindling is often referred to as *tuning* in this book. Tuning sufficient to enable two orthogonal rotations results in thought turning into electromagnetic field or light. Such a kindled field may be additive or subtractive to existing electromagnetic fields. Thus kindling can cancel an electromagnetic field that already exists, or it can create one where none previously existed, or it can shape, modulate, or change one which already exists.

Kindling can also wipe out the charge on a charged particle, or it can build up a charge on an object which previously had no electric charge. It is not accidental that Kulagina, when performing psychokinesis in the laboratory, first causes the induction of an electrostatic field on a nonmoving object. Then the object moves psychokinetically. In a similar fashion, she has stopped a frog's heart; kindling of the type to quench electric charge would of course eliminate the electrical trigger signals in the muscles of the heart, rendering it inoperable. This could mean either cessation and paralysis in a moderate case or total death in a drastic case. She also on one occasion demonstrated the ability to stop a living human heart. I have met other people who could do something similar. One of the great secret techniques in certain Oriental martial arts was the death touch. This could only be accomplished by certain rare adepts; with a light touch of the hand or fingers, they could induce a charge of bioenergy into and onto the acupuncture system of the body, so that the body itself began to slowly kindle its own nerve current quenching. A real adept could control the amount induced so that the death of the victim could be roughly controlled. Radionics and voodoo can do similar things, though usually to a lesser degree.

There also exists a precise mechanism for metal bending; the destruction of the charged particles (for the protons in the nucleus and the electrons in orbit, or even for just the protons in the nucleus) converts the particles in some atoms to neutrinos, which then vanish in the distance without interaction. Thus localized areas in strong metal can be kindled and made quite plastic from thought energy alone by one who has developed this skill. And the kindled areas will give every indication of having been subjected to extreme heat or unusual forces of a sort not encountered in normal metal bending or fracture. Also, the inceptor who is bending the metal and the metal itself are cyborged together into a single inceptive cyborg mechanism. Therefore the metal will often continue to bend even after laid down, because in the cyborg kindling is still occurring.

Furthermore, metals that exhibit unusual physical characteristics, such as nitinol, can change those characteristics dramatically by kindling. Also, an electrostatic field can be directly kindled in and induced on an external object, and an electric field or electromagnetic field can be induced in its surrounding space to interact with it, accomplishing psychokinesis of the object.

Or thought energy can be kindled in the hyperfield fluxes of an ordinary magnet. A magnetic compass needle can be moved by mind or a magnetometer can be affected, even through a superconductive Faraday shield. After all, the effect is rotating into our three-dimensional space from outside it, so shielding is of little consequence except where it interferes with tuning.

CROSSTALK BETWEEN MULTIPLE REALITIES

In Figure 21, I show that phenomena in all the hyperframes crosstalk. A moving object in frame S possesses a slight rotation, hence it projects a tiny component into frame S^1 . This S^1 component, however, is still dynamic and has a small velocity in S^1 . Hence it also is slightly rotated and therefore has a crosstalk component projected into frame S^2 with a velocity there. Having finite velocity, this projection in turn has a rotation and projects into the next higher frame, and so on.

Thus any changing entity in any frame crosstalks a tiny amount into any other frame. In a frame S^n , the crosstalk from a change in any other frame S^p is normally so small as to be virtual, hence nonobservable. Coherent virtual crosstalk, however, integrates and can breach the threshold between virtual and observable state. It is in fact possible to show that what we call a mass in S space is simply the sum total of the crosstalk in and out of a localized region L^3 of S space, the localized region being the mass in question.

Another point to notice is that most fundamental particles in a frame rarely move with constant velocity. Instead, they normally accelerate and decelerate continually. Thus the actual velocity vector of one of these entities is continually changing, usually quite erratically. But for microscopic particles in regular atomic or crystalline formations, the change pattern is quite regular. At any rate, the constant changes on the velocity induce a jitter component on its crosstalk into other bioframes.

So the crosstalk into a frame is jittery. Thus a fundamental particle is jittery or wavelike. The fine structure constant of an electron encompasses this hyperspatial jitter or wavelike state of the electron. The fine structure constant is about $1/137$.

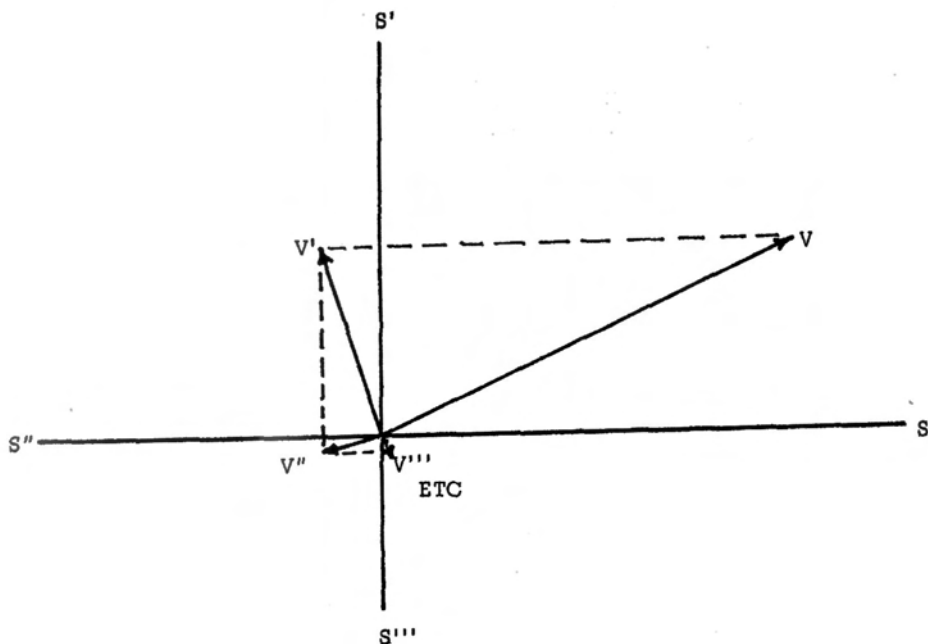


Fig. 21. Crosstalk between multiple realities

Thus an electron actually spends about 1/137 of the time in hyperspace.

So, because of jitter, an object is partially in every hyperframe a minute but finite part of the time. So are all minds and mental objects, and so are all virtual objects. For a fundamental particle, the fraction of time that one quantum of action pervades another frame may be referred to as the identity coefficient.

The identity coefficient varies; it is the photon interaction that time differentiates, quenching time and separating the bioframes, and this interaction is not a linear operator since the intensity of time differentiation is a rather complicated function of photon frequency.

At any rate, for an electron in orbit in an atom (or for any other electron, for that matter) there is thus a small but finite probability that the electron may be at any given position in the universe when its detection occurs. In other words, there is a finite probability of collecting an electron at any point in the universe, and the collection may be made from multiple points simultaneously. We can actually collect the same electron twice, so to speak! Or even a million million times.

The probability of detection of an electron at a given position may be directly expressed as the fraction of time that the electron actually spends there. And this fact may be used to develop a holographic coherent collection scheme that can directly amplify particles. Thus a so-called free energy device, which in one sense is just a tap into the zero point energy of vacuum, can be built. And it has been built, by Moray and by others. The jitter and crosstalk make it directly possible.

BIOFIELDS: AND MAVERICK WORLDS

Figure 22 shows a convenient list of how objects appear in different frames. This schema, selected from Everett's many-worlds interpretation, allows modeling of life, death, mind, matter, and psi. It also allows one type of field to be ortho-

BIOFIELDS: TIME-CLUSTERED ORTHOFRAME			
Present Name	n = Number of Orthorotations	Biofield	Dimensional Intersection with Lab Frame
Laboratory Frame	0	0th	3-D
Electromagnetic Field	1	1st	2-D: $\nu = C$
Virtual Photon	$1 < n < 2$	Between 1st and 2nd	Mix of 2-D: $\nu = C$ and 1-D: $\nu = C^2$
Bare Neutrino (candidate)	2	2nd	1-D: $\nu = C^2$ (but flows in photon)
Space-point; mind, thought	3	3rd	0-D, $\nu = C^3$ occupies time, not space per se. Flows in neutrino, thus in photon
Space-point, mind, thought	$n > 3$	nth	Same as 3rd biofield. All hyper- spaces are only 3 orthorota- tions away in nonlinear hyper- space

Fig. 22. Biofields: time-clustered orthoframes

rotated and turned into another kind. Such orthorotation demands correct time synchronization, rather than brute force energy application. In fact, orthorotation is energy-conservative for a single orthogonal turn.

Even the strangest conceptions and most fantastic possibilities have their own assigned realm of concrete reality. These are referred to as maverick worlds.

Note that all possibilities — everything that has happened or could have happened, and everything that will happen or could happen — are real and exist concretely in their separate orthogonal universes. The same is true for all thoughts and thought worlds, and all possible thoughts and thought worlds.

By proper coherent tuning, an *object* in one of these orthoframes can be orthorotated into our own frame and objectified, and that is what the Tibetan monks call a tulpa, an objective materialization of a thought form. The tulpa will hardly ever be closed entirely in phase, however, and so it will almost always be unstable. UFO's, angels, and imps go away. But the materialization of one of these can be entirely objective and perfectly objective traces can be left, such as photographs, broken limbs, scorched asphalt, indentations, and depressions in grassy fields. Any thought object can be so orthorotated and objectified. Beings, religious figures, angels, fairies, imps, UFO's, and monsters can all appear.

HYPERFIELD FLUX IN A MAGNETIC FIELD

In the conventional experiment to determine the pattern of a magnetic field, iron filings are sprinkled about a bar magnet on a piece of paper. As shown in the top drawing of Figure 23, the iron filings form a symmetrical pattern. Further, the only apparent circulation pattern is from one pole to the other. Each flux line is closed, going through the magnet from one pole to the other and out of that other pole, bending back through space to the first pole. Every flux line therefore goes through both poles.

However, each little iron filing is actually quite static; it does not move at all. It does not change with respect to either time or position. It is therefore integrating any higher sinusoidal component that is changing with respect to time and length. The characteristics of the orthodox picture that emerges are prescribed by Maxwell's equations of electromagnetic field.

If we tape the bar magnet to the face of a color television tube, the magnetic field is now being scanned or probed or sampled by a moving electron beam, which reacts with the magnetic field of the bar magnet. This electron beam is changing its position with respect to time and length, and it therefore differentiates the magnetic field. The hyperspatial "ripples" in the magnetic field now are not integrated exactly to cancel, and so a small deviation from each flux line will be detected by the differentiating beam. Slight deviations will cause a color change, and so the hyperspatial flux now becomes evident on the television screen. The lower drawings show the rather unusual, nonsymmetrical pattern that emerges.

The equations for these hyperfield fluxes should be obtainable by differentiating Maxwell's equations twice more, yielding fourth order equations. These equations should be the much sought-after equations of prana, chi, ki, ectoplasm, bioenergy, bioplasma, odic force, etc.

Note that the hyperfield circulation goes into the north pole and pours out of the south pole. A living organism exposed to the north pole, end on, will have its own bioenergy sucked out by the magnet, and its own flux will diminish somewhat. Exposed to the south pole, end on, it will have its own bioenergy increased by the bioflux pouring from the magnet. This explains why many experimenters who have extensively tested the influence of magnetism on growing plants have found that the north pole inhibits and the south pole stimulates growth and health.

The hyperfields are fundamental fields rather than electromagnetic fields; they collect coherently and kindle *into* electromagnetic field, creating it or destroying it.

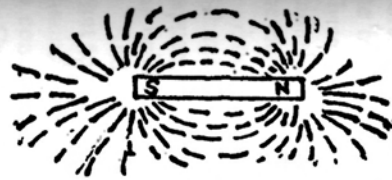
LIFE AND DEATH

In Figure 24 I present an overall schema for life and death — and for reincarnation as well.

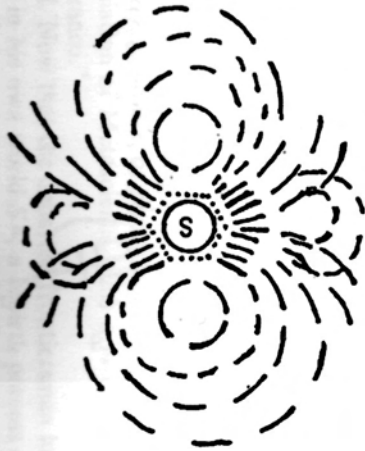
An infinite number of hyperfields or bioframes are shown as S, S^I, S^2, S^3 etc. The frame S is the ordinary laboratory frame — the physical spatial world we live in and observe. The frame S^I is the electromagnetic field, the frame S^2 the linear or flux frame, and S^3 the first "mental" or "virtual" frame. Also, all higher bioframes have a connective path to the S frame of only three orthogonal rotations (not shown). Thus only three orthogonal turns separate S^n and S, S^K and S , and S^J and S .

In frame S , note that physical body A has a coherent crosstalk link with the entire frame S^n . $A-S^n$ thus constitutes a living biological system; in this case, let us say, a human being. Likewise, B and S^J have established a coherent crosstalk loop. $B-S^J$ thus also constitutes a living biological system; in this case, let us say, an opossum. These two examples are incarnated living systems (incarnated minds).

In fact, this is a great oversimplification, as the reader will realize at once. We really should consider all the groupings of A — the organs, the structures, the cells, the internal cellular parts, etc. — as separate but coordinated a_i . (And similarly with B .) Each of these a_i must have a correspondent s^n subworld of S^n , much like

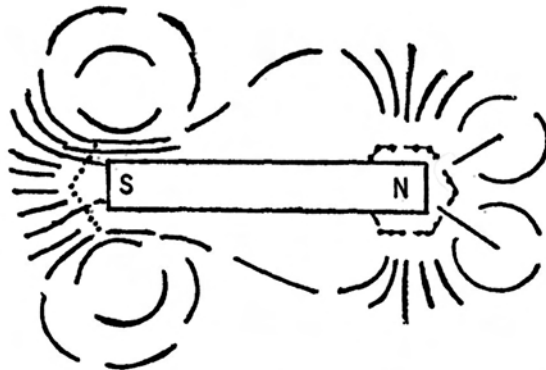


CONVENTIONAL PICTURE,
IRON FILINGS SPRINKLED
ABOUT A BAR MAGNET ON
A PAPER.



HYPERFLUX
CIRCULATIONS

NOTE STRONG
HEXAGONAL PATTERN
AND TWO PRIMARY
VORTICES



HYPERFLUX CIRCULATIONS
FLUX PATTERNS ARE NOT
SYMMETRICAL, POLE-TO-POLE

NOTE STRONG HEXAGONAL
PATTERN IMMEDIATELY
ADJACENT TO NORTH POLE.



HYPERFLUX CIRCULATIONS

NOTE STRONG
HEXAGONAL PATTERN
AND FOUR PRIMARY
VORTICES

Fig. 23. Hyperfield flux in a magnetic field

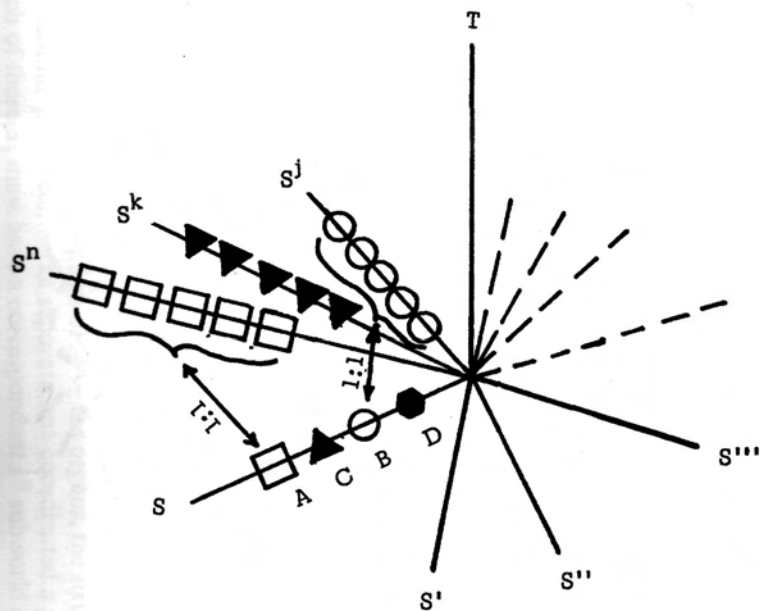


Fig. 24. Life and death

$A \leftrightarrow S^n$ is a living system.

A is the physical body, the incepted mass.
 S^n is the mind.

$B \leftrightarrow S^j$ is also a living system.

To S, D is inert; i.e., D is not preferentially incepted.

To S, S^k is a "disembodied mind." I.e., S^k is "dead," since it is not preferentially incepting its former body, C.

Whenever a proper retuning body, say E, appears in S, S^k will reestablish a coherent crosstalk with E. This constitutes "reincarnation" of S^k .

the fine structure of atomic energy levels. But here I am simply outlining the major schema.

At any rate, let us now examine body C and hyperworld S^k , which formerly were one-to-one coherent in crosstalk, but are no longer so. C represents, let us suppose, the body of a frontiersman in 1830 who has received an Indian arrow in his breast, piercing the heart and destroying the ability of the body to coordinate the c_i to each other and to the inceptive channel from S^k . With the loss of coherence, noise begins to destroy the channel; thus S^k is now a "disembodied mind," and C starts to become a decaying corpse. The various c_i of course lose coherence at differing rates, and so the fine structure channels to the s^k also lose coherence at differing rates.

Finally all $c_i - s^k$ coherence is lost, and the frontiersman is then "dead." The mind S^k is now disembodied — and also probably quite disturbed or "noisy" because of the variance in disintegration of the $c_i - s^k$ loops. One might say that the mind is somewhat "detuned" by the whole affair. However, "death," in the sense of total loss of mind and personality, has most certainly not occurred. All that has occurred is a lapse into a disembodied, and perhaps somewhat confused, state.

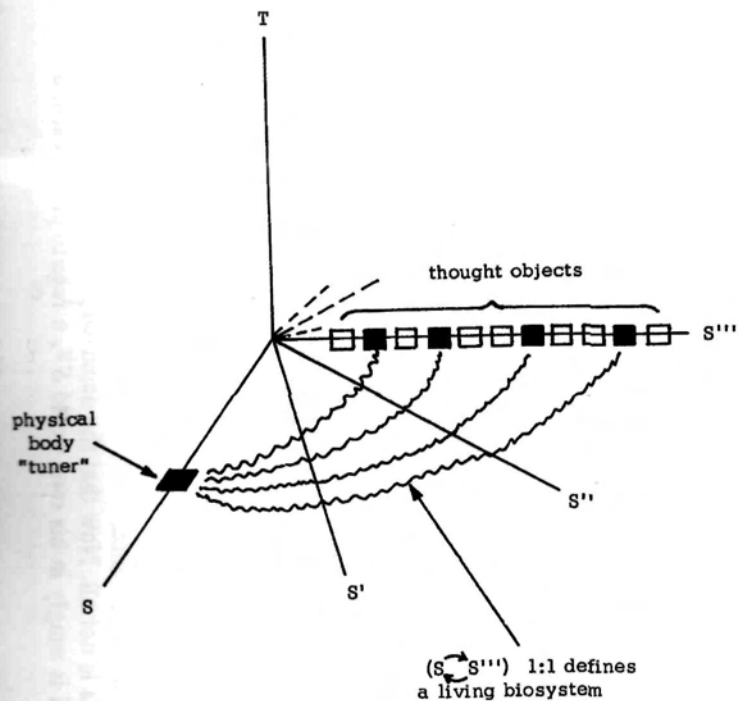
And the disembodied mind finds itself in its own deep, unconscious world constructs. If a person has been unconsciously Christian in a very deep, fundamentalist sense, and in his own mind has also been a "sinner deserving of hell," then he will actually "lift up his eyes in hell," in his own world tuning. And that world will be physical and real — as real and physical as this one — but it will operate by different physical laws, just as dreams operate by different physical laws. These relations and laws are prescribed by the person, either consciously or unconsciously. The devout Mohammedan is quite likely to find himself after "death" in the delightfully chauvinistic paradise he believes in.

And so the Catholic practice of praying oneself out of purgatory is relevant, for if that belief-structure is firmly fixed in the deceased's deep unconscious, then it will happen; he will simply change his world construct in accord with the effort made on his behalf.

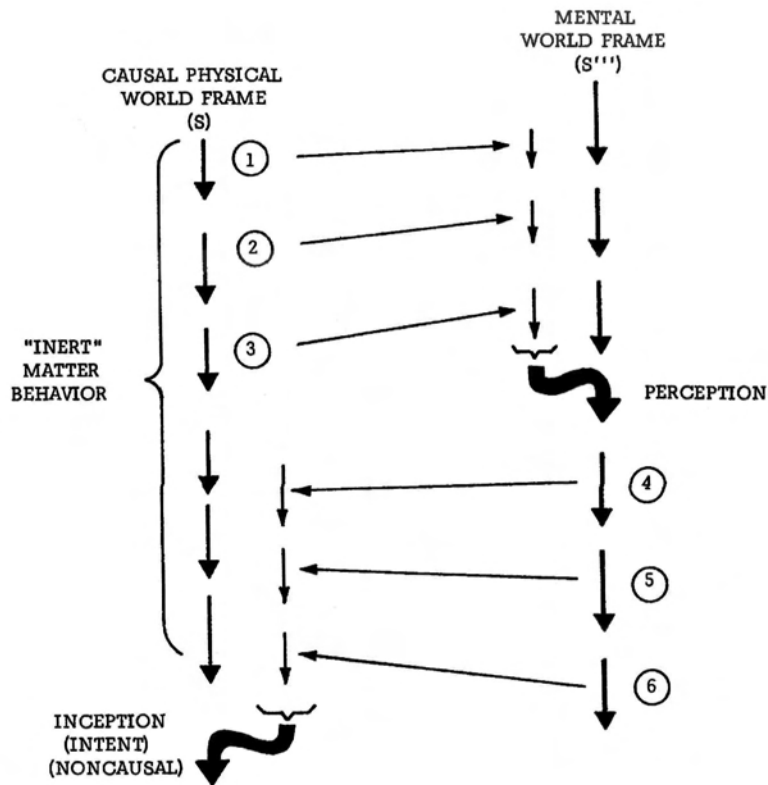
And the ancient Tibetan practice of giving instructions to the deceased as to what to expect and where to go is also relevant, for during the time that the major channel $C-S^k$ is lost but many of the $c_i - s^k$ are still functioning, the deceased is still in contact with frame S and can heed those instructions.

Certain clairvoyants and skilled psychics can also project part of their mind vision into S^k and see the status of the deceased. In some cases the deceased will have so strongly retained mental structures analogous to physical structures and localities (or persons) in frame S that continual small crosstalk channels breach open by tuning resonance to those localities, structures, or persons. With a little inceptive assistance from one or more sensitive persons, an "appearance" of the deceased at the locality, structure, or near the person can take place. Much psychic, ghost, or spiritualist activity is due to this effect. So indeed is the concept of earth-bound spirits. Here again, an advanced adept can erase the psychometric pattern attached to the locality, structure, or person and thus eliminate the phenomena. In the American Association of Metascience, such a resolution is part of an overall process called "clearance."

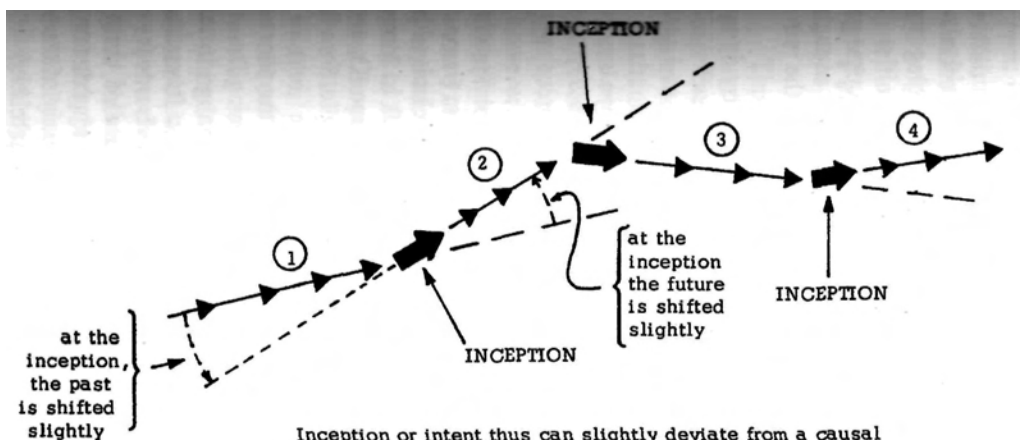
But this is not all. Now that the departed frontiersman has been cleared, so to speak, and is snugly in his own world S^k rebirth process still awaits him. As I



A. A LIVING BIOSYSTEM



B. THE FUNCTIONING OF TIME AND CONSCIOUSNESS ARE MUTUAL CREATORS OF EACH OTHER.



Inception or intent thus can slightly deviate from a causal trajectory. Over sufficient collections of physical changes, "intentional behavior" or "limited free will" emerges. However, it is only a very small modulation of causal inertness -- and its smallness accounts for human "physical limitations."

C. CHANGING THE PAST

Fig. 25. Consciousness, life, and intent

have pointed out elsewhere, every particle of mass is simply a pattern of change in the universal orthonormal flux between hyperframes. (This, after all, is no more than a slight extension to general relativity.) When the proper physical tuning mechanism, say C^1 , again appears in the S frame, then a resonant coupling will automatically establish itself in the flux between C^1 and S^k , and the disembodied, confused mind of the frontiersman will simply be coupled again to a new physical body pattern. This happens at the instant of conception, for the genetic pattern — the complete tuning pattern — is present at that instant. The coupling is quite tenuous at first, and increases in degree as the embryo develops.

So reincarnation has a place in my schema. We will see, however, that it differs slightly from the classical concept, because with developmental work the frontiersman can change the makeup of S^k and thus his predisposed tuning. Changing the tuning also causes rotational displacement of S^k among the infinity of infinities of mind worlds available. Thus the past can be changed; in fact a person can change who he is the reincarnation of, simply by changing his mind tuning with enough development. Therefore more than one living person can be, for example, the reincarnation of Napoleon.

And in fact the cycle of rebirth can be broken completely — simply by dying with a totally detached mental framework. The cessation of all tuning attachment results in a broadened S^k , which now is structureless, hence all-structured and part of universal Godness.

But the major point is that all this can be modeled physically. And there is only life; absence from one place still leaves presence in another. Absence from *any* and *every* one place exclusively leaves presence at all places, each nonexclusively.

Death, where is thy sting?

In diagram A of Figure 25, I summarize what constitutes a living biosystem. Here we can see that body (physical) changes from the biosystem's body in frame S crosstalk successively through frame S^1 and S^2 to S^3 . Also, physical changes in frame S^3 actually constitute mental changes to the biosystem's body back in frame S . These mental changes must crosstalk successively into frame S^2 , frame S^1 , and then into frame S . This entire process — from frame S^3 to S^2 to S^1 to S — is referred to as *kindling*.

In diagram B, we observe this process a little more closely. Here, the shorter straight vertical arrows are virtual state changes kindled from the opposing frame. The longer straight vertical arrows represent observable quantized change in the particular frame, these changes being produced by ordinary inert physics laws. The curved double-lined arrows represent quantized change kindled into the frame from the coherently superposed virtual changes that have steadily been kindled there.

Thus there is a kindling time delay in the causal S frame before will or intent sets of changes from the mind-frame S^3 can induce an input into the physical body of the biosystem. Correspondingly, there is a kindling time delay before a perceptual change in S^3 from the changes in S can occur.

The horizontal arrows represent the flow or flux of kindling crosstalk between the two frames. It can be seen from this diagram that consciousness — the thread of the relation between consecutive changes in the two respective frames — and time are identical. (Recall that each inert physical change in S that is not kindled from S^3 is actually randomly kindled from all the other mind-frames.) Thus time and mind are identical. Consciousness is simply the functioning of coherent cross-

tulk between a mind frame and a physical body in frame S . Further, each biosystem's consciousness has all other consciousnesses interwoven with it. The other living consciousnesses input into other physical bodies in frame S , and these physical bodies interact in frame S . The other dead consciousnesses input into frame S - into each body as well as into all other inert matter — in a noncoherent, randomized manner. Thus the entire universe of universes is totally in communication with each part of itself, continually.

In diagram C, I show that incepting a change from pure causality changes the past; in this case, the past is causally inferred or projected backward from the new vectorial direction. However, because inception into frame S is a very small effect, the biosystem's change of its past is so slight that normally it is not noticed. Inception of course also changes the future slightly.

THE HOLOGRAPHIC HYPERCHANNEL EFFECT

This effect is based on the concept that a human being must accomplish a minute inception (psychokinesis) onto his physical system. Specifically, he must incept the movement of three or four electrons in the brain. This constitutes an input signal to his ordinary physical system, which is then treated like a complex servomechanism. The gain of this servomechanism is rather high, being able to transform or amplify the movement of several electrons into powerful movements of the entire body. The inceptive effect cannot be explained by ordinary physics, which can account for the servomechanism gain only. Once the input signal is generated, however, the rest of the amplification and action are viewed as being properly described by the ordinary physics of inert matter. Thus the human is viewed as largely servomechanistic and mechanical, but guided and directed by the non-physical, which affects the physical in a minute fashion sufficient to constitute inputs to the ordinary physical system.

Our purpose here is to show that, given this single small inceptive effect, we can eventually approach the mastery of space and time for a linkage of sufficient number of human brains and minds into one single superbrain and supermind.

From the multiplicity of orthogonal frames permitted by Everett's many-worlds interpretation of quantum mechanics, we now select an infinite set of clustered three-dimensional spatial frames, which all share a single time dimension. Using one frame as a laboratory reference frame, the other spatial frames may be characterized as having one, two, three, or more orthogonal turns away from the laboratory frame. These succeeding orthogonal frames are variously called hyperframes, bioframes, orthoframes, hyperchannels, orthoworlds, etc. A particular set of material phenomena in one of the orthoframes is referred to as a biofield, hyperfields, or orthofield with respect to the laboratory frame.

In Figure 26 I represent each brain by a triangular symbol, and consider it as an amplifying device having a gain of A_0 . For simplicity the inceptive input signal is represented as E_i , since in moving an electron, a voltage must be induced. For simplicity I also show the brains as a linear array lying in a straight line. The distance L separates each brain, and here L is assumed constant for simplicity.

Two factors must now be realized: (1) The first hyperchannel operates in the realm of the ordinary electromagnetic field, although this realm is seen in a differ-

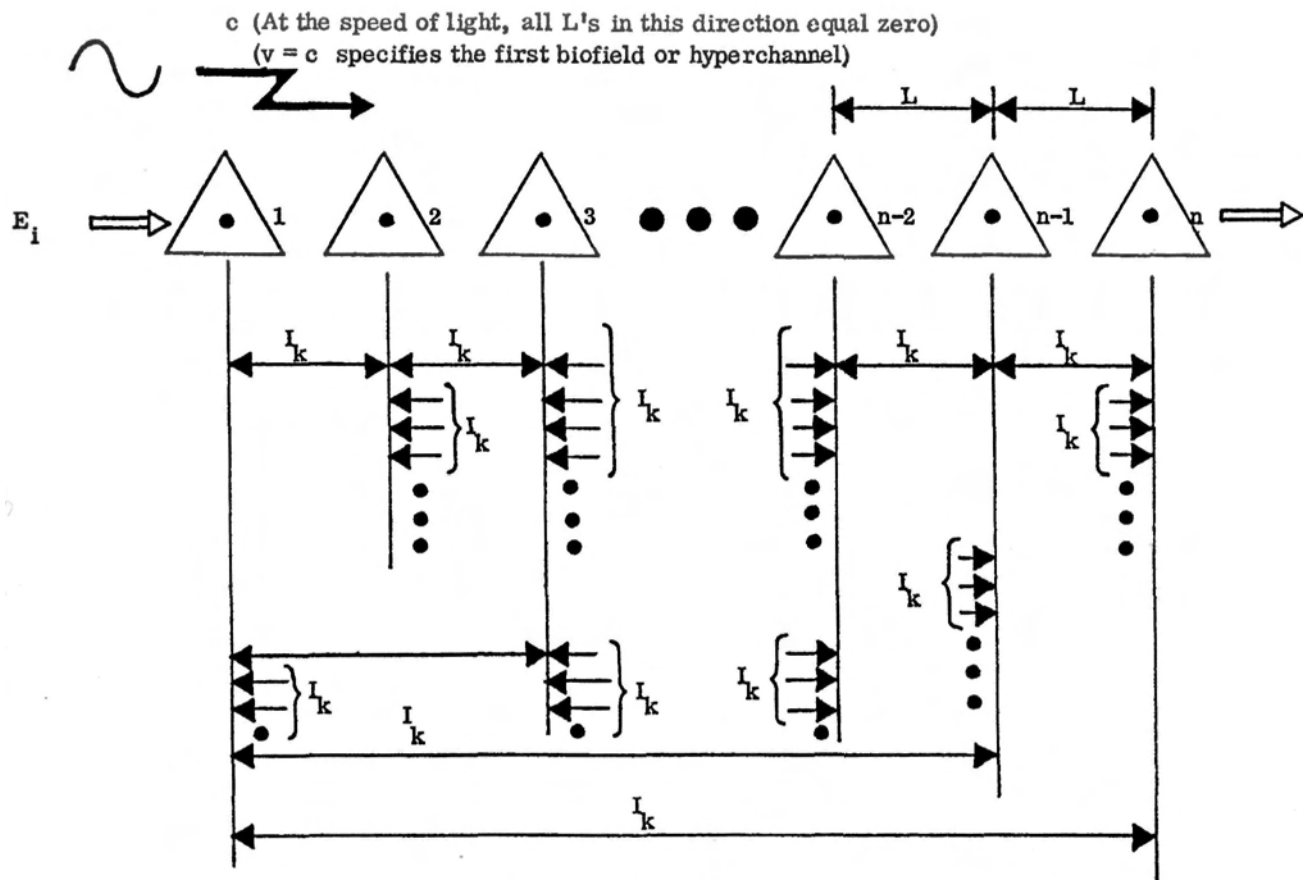


Fig. 26. The holographic hyperchannel effect

ent way, i.e., we visualize a photon as an ordinary particle of three-dimensional matter, resting in a three-dimensional spatial frame (hyperframe) that is orthogonally rotated spatially in higher dimensional space, at 90° to the observer's spatial frame. The hyperframe and the laboratory frame share the same fourth dimension, time. (2) At the speed c (which determines the hyperframe in the first place), all L 's are zeroed out, by the equations of the special relativity transformations. Thus one may view (hyperview) each triangle (brain) as superposed on each other triangle (brain). Furthermore, there exists a very small, finite, nonzero probability that the state of one triangle coincides exactly with the state of another superposed triangle, at any given small increment of time. This probability corresponds to a direct fraction of identity between two triangles, since time is stopped along the chain. At any given small increment of laboratory time, any given triangle has on the average a small fraction of identical coexistence with any other triangle. This identity fraction is labeled I_k in Figure 26.

It is important to note that, for a very small fraction of time, the triangles coincide with each other; i.e.; for a small fraction of time the existence of one triangle is totally holographic. This fraction totally violates the ordinary conservation of energy, which is applicable only to a single channel system. The hyperchannel represents a second channel, an identity channel, and in this channel an object can be in multiple places at the same time. If the triangles, regarded as operating processes, are even slightly coherent, then multichannel communication and holographic transmission of a single state-energy into multiple state-energies occurs through the hyperchannel — usually in the virtual state.

Figure 27 shows the setup to calculate the gain of the hyperchannel amplifier. These calculations yield, for the output of stage i ,

$$\frac{E_0}{E_i} = A_0^n + A_0^{n+1} I_k.$$

When no ordinary electrical input exists, $A_0^n = 0$, and the virtual state amplification is thus

$$\frac{E_0}{E_i} = A_0^{n+1} I_k.$$

This mechanism holds the secret to the tapping of zero-point energy and free energy devices. It is also the hidden variable theory that causes a radioactive nucleus to decay. Since radioactive nuclei interact through hyperspace, the amount of radioactivity in a given sample is an exponential function of the number of radioactive nuclei present.

It is also a mechanism which can directly amplify the virtual-mental state into observable state. It is the fundamental mechanism that causes kindling and thus orthorotation. It can be used to materialize tulpas, and accomplish psychokinesis, remote viewing, clairvoyance, precognition, etc.

MIND LINKAGE

The entire human species has been developing and evolving, not just the individual person.

The development of life in a biosystem may be divided into seven stages: (1) the development of planet, primordial atmosphere and ocean; (2) the appearance of

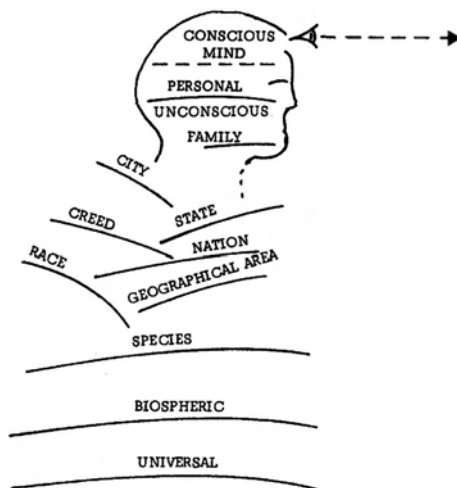


Fig. 28. Layers of unconsciousness

amino acids; (3) the appearance of the self-replicating supermolecules; (4) the formation of one-celled organisms; (5) the formation of multicellular organisms; (6) brain linkage of an intelligent technological species; (7) total omeganess or godhood.

Two major types of behavior are involved in living organisms: genetically programmed behavior and genetically unprogrammed behavior. Thus one mode of behavior control of an organism is nonadaptive and the other mode is adaptive or learned. Intelligence may be viewed as the ability to adapt behavior, and increased intelligence represents a decrease in the portion of behavioral control that is genetically programmed or "hard-wired."

We may further speak of two types of intelligent species: those that possess a tool-using member and those that do not. The first is a *technological* species, while the second is *nontechnological*. By this classification, man is a fifth-stage, technological species.

The intelligent species, being relatively deprogrammed, is highly adaptive and competitive, and many of its species-specific checks and balances are reduced or eliminated. Because of the use of tools in its internal competition, the technological species continually increases the ferocity of its internal competition and its deadliness to itself. Thus as the power of its tools increases, the technological species carries the seeds of its own destruction within itself, and it will eventually destroy itself unless it advances to the next stage, the linked-mind sixth-stage being.

The sixth stage consists of the linkage of all individual brains in the species into one single superbrain, producing a superbeing having absolute control of space and time. A technological species is necessary to accomplish linkage and produce a multidimensional, eventually nonphysical, superbeing. When the technology is sufficiently advanced for linkage to be developed, the power of the tools is so great that self-destruction is imminent. Thus an advanced technological civilization is near linkage and also near Armageddon, and in either case it vanishes as a limited, three-dimensional species of the fifth stage. This accounts for the notable absence of a technological species similar to man in man's universe.

ANGELS, IMPS, AND UFO TULPAS

If we realize that each of us has his own mind world, an S^3 frame with respect to the S frame physical world, but separate from each other S frame mind world, then we see that, if we take common forms that are in the minds of all human beings, it is much easier to kindle them because they can be cohered much more easily.

The common crosstalk in all minds constitutes the collective unconscious. Since the common crosstalk is in a sense a mind, and since it is connected to a "body" of many cells, i.e., of four billion humans or so, then this collective unconscious is a living, breathing entity.

Furthermore, the usual content of its mind is a great deal closer to physical phenomena that are in all minds than is a single human being's mental content. Much of what we term physical reality is in fact prescribed by the collective human unconscious. And if the collective human unconscious is changed in its conception of reality, then four billion stages start kindling with the hyperchannel effect, and immediately the new conception is physical reality.

Borrowing from Jungian psychology, let us call a form that is in each human mind an archetype. Let us also realize that there are shallower levels of unconsciousness (Figure 28) between the total collective unconscious and an individual mind. For an Irish-American there is one level defined as Caucasian, another defined as Irish, another defined as American, another defined by the larger region he lives in (say the state), another defined by his family, and another by his own personal unconscious. The levels are not mutually exclusive, but intersect across one another. At any rate, all these unconsciousness levels above the collective human species unconscious also shape, modulate, mold, and change the kindling channel that exists for a person or group. All these levels of unconsciousness are like finer and finer tuning levels to change the kindling mechanism.

An archetype that is kindled from the collective unconscious is kindled through such a mechanism of unconscious levels of tuning, and the reality format that is kindled is determined by the type of pressure and the content, biases, or tuning of all the levels between it and the conscious minds of the individuals who observe the phenomena.

All tulpidal manifestations are kindled through and by this mechanism. All of them are shaped by the multilevel unconscious tuning. All of them are caused by an unresolved conflict in the deeper unconscious layers.

Since most minds are notoriously unstable, the tuning is unstable almost always, and the tulpidal manifestation is usually fairly shortlived, usually not more than a few minutes, or a few hours.

Angels, imps, Virgin Marys, UFO's, sasquatches, Loch Ness monsters, lake monsters, sea monsters, nocturnal mystery lights, fairies, elves, devas, devils, ogres, Mothman, men in black, goblins, large monster birds, etc. are all kindled by the same process. And so are cattle mutilations. I fear that human mutilations will be next.

Any tulpidal materialization may be physically real during its stable period. It may make large tracks in the ground, operate shiplike space vehicles, break tree branches, take human specimens on board, examine human specimens, etc.

The tulpoid may appear benevolent or harmful, and it may actually be so when in the stably materialized mode. The full content of the human unconscious is there to be materialized in physical form — all the good, all the bad, all the noble, all the sly aspects.

When enough human unconsciousnesses have the idea of fairies deeply ingrained in them, occasionally a real, living, breathing fairy pops out of the collective unconscious, riding as a direct modulation on a more primitive overall human species archetype. And the fairy may do all the things expected; she may pose riddles, give gold coins which must not be examined or they will be lost, etc.

Religion can also make use of tulpoidal appearance. When Christian predecessors believed in a vengeful god, a powerful but spoiled king, they got all the manifestations of that kind of Being. When they believed in a god of sacrifice, they got a god who demanded sacrifice and thrived on it. And when many believe in angels and Virgin Marys, they sometimes actually appear. These appearances are not hallucinations; they are completely real. It is just that all possibilities are concretely and physically real in their own realms, and any of these may be tuned in to appear in this realm.

An infinite number of reality channels exists. The total instrumental characteristics, genetic, psychological, and physiological, of the observers who tune in the channel determines the noise content and the actual channel selected.

A reality is simply an orthogonal frame or world. All possible realities already exist. A channel is a set of tuned and timed orthorotations communicating back and forth between two orthogonal frames or worlds. Tuning is a complex of mind and matter, and of many unconscious levels.

For a perfect adaptation of this mechanism of coherence, any coherent signal — no matter how fantastically weak — can be raised up out of the grass and made dominant. By time coherence in the virtual state, a virtual state entity can be amplified into observable state. From sheer nothing we can produce something. And since every possible something exists in nothing and is available for cohering, we can get anything at all by this process, at least hypothetically.

DREAMS ARE UNRESOLVED CONFLICTS

Everything is essentially mind. Mind forms layer after layer of overlapping zones of shallower and shallower unconsciousness (multiple simultaneous consciousness), all the way from the universal allness to the personal unconscious, and culminates, like the tip of a dagger, in each conscious mind. Figure 29 illustrates these mindlevels.

Just as the dreams of an individual show his unresolved conflicts, so the materialized tulpoids of the collective human unconscious show its unresolved conflicts. Tulpoidal phenomena thus symbolize man against himself, or one group of humans against another group of humans. The great unresolved conflict in the human species since World War II has been the Cold War. And therefore the great flaps of tulpoidal UFO activity should correlate directly to the Cold War. And so they do, as I indicate in this book. Literally we ourselves are our own "Satan," for in man's inhumanity to man, satanic evil is created inceptively. And we ourselves are our own "godform," for in man's love of his fellow men, goodness is created

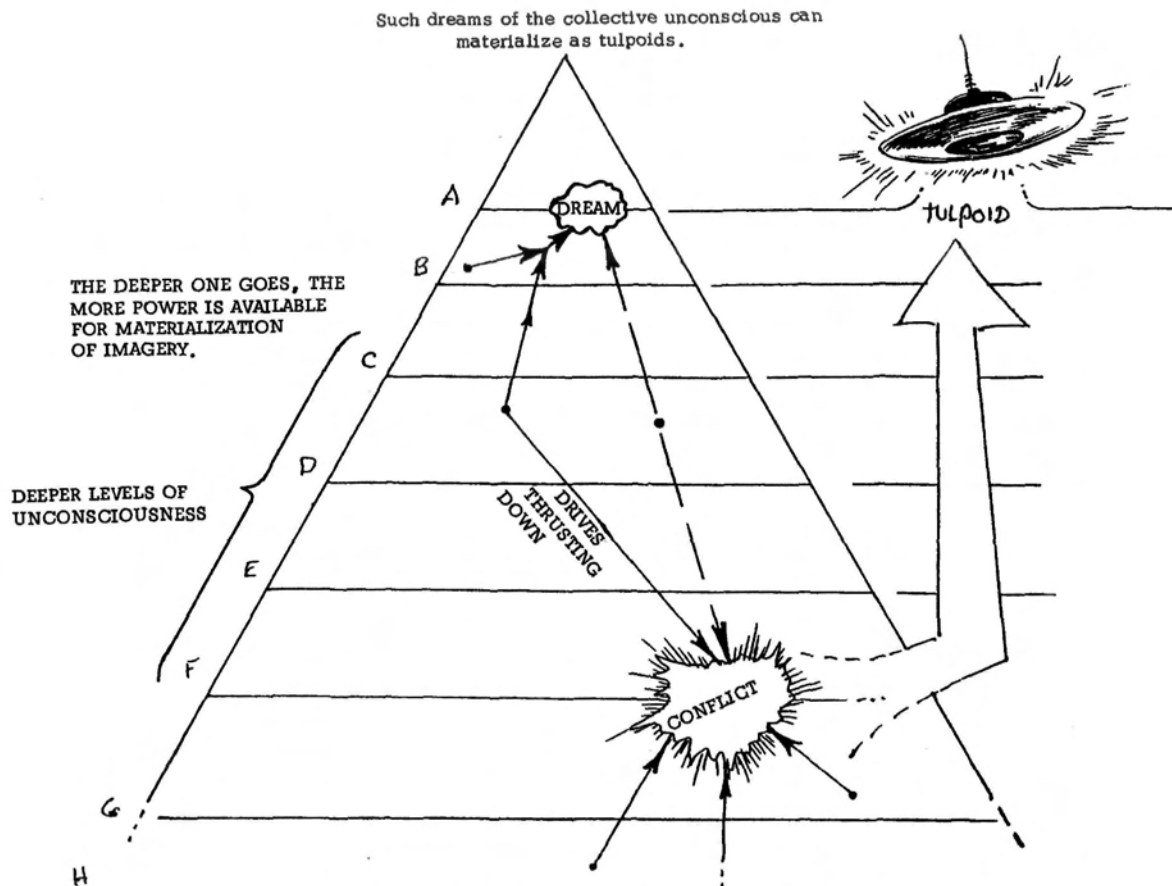
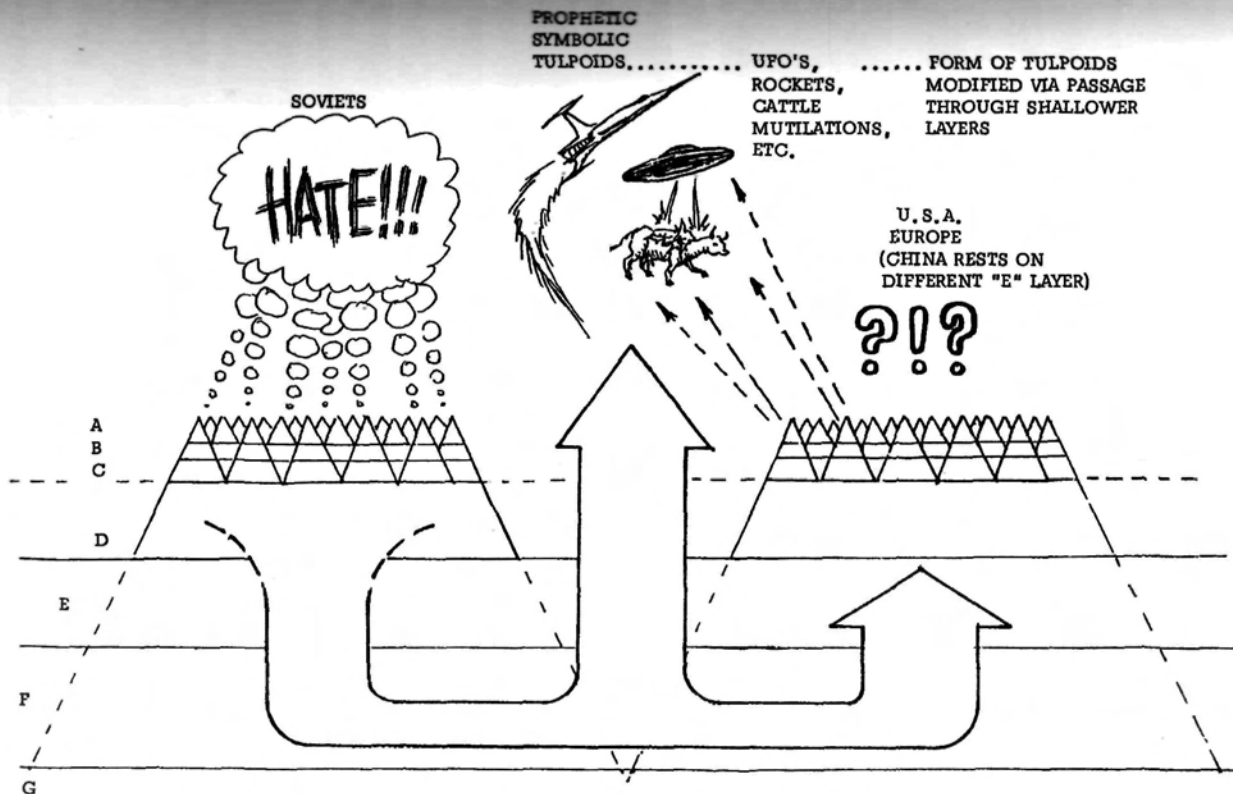


Fig. 29. Dreams are unresolved conflicts



THE PSI CHANNEL IS LIKE A QUASI-HYDRAULIC U-TUBE. CONSISTENT PRESSURE INTO DEEP LAYERS RESULTS IN UPWELLING TULPOIDS WHOSE FORM IS MODULATED AND SHAPED BY SHALLOWER LAYERS, ON THE WAY TO MATERIALIZATION.

Fig. 30. Collective conflict initiates prophetic tulpoids

inceptively. It is not accidental that the Avatar Jesus exhorted man to love God with all his heart and mind, and to love his neighbor as himself. It is also not accidental that a human culture seeks and "obtains" a godform or god-image consistent with its own level of understanding and belief; the resulting tulpoidal activity conditioned into the collective unconscious and the cultural unconscious, and tuned in from them, will be consistent with the cultural desires and expectations.

So in a sense we are the creators of our own reality and our own tulpoidal expressions of higher reality. But in addition to tulpoids, the present character of spacetime and dimensionality, and the very laws of the physical universe, are largely prescribed by the collective human unconscious.

GHOST ROCKETS AND FLYING SAUCERS: MATERIALIZED TULPOIDS

Unfortunately, from 1945 to 1947 events occurred that caused a split among previous World War II allies and that led to the beginning of the Cold War in 1947.

Due to these events, Western nations perceived a growing threat from the Soviet Union. The resulting interplay of events, news reports, and personalities, plus the traumatic aftermath of World War II, led to strong psychological pressure on the group unconscious of the Western nations, and thence on the collective human unconscious. This pressure resulted in popouts of direct orthorotations of resonant archetypal symbols from the collective unconscious, the archetypal format being successively modified by the Western group unconscious and the progressively higher levels of unconsciousness.

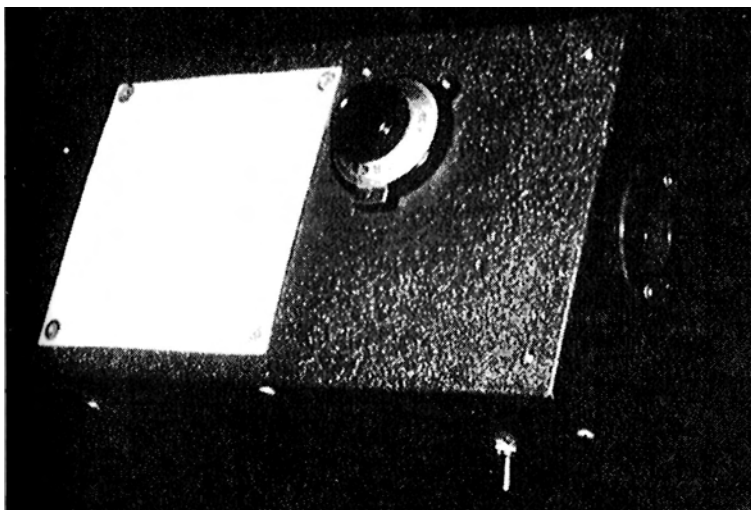
The formats of the deep human unconscious were formed millions of years ago in the primitive tribal state. In the tribal warfare of those ancient days, the male went to where the action was, while the female stayed behind in the protected cave, fortress, or shelter to care for the young. Thus the male symbol was closest to the threat and identified with being there.

Furthermore, in primates the phallic symbol is the universal symbol of threat, dominance, and defiance. Dominant primate monkeys often briefly mount submissive males to show their dominant position, exposing their genitals in so doing. If the mounted male does not submit, an immediate battle ensues to determine the dominant male. Thus the phallic symbol represents threat and domination.

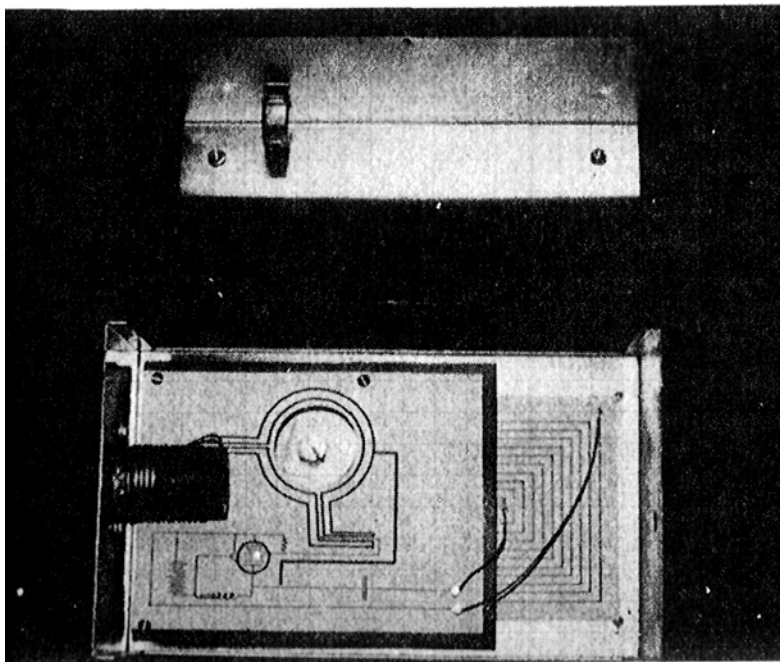
In the deep human unconscious, fire is a symbol of power, for with fire the species held predators at bay and began the long trek up from the jungle cave to modern civilization.

Finally, the unconsciousness of a substantial number of the Western nations had been deeply impressed by the German V-1 and V-2 rockets during World War II, for the imagination of the world had been breathtakingly fired by the surprise advent of the German rocket weapons.

Thus we would expect that in those Western countries — Norway, Denmark, Sweden, etc. — that are close to the Soviet Union, archetypal tulpoid popout materialization would have taken a male, threatening, dominant, power format. The nearest, most powerful, most resonant recent stimulus symbol in the Western group unconscious would have been the final modulation, determining the final format.



Outside showing contact plate, sample well, tuning vernier, and on-off switch.



Inside, showing India Ink drawing of *an* amplifier schematic, used as the "amplifier."

Photo 41. Hieronymus device — second kind.

So a massive wave of "ghost rockets" from the direction of the Soviet Union appeared in the skies over Norway, Sweden, and Denmark, and other nearby European countries. (See Photograph 43.)

However, North America constituted a natural fortress with great ocean barriers to the east and west, and no strong enemy to the north or south. Therefore, a female symbol (archetype) should have been resonant and stimulated in the U.S., and so it was. In 1947, the year the Cold War began, Kenneth Arnold, flying over the state of Washington (the most northwestern U.S. state at the time, and the one nearest the Soviet Union), encountered a formation of flying saucers — the female circle mandala, dressed in modern aeronautical form. Thus was born the age of flying saucers in America.

PART THREE

NEW MILITARY APPLICATIONS OF PSI RESEARCH

BACKGROUND TO PSYCHOTRONIC RESEARCH IN THE U.S. AND THE U.S.S.R.

In this section I will discuss some of the fantastic psychotronic weapons that have been built and deployed by the Soviets as a part of operation "Fer-de-Lance," the Soviet plan to conquer the world.

The Soviet Union has had a massive developmental program in what they call energetics or psychoenergetics (and what we are calling psychotronics) for about thirty years. To appreciate the mind-staggering weaponry that has emerged from this effort, I should point out that the U.S. developed the atomic bomb in World War II in about four and a half years; thus the Soviet psychotronic program is the equivalent of roughly seven Manhattan projects, back-to-back. With this comparison we gain a rough yardstick to appreciate the fantastic capabilities that must have emerged from the sustained Soviet program. As we will see, they are indeed mindboggling.

Ironically, most of the original theoretical work was done here in the United States, just as the pioneering work in rocketry was done here by Goddard, before the Germans picked it up and advanced it to the V1 and V2 rockets. Just as Goddard himself was once the laughing stock of the Pentagon, so the key U.S. researchers who could have initiated the psychotronic age in the West — Moray, Abrams, Reich, Hieronymus, Drown, Tesla, de la Warr, etc. — were generally ignored or prosecuted or both. Even more deadly has been the studied avoidance of any application of the basic theoretical work — which again was developed largely in the U.S. This work included the Everett-Wheeler-Graham many-worlds interpretation of quantum mechanics, and the extension of Lorentz's work by Ives, Ruderfer, and others to show that almost all modern physics — including general relativity, Newton's laws of motion, and the law of universal gravitation — can be straightforwardly derived from a Lorentz-invariant nonmaterial ether. Even though Pauli pointed out that the Michelson-Morley experiment only eliminated a material ether rather than ether per se, and although Einstein himself once proposed the use of the term ether to include dimensionless vacuum space complete with various fields, modern physics in the West has ignored the ether theory.

As Robert Anton Wilson points out, whatever you believe imprisons you. The West has been solidly imprisoned in its own orthodox view of physics, and hence has been unable to surmount the stone walls of its self-imposed mental barriers. In fact, it has not even tried. There has been no serious, sustained program to deliberately examine the loopholes in present theory and seek the necessary changes to provide a theory of paranormal-psychotronic phenomena. In fact, the major Western work on paranormal phenomena seems only to attempt to "prove" over and over that such phenomena exist; and to attempt to derive from present physics theory a "normal sane" theory for "abnormal insane" phenomena. The orthodox establishment continues to vigorously attack the experimenters who struggle with paranormal research on the grounds that their work does not present science. Hence the experiments and experimenters are unscientific and either at worst frauds and charlatans or at best seriously deluded.

The simple procedure necessary to solve these questions — set up a deliberate, well staffed, well-funded program on a continuing basis — has not been adopted in

the West because of the short-sightedness of our management structure. We seem to have totally forgotten that we got the atomic bomb in the first place and we put a man on the moon, simply by starting a program with staff and funds to try to do it, not by engaging in a neverending series of arguments as to why it could not and should not be done.

So, ironically, the nation that prides itself on being free and liberal has adopted an iron dogma of its own in science, a dogma that yields very slowly and that has effectively blocked us from serious and prolonged efforts in psychotronics.

Meanwhile, the Soviet scientists — admittedly kicked firmly in the tail by Stalin — have simply got off their dust-encrusted seats with alacrity and got to it. In thirty years of such getting to it with massive state support, they have already launched the psychotronic age, first applying it to the weapons field, the typical Soviet priority. Meanwhile, for the same thirty years we in the U.S. have played the same old tired games that once led Heisenberg to remark that new scientific knowledge only gained acceptance when the old scientists who so adamantly opposed it had died away.

Finally, there is a direct relationship between UFO's, psychotronics, the collective human unconscious, the Cold War, and Fer-de-Lance that cannot be escaped. So while this section emphasizes psychotronic weapons deployed by the Soviet Union I continually remind the reader of the concepts involved in the related paranormal phenomena, which were covered in Parts One and Two. So with these words, let me give a brief summary of Soviet psychotronic weapons. Make no mistake, it appears that the final holocaust is now unavoidable — we will reap the full rewards for our smugness, pride, arrogance, and inflated egotism.

The Soviets will unleash World War III and they will unleash the psychotronic weapons on a totally unsuspecting world.

But there is something more; it does not end there. There is another player in the game — the collective human unconscious, ZARG itself, will unleash a reaction that makes psychotronic weaponry pale by comparison. Yet when that great entity has roared out its anger, destroyed perhaps half the earth, and then opens its eyes, the full biblical prophecy will in a most bizarre and unsuspected way be fulfilled.

Time will end, and the grave will give up its dead. The unifying of all human minds into one will complete the birth of a new godlike being, extending from the beginning to the end of time all at once, and from beginning to end of all possible times all at once. Three-dimensional concepts and limitations will fade away as child's play to the being that is already in four billion dimensions.

And you and I will become gods, literally, actually — for being is holographic, and whatsoever ZARG becomes, so we all become.

PSYCHOTRONIC BACKGROUND SINCE WW II

After WW II Soviet scientists were ordered by Stalin to actively seek another area of great breakthrough — such as the U.S. atomic bomb had been — and leave no stone unturned in their search. Apparently the Moray detector was resurrected and intense experiment and development begun on it. Much of the pioneering radionics work of the West and Ive's work would also have been available at this time. I believe that in 1958 the Soviet nuclear catastrophe near the Urals was the

result of an attempt to transmit a nuclear explosion through hyperspace. (The peculiarity of a transmitter tuning failure would have resulted in an explosion emerging from the nearest large nuclear waste storage, and that apparently happened.)

In 1956, however, a major new interpretation of quantum mechanics was originated by Hugh Everett at Princeton University under the world-renowned John Wheeler. This is the theory of the universal wave function—the many-worlds interpretation (MWI) of quantum mechanics. Practically the entire Western output on the subject is available in his 1973 book entitled *The Many-Worlds Interpretation of Quantum Mechanics*.

This physics is so exceedingly strange that it has been ignored by almost all Western physicists — indeed, it is so strange that even its originators, Everett and Wheeler, are said not to be able to believe it. Wheeler is reported to have once stated that he could believe it on Monday, Wednesday, and Friday, but not on the other days of the week. Using the MWI, however, one can produce a theoretical model of psychotronics which is totally consistent with the entire experimental basis of modern physics, and unite both mind and matter on a single scientific basis.

The Soviets apparently seized on this new theoretical work and applied it to the Moray device, solving their theoretical and technical difficulties.

In 1960, Khrushchev, speaking to the Presidium, stated that the USSR had a new weapon in development ("just within the portfolio of our scientists, so to speak") that was so powerful it could wipe out all life on earth. I believe he referred to the nuclear hyperspace howitzer and to the death ray weapons under development at that time, such as the following.

ELECTRON DISSOLUTION

There are four levels of effects on biological systems that are irradiated by electron dissolution beams.

Interference with the electrical functioning of the nervous system is the dominant effect. Single channel subsystems are more sensitive to the effect.

Mild irradiation (or mild kindling of short duration) causes weakness, trembling, and an unreal, dreamy feeling (as when one gets a whiff of anesthesia). The victim is conscious, however, since consciousness is limitedly multichannel.

Moderate irradiation (or kindling of moderate duration) causes paralysis of the motor system, and a very unreal, floating feeling. The individual is barely conscious and is hypnagogic. Panic is usually engendered.

Strong irradiation (more protracted kindling) causes loss of consciousness in addition to paralysis. The autonomic nervous system still functions with difficulty, and the victim is just barely alive. Convulsions and other symptoms may appear.

Very strong irradiation (protracted kindling) totally jams all levels of the nervous system, and death results instantly.

In UFO contactee incidents this effect is widely demonstrated. Many cases show step function failure of automotive electrical systems, lights, radios, etc., as a UFO approaches. When the UFO departs, the electrical systems almost invariably resume complete operations. Absolutely no electrical components are damaged.

To extinguish these systems with massive RF fields would result in blowing fuses, diodes, transistors, etc., and a great amount of electrical sparking — probably sufficient to blow up the gasoline tanks. In fact, none of these things occur.

Stage 2 electron dissolution should definitely disable automotive circuits, and the upper level of stage 1 may be sufficient. Either would leave the automobile passengers conscious, though paralyzed in one case and not in the other. Both types of correlations are shown in the UFO literature.

THE 1973 CONTACTEE WAVE AND CATTLE MUTILATIONS

In 1973 the Yom Kippur war took place. This was the Soviets' "Spanish Civil War," and they tested the final tactics and equipment for antitank and antiaircraft weaponry, and obtained final data on tank and equipment loss rates for modern combat. The effect on the U.S. and NATO of the cutoff of Arab oil was also tested.

At one point, when the Israelis cut off an Egyptian army in the desert, the Soviets notified the U.S. over the hot line that Soviet forces were going in and the U.S. could do whatever it pleased. The Soviets loaded and readied seven airborne divisions to insert, and the U.S. readied its single airborne division to send in. So the world teetered on the brink of direct ground confrontation between the Soviet Union and the U.S., with all its possible consequences.

Confrontation is after all another form of *contact*. And UFO contactee cases involve *confrontation*. In the very month, October, that the Yom Kippur War erupted, the greatest wave of UFO contactee cases in history broke out in the U.S. Further, in the shallower unconscious levels above the collective species unconscious, which were modulating and molding the tulpoidal reality format, the imagination of the world had been captured by the spacesuited astronauts who had walked on the moon. So most U.S. contactee cases involved spacesuited beings, conditioned into that framework by the national, cultural modulation. Some of the contactee cases involved robots or metallic men, similar to the mechanisms and robots of the U.S. space program. And here in the U.S., the fortress, the female-mandala craft symbol was generally maintained.

Now if this unbelievable scenario has any validity, then after the dress rehearsal of the 1973 Yom Kippur War we ought to have seen an increase in the tulpoid phenomena of a sharply symbolic nature. And that has happened.

The cow is the Western female symbol par excellence; Western children nurse on cow's milk, so to speak. If the U.S. fortress is to be violated, then the female symbol will be violated as the time for the Soviet assault nears. So cattle mutilations of a mysterious, paranormal nature have been occurring all across the U.S. — from the East Coast out through Colorado, Utah, and Montana — approximately nine thousand by now, in some estimates. The symbolism in the mutilations can be easily read: the U.S.'s lifeblood is going to be drained, totally, as all the blood is usually drained from the cattle. The Soviet operation will be launched with blinding speed and surgical precision, and the mutilation of the cattle is done as if by highly skilled surgeons. The children of the West shall be cut off from their sustenance, and so the cow's teats are removed. The armed forces (males) confronting the Soviet forces will be devastated (i.e., the fruit of the womb will be

Precursor(s)	Wave(s) / Incidents	Comment
German rockets in WWII/Soviet threat in 1946-47	1946-47 ghost rockets over Sweden and adjacent countries, from direction of U.S.S.R.	Phallic tulpa symbols
Buck Rogers/sci-fi ships Cold War 1947	1947—Flying saucers	Circle/Disc mandala in scientific dress
1950 Critical Korea period	1950 Wave of UFOs	Peak pressure surge on collective unconscious
1952 Critical Korea period	1952 Wave of UFOs	Peak pressure surge on collective unconscious
Sputnik 1957-1959	1957-1960 Wave of UFOs	Peak pressure surge on collective unconscious
Cuban missile crisis 1962	1962 Wave of UFOs	Peak pressure surge on collective unconscious
Arab/Israeli War 1967	1967 Wave of UFOs (4th largest)	Peak pressure surge on collective unconscious
Arab/Israeli War 1973 Near confrontation U.S. vs U.S.S.R.	Spectacular 1973 wave contactees increased, space-suited beings increased	Peak pressure surge on collective unconscious; astronauts had walked on moon.
Soviet attack preparations completed	1975-present cattle mutilations in U.S. heartland	Cow is female symbol. The female (fortress, sanctuary) will be violated.

Fig.31. Examples of UFO waves



October 11, 1973 UFO CE III
The Pascagoula incident from the witnesses' viewpoint.
Humanoids were atypical.

Fig. 32. 1973 Contactee wave

devastated) so the sexual organs of the cows are excised. Free speech and freedom to hear will be cut off, so the cow's lips, tongues, and ears are excised. A very high (psychotronic) technology will play a role, but one which will limit resistance, so the cut edges are often made as if by pinking shears and then precisely burned as if by a laser. (The laser is symbolic of new, strange technology almost incomprehensible to the average person.) In one case a horse was the victim — a young horse, symbolic of the young soldier. It was castrated, as the dominance of the Western soldier will be surgically excised. Castration of the male symbolizes the total loss of his power and the infliction of impotency upon him.

There is more, but this is a bloodcurdling sampling of the metapsychological implications of the cattle mutilations.

RADIATION OF THE U.S. EMBASSY

About 1959 or 1960 the radiation of the U.S. Embassy in Moscow with weak microwave radiation began. It continues to this day. The radiation is a brilliantly designed intelligence probe: the Soviets were vitally interested in ascertaining whether or not their U.S. adversary knew about psychotronics (i.e., whether the U.S. had built such weapons of its own and might have built defense counterweapons as well). Accordingly, they began weak PT-modulated microwave radiation of a high-level U.S. target, the U.S. Ambassador to the Soviet Union, which would guarantee the personal attention of the State Department, NSA, CIA, DIA, the President, etc. The PT modulation apparently consisted of various disease patterns of gradually increasing seriousness — flu, blood changes, heart irregularity, cancer, etc. By the U.S.'s reaction, whether or not it knew anything of PT could be positively assessed. If the U.S. reacted only to ordinary electromagnetics, then with 100 percent certainty it knew nothing of PT and had no secret PT weapons of its own or counters to the Soviet PT weapons. So since about 1959 or 1960, by our slow reaction to the radiation of the U.S. Embassy — and then by our reaction only to the electromagnetic aspects — we have been assuring the Soviets that we know nothing of PT. Even though several U.S. presidents have protested the radiation, the Soviets have persisted because it is an intelligence tool of the utmost importance to them.

DISEASE AND DEATH TRANSMISSION

For confirmation of Soviet experimentation with PT induction of death and disease, see V.P. Kaznacheyev et al, "Distant intercellular interactions in a system of two tissue cultures," *Psychoenergetic Systems*, Vol. 1, No. 3, March 1976, pp. 141-42; and by the same authors, "Apparent information transfer between two groups of cells," *Psychoenergetic Systems*, Vol. 1, No. 1, December 1974, p. 37. These articles give one a glimpse of the results of over 5,000 Soviet experiments on the basic effect. Kaznacheyev is the head of the Siberian Branch of the Soviet Academy of Medicine, and has at his disposal every disease germ, virus, and toxin known to man. Note that the experiments were performed in the dark to prevent the quenching effect of the visible light spectrum and the effect is only obtained

through the quartz (which has IR and UV windows). Also note that in the two-slit experiment — which contains all the mystery of quantum mechanics, according to Nobel prizewinner Richard Feynman, cofounder of quantum electrodynamics — one does not get the quantum effect with an electron, if the electron is first hit by a photon of light before reaching the two-slit region. If the electron is not hit by a photon, one gets the quantum effect. According to Feynman, the quantum effect in the two-slit experiment is not explainable by any classical means. Our comment is that the explanation is not possible by Aristotle's three laws of logic, on which all Western logic, physics, and mathematics are based. However, the fourth law of logic, together with the present three laws, provides a closed metalogic which does contain the explanation of the two-slit experiment, as we showed in Part Two. The fact that there is no problem in explaining the experiment if one takes into account the nested structure of time was pointed out as long ago as 1957 by Dr. Charles Muses. Similarly, the disease and death transmission experiments of Kaznacheyev et al have been explained in Part Two.

OTHER WEAPONS

Clandestine testing of PT weapons also appears to have been accomplished directly in the U.S. The Legionnaires' disease may have been one such test. The suspect agent was actually seen, according to sworn testimony before a Congressional committee. A person with a book-sized object in his hand (tape recorder with PT pattern), a tobacco-pouch sized object in his coat breast pocket (transmitter) and a wire running to his tie clip (antenna) was present and mingled with the Legionnaires for several hours. He was heard to exclaim several times to various Legionnaires that it was too late and they were all doomed. The eventual appearance of the weird "biological agent" that is different from any other germ known can also be explained by kindling from the anxious minds of the baffled U.S. researchers and scientists. Other such tests have also apparently been conducted.

HYPERSPACE HOWITZER OPERATION

The facility at Semipalatinsk is a third-generation hyperspace nuclear howitzer. It can transmit a full nuclear explosion through hyperspace into a tuner planted anywhere in the universe, without traveling through or in normal space at all. Furthermore, it has a unique characteristic: any number of receiver-tuners may be tuned to the transmission channel and each will have the full nuclear explosion emerge from it, undiminished.

Thus, one channel might be for U.S. Minuteman sites, and a tuner on that frequency (say one containing 100 transistors, sealed in plastic and buried in the earth) could be replanted near each Minuteman site. Another channel might be for all the SAC bases, another for large U.S. cities, another for nuclear weapon storage sites, etc. Any or all of these could be connected to a single blast transmission, simply by controlling the channel width over which the hyperspace transmission occurs.



Fig. 33. Cattle mutilations

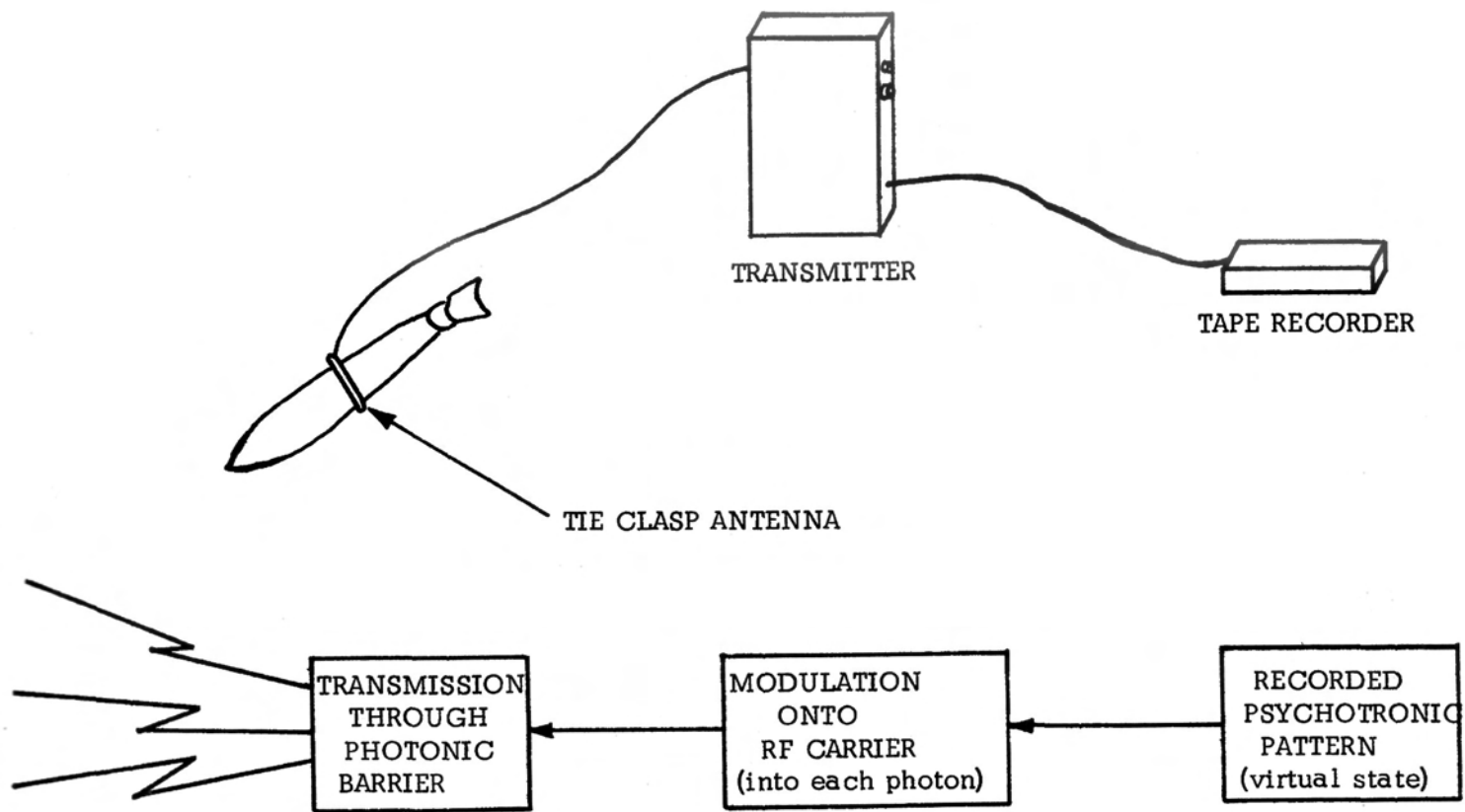


Fig. 34. Induction of Legionnaire's disease

Here one must not confuse ordinary single-channel conservation of energy with hyperspace operation. The transmitter corresponds to the grid of a gigantic triode, the preplanted receivers constitute the plate area, and zero-point vacuum energy constitutes the cathode energy source. So just as in a triode, energy is conserved from cathode to plate, but not exclusively from grid to plate. Since zero-point vacuum energy is being gated by the triode grid (the howitzer) signal (the explosion), the energy that can be outputted at the plate (from the tuner-receivers) is essentially unlimited. Any number of receiver-tuners can be connected to a channel, merely increasing the plate area. And from each tuner there can emerge a full-scale, undiluted replica of the explosion in the howitzer at Semipalatinsk.

Thus a single nuclear blast at Semipalatinsk can in one instant wipe out all hind-based strategic nuclear retaliation capability in the Free World, if the preplanted tuners are on site.

An additional modification — something like additional orthorotator rings surrounding the primary hyperspace orthorotator ring — may have been made to the nuclear hyperspace howitzer within the last two or three years. If so, this would have the characteristic of materially reducing the "spillage" fraction of the nuclear explosion and also the vibration associated with a firing. There is a possible indicator of this: quoting from *Science*, "On five occasions during the first half of 1976 traces of neptunium-239 and molybdenum-99 were detected in southern Sweden. These activities were accompanied by small amounts of fission products such as iodine-131 and barium-140. One of the events was coincident in time with large peaks in the atmospheric tritium gas concentration." (Lars-Erik DeGeer, Swedish National Defense Research Institute, "Airborne short-lived radionuclides of unknown origin in Sweden in 1976," *Science*, Vol. 198, No. 4320, 2 December 1977, pp. 925—27.) These events were concentrated during the time the Semipalatinsk experiments are reported to have started, yet no seismic activity was associated, as would have been the case if ordinary nuclear explosions had occurred in normal space inside a containment sphere for a large particle beam experiment. On the other hand, if a very high percentage of the explosion were transmitted/rotated into hyperspace, then residual traces of a nuclear explosion would have been present in the atmosphere because of the very slight spillage venting into normal **space**, but almost all mechanical shock and vibration would have been eliminated. It is at least a striking correlation that exactly such indicators are present, as reported by DeGeer.

A clever adversary who becomes aware of the necessity for preplanted tuners could use a very simple but completely effective countermeasure: simply locate the timers and dig them up, then clandestinely put them back into Soviet territory. Or **build** tuners of one's own and plant them in Soviet territory. Thus it would seem imperative to develop a mode of operation that does not require preplanted tuners at the target area.

This capability can be provided by using the howitzer in an interferometer mode — by constructing additional orthorotation rings around the firing chamber (but a "hyperspace interferometer" exists. With this scheme any point on earth can be precisely focused on by the howitzer, and no preplanted tuner is necessary. The advantage of this mode is the elimination of the need for clandestinely preplanted receivers, and the freedom to operate in spite of any receivers preplanted by the adversary on Soviet soil. The disadvantage of the interferometer is that the

former "triode" operation has now been converted to "diode" operation — when one explosion is put into hyperspace, now a single explosion at a single target area emerges, since a single selected spatial location is now exclusively determined by the interferometer settings.

For a more complicated interferometer mode, orientation and alignment of the interferometer's indicators and controls and amplifiers would be necessary. This could be done using fractional kiloton yield weapons — or even ordinary HE explosions — and focusing the howitzer at a displaced aiming point, at some distance from the target area. This is simply the standard artillery technique of registering a gun on an offset registration point, then performing an x-y shift to the intended target when the gun is fired.

Orientation and alignment of such a weapon system probably accounts for the sonic booms — mysterious high altitude explosions — off the East coast of the U.S. in December 1977 and January 1978. Over the West coast, mysterious explosions occurred inside thunderstorms; these also could well have been the adjusting of the weapon. By using about 100 tons of TNT explosive in the howitzer, a very good high burst registration could be made, and "forward observer" agents in the U.S. could observe the bursts through optical instruments and report their exact positions, thus calibrating the interferometer settings. Of course, mysterious booms have been around for quite a few centuries; however, these "normal but unusual" phenomena have quite a different sound than does the howitzer shot. The natural booms are not so much like single giant explosions as like rolling thunder. Furthermore, several observations of the booms off the U.S. East coast confirmed light flashes (which have not been seen to accompany the natural booms) and swirling or rotating effects in the flashes. Also UFO's were directly associated with some of the booms, revealing the stress factor on the collective human unconscious, implying their Soviet psychronic origin. A few years ago similar high altitude booms occurred over Ohio and surrounding states, and such booms have also occurred off the coast of England.

Thus the howitzer may have been accurately aligned for diode operation, calibrated near the East coast, on the West coast, in the center of the U.S., and near England. Furthermore, its firing rate and recovery time were also apparently checked out; five booms occurred on one day and after a lapse of several days, the booms occurred again.

As I describe the fantastic psychotronic weapons the Soviets possess, the reader may wonder why the Soviets have not already attacked. The reason is that the superweapons have a strange weakness and failure mode possessed by no other kind of weapon. The hyperspace amplifiers in the psychotronic weapons depend on a large number of stages, say sixty to one hundred, and the hyperspatial flux in all these stages must be very stable and isotropic. At odd intervals the flux coming in from hyperspace suddenly becomes turbulent; this destroys the smooth coherence in the multiple stages of the amplifiers, and thus the basic amplification mode. Thus *all* the psychotronic weapons will suddenly cease working at the same time, and this "all fail" mode may last from fifteen minutes to even three weeks in an extreme case. Thus the weapons are erratic and not dependable. For this reason, the Soviets dare not rely *exclusively* on them, and so they have been forced also to prepare for full nuclear war as a distinct possibility when they launch operation Fer-de-Lance, the full attack. They have thus built up their regular army, their

navy, their strategic offense systems, and their strategic defense systems on a scale unparalleled in human history. Today the Soviet Union is the strongest nation on earth — by far — and is fully prepared to launch World War III and win it, with or without superweapons.

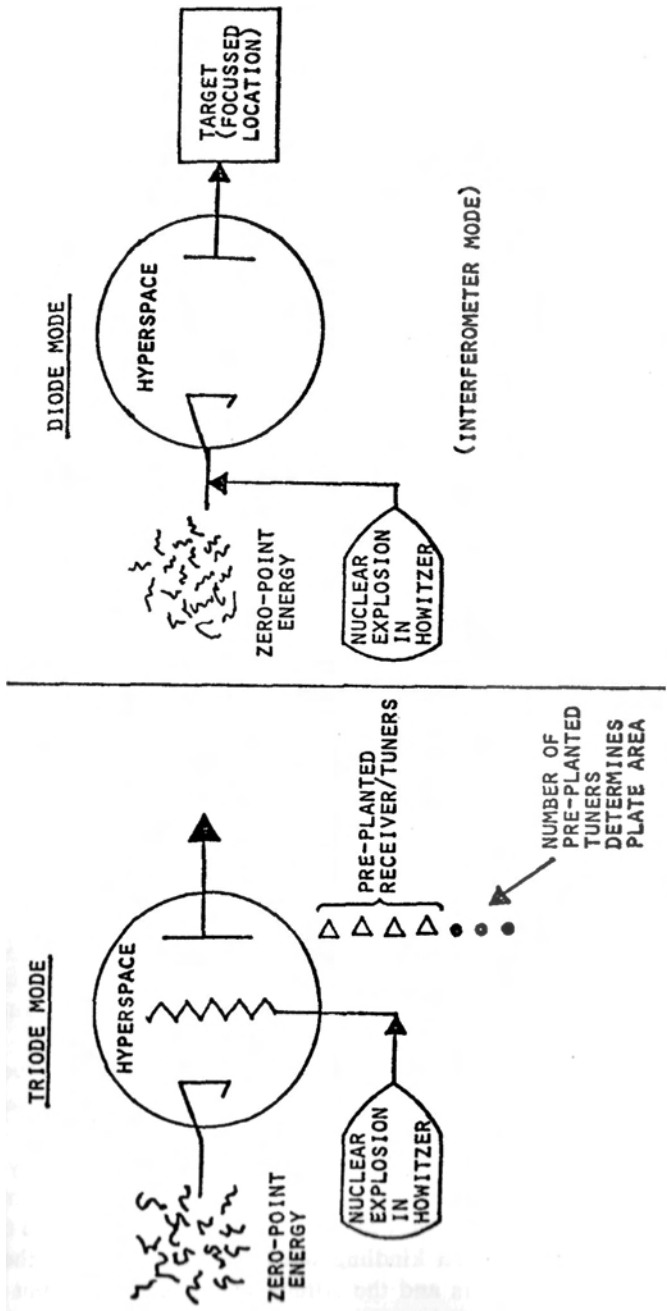


Fig.35. Hyperspace howitzer operation (2 figs)

A POSSIBLE OPERATIONAL TEST OF PSYCHOTRONIC ANTI-AIRCRAFT WEAPONS

When the F-111 all-weather attack aircraft were deployed in Vietnam, a rather interesting loss rate pattern emerged. Of the forty-eight F-111's in operation, eight were lost at the beginning of the action, but no losses occurred thereafter, according to General Vogt, the officer responsible for U.S. air operations at the time.

Initially there were some radar anomalies and other system malfunctions with the aircraft, but these problems were quickly resolved. The F-111's flew singly, extremely low, and without radio contact. Between September 1972 and the end of hostilities in Vietnam, the F-111's flew over 4,000 sorties, never losing any planes other than the eight lost initially.

The reason for the loss of the eight planes remains a perplexing mystery. In fact, there is no knowledge of exactly where the planes were lost, except in one case. That F-111 was downed over Hanoi, and its two pilots, Captain Robert D. Sponeybarger and 1st Lieutenant William W. Wilson, were captured alive by the North Vietnamese. The two airmen were later returned under the prisoner of war exchange program, and they then told of the loss of the aircraft, which took place under very strange conditions.

According to the two crewmen, they met a sudden disaster while flying over Hanoi at night, supersonically, and at very low altitude — only a few hundred feet above the earth. Without warning the F-111's emergency indicators lit up like a Christmas tree, indicating massive and multiple failures of unrelated aircraft systems.

They were not hit by a surface-to-air missile, according to the crewmen, because no explosion of a missile warhead, with its concomitant fireball, occurred. If large-caliber automatic weapons fire had hit them, the distinctive streak of the tracers would have been clearly visible in the night sky, and a sharp impact in the aircraft structure would have been felt. None of this happened.

It could not have simply been an aircraft malfunction, because far too many unrelated aircraft systems failed at the same time. (There is triple redundancy in the control system of the F-111, by way of comparison.)

Indeed this initial loss of eight aircraft — and then no further losses at all — is difficult to explain rationally, as are the mysterious circumstances surrounding the loss of Wilson's and Sponeybarger's craft.

However, it requires no stretch of the imagination to realize that the Soviets very much desired to obtain the glittering new F-111 to examine its technical characteristics, its sophisticated design, and its highly sensitive terrain-following radar, ECM gear, and other avionics equipment.

Also, the Soviets had a pressing need to try out one or more of their psychotronic anti-aircraft weapon systems — perhaps one which simply modulates a radar beam psychotronically to induce electron dissolution.

Accordingly, it can be postulated that the pragmatic Soviets simply combined both needs, and quickly set up a psychotronic trap for the F-111's immediately after the aircraft were deployed. They may even have cleverly designed the specific psychotronic modulation so that kindling would occur in some of the aircraft's electrical systems before others and the failure would be massive but not total.

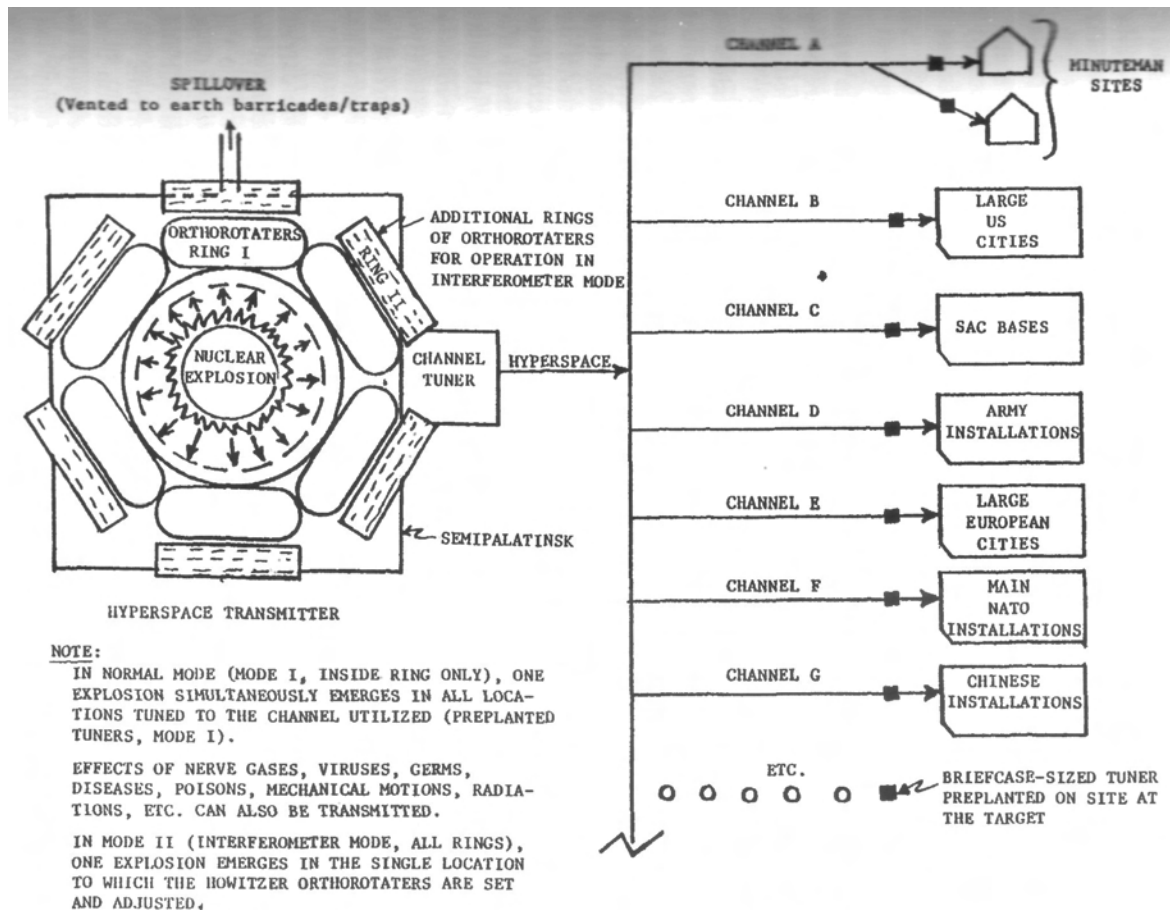


Fig. 36. Nuclear hyperspatial howitzer

And after they nailed enough F-111's for their purposes, they quietly withdrew the psychotronic modulator, to prevent the U.S. intelligence analysts from catching on to just how really strange the losses of the F-111's were.

Thereafter the remainder of the F-111's were successful, and no more were lost. Indeed the F-111 comes in so low and so fast, and so unexpectedly, tilting and dipping as it terrain-follows on its automatic equipment in a manner that no unassisted pilot could fly, that SAM's and guns normally pose little if any threat to it. So once the silent, eery psychotronic antiaircraft components were withdrawn, the normal antiaircraft weapons of the North Vietnamese were unable to down any more F-111's.

And we Americans simply patted ourselves on the back, chortling to ourselves how quickly we had "learned to avoid that danger, whatever it might have been."

POPULATION CONDITIONER

Inducing psychotronic signals into mass populations or audiences can influence or control the behavior of large numbers of persons. As these words are being written, such a psychotronic test is apparently being conducted by the Soviets with Eugene, Oregon as a target; previous tests were conducted in Canada.

Psychotronic signals and the patterns they carry can be, and are, modulated upon electromagnetic carriers — in fact, that is one way they are transmitted through the human body and nervous system. When a television camera picks up the photon field impinging on it from a human body or other biosystem, weak psychotronic patterns are also picked up, since the paranormal time quenching mechanism (by visible light) is never quite 100 percent effective. These patterns are riding then as a special kind of modulation on the radiofrequency or electromagnetic carrier — however, they are not modulated the same way as are ordinary signals. Ordinary signals gate the number of photons per second (amplitude modulation), or change and control the frequency of the carrier photons (frequency modulation), or change and control the phasing (phase modulation). However, psychotronic modulation rides on each individual photon, on its time portion (a photon consists of action — energy x time — and it is the time portion on which the psychotronic modulation is riding.)

Thus psychotronic modulations can ride on the transmitted television carrier frequency. The psychotronic modulations are processed through the television receiver, and a small component is emitted as a weak modulation riding on the photon signals emitted from the television picture tube. Along with the light from the tube, these psychotronic modulations enter the eye of the human observer and are demodulated by the retinal interface, thus introducing weak psychotronic signals into the observer's central nervous system. Given sufficient repetition time (say two to four hours), the kindling effect can cause the human nervous system to be profoundly affected. Any disease or death pattern known to man (and some that are not known to him) can be transmitted and kindled in the target population audience.

In fact, depending on the sophistication of the coded psychotronic signals, it is probable that the modulation patterns can be targeted against a specific racial type, since there are certain genetic differences between races.

So the type of truck that roams the streets of a city, silently monitoring which television channel the viewers are watching, could be modified slightly to induce specific psychotronic disease or death vectors onto the television receivers. Or it could simply modulate the television transmitters. (A very obvious way is to modulate or pump psychotronically the ground of the electrical power supply, and in most cases this can directly pump the transmitters.)

Or the kindling signal can come from satellites, which radiate weak radio frequency signals down toward the target population. Here economy of force can be applied; the same type of kindling that induces electron current quenching is usable as a satellite dudder or killer in an antisatellite role, or is usable as a paralysis and death beam weapon against target populations. It is also useful as a killer of other electromagnetic sensors by either jamming their circuitry or simply **wiping out** (quenching) their emissions which impact on the satellite, preventing any reflected signal.

By this effect, UFO tulpoids often prevent a radar from tracking them, **even** though the tulpoids are visually sighted.

There are literally thousands of applications; these are just a few to give an idea of the overall effect and its usefulness.

And the psychotronic signals can be modulated onto almost any kind of carrier — telephone, television, radio, the magnetic field of the earth, the Schuman resonance of the earth's magnetic field, the ordinary sixty hertz electrical power system, etc.

We might have an entirely different idea of the potency of the Russian trawlers if we appreciated what their use can be in the psychotronic mode.

We can also understand why a television broadcast of Uri Geller in the act of binding metal stimulated both the ability in other persons and the effect in other equipment across England. And also how the effect has been duplicated — at least so far as stimulating other persons to psychokinetic ability — in this country. A direct means of stimulating psychokinetic ability is thus suggested: simply place the subject to be developed or stimulated in a room with a number of television receivers, all tuned to the same visual program, and place the stimulus material on the receivers. The person should visually watch one receiver and should be wearing very abbreviated clothing, such as a skimpy swim suit, to expose the acupuncture plexuses. Also, normal light in the room should be very dim.

At any rate, this and many other schemes are available to produce direct stimulation, and enhance and greatly speed up psychic development.

The effect could also be used to produce an effective treatment device for cancer. Samples of the particular cancer in the body of the patient could be taken, and the invisible psychotronic radiation pattern from the cancer witness could be introduced on the input of a Hieronymus-type device, shielded against ordinary light. The output of the Hieronymus device could then be fed to a bank of phase inverters, which covered in total a broad band (the cancer band, which would have to be established by laboratory experiment). By inverting the cancer pattern, we now have a cancer-extinguishing type of radiation that is specific for the cancer the patient in fact has.

Then by introducing this quenching pattern as a modulation onto the correct tup of electromagnetic frequencies (again this group would have to be determined for the specific frequency plexus that would produce an effect in the local-

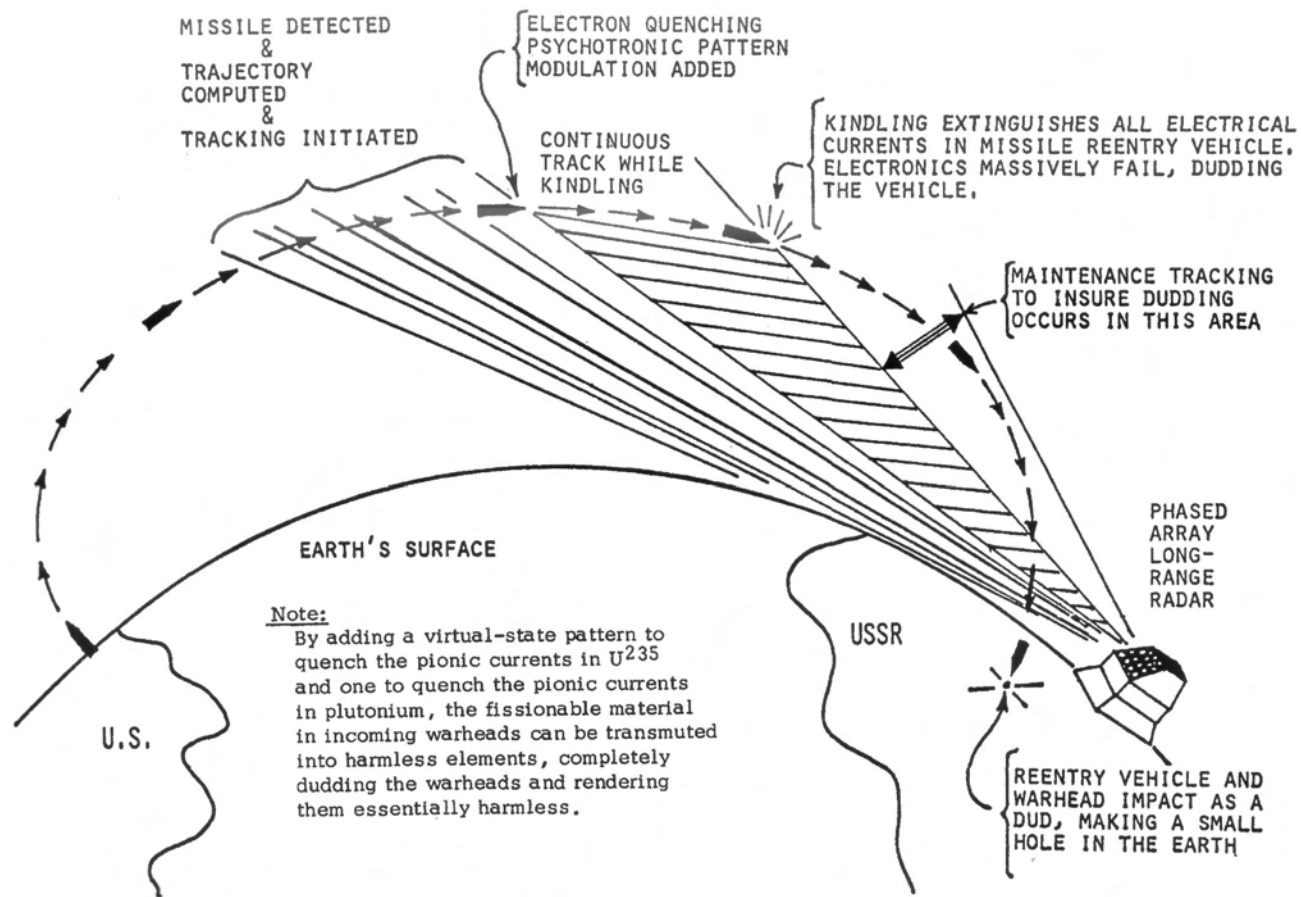


Fig. 37. A midcourse ABM system

ity of the body in which the cancer is located), the proper acupuncture plexus would be stimulated, stripping off the cancer-quench psychotronic pattern and sending it to the specific location of the cancer. Over a period of time (say several very weak microwave radiation periods of two to four hours each), the cancer could be killed completely, down to the last malignant cell. Whole body or spread cancers could be treated simply by increasing the number of frequencies modulated, to hundreds in some cases. Other similar diseases could be treated likewise. As an example, a Curative psychotronic radiation pattern complex could be worked for hydrophobia and such presently incurable diseases, and these could also be effectively treated. The same tool will yield almost unbelievable medical benefits if the scientists can ever be convinced to start the development.

A MIDCOURSE ABM SYSTEM

Here is the scheme for a first-generation, long-range, Soviet midcourse anti-ballistic missile defense system.

A long-range radar — preferably a phased array, scanned radar — acquired and tracks the missile during its midcourse phase shortly after it breaks above the horizon, as viewed from the radar site. The radar programs the track mode beams against the incoming missile, tracking it and gathering sufficient position data to allow its trajectory to be computed. Then a psychotronic electron-extinguishing pattern is added to the radar beam, riding as virtual state carried by each individual photon. Kindling of this virtual pattern energy begins on and in the target vehicle. The electrons flowing in the electromagnetic control system, fusing system, and warhead system of the incoming missile begin to be quenched, turning into neutrinos and radiating away with no physical effect. When sufficient currents have been extinguished, the electromagnetic circuits start failing. (With loss of appreciable power and voltage, most such systems fail.) The incoming vehicle/warhead is now duded, and there is no longer any danger of a nuclear burst from the missile.

For assurance, tracking of the incoming reentry vehicle continues, with a quenching psychotronic modulation being maintained.

The warhead/reentry vehicle strikes the ground, making a hole in the earth, without nuclear explosion. A low order detonation of the HE explosive surrounding the nuclear material in the warhead may occur.

An alternate scheme is, during the maintenance period, to add an HE explosives ignition temperature psychotronic pattern to the beam. In that case, a low order detonation occurs high in the atmosphere or back along the trajectory, removing the warhead and vehicle from further consideration.

As a backup, additional terminal systems — using either psychotronics or normal interceptor missiles or both — may be used. Thus even if the psychotronics fail due to an unexpected "all off" occurrence, ordinary ABM engagement occurs.

An additional scheme is to lock the radar beam onto the missile, then initiate a "Tesla effect" kindling of energy, place it into a columnar traveling wave, and direct it along the radar beam to the incoming missile in its midcourse phase. The midcourse missile is thus struck with a massive plasmoid fireball of intense electromagnetic energy, and massive amounts of energy arc dumped into the missile, destroying it.

Thus the Soviets have known for over a decade that one does not have to hit a bullet with a bullet, if one is clever, and if one possesses psychotronic weapons and psychotronic modulation systems for one's radars.

As an added benefit, the same radar is quite effective against incoming Strategic Air Command bombers or air-to-surface missiles fired from those bombers.

As the Soviets know full well, 100 percent defense is quite feasible, considering the fantastic number of radars and radar sites they possess! In fact many of the Soviet SAM systems are beautiful ABM systems also, in the psychotronic mode.

THE BELL ISLAND INCIDENT

On April 2, 1978, something unusual hit the Canadian community of Bell Island, off the east coast of Newfoundland; Bell Islanders—and a lot of other people as well—are still trying to figure out what it was. It was first described as an unidentified atmospheric explosion, but this theory was quickly rejected. Jim Beckford of Lance Cove, Bell Island, lost all six chickens in the coop behind the house, which was torn up as if hit by lightning, although there were no burn marks anywhere. A television set exploded, and switches blew out of the wall. Similar things happened to many other homes.

In the woods behind Mr. Beckford's house, three holes in the snow appeared, spaced about two meters apart to form an almost perfect equilateral triangle. The Royal Canadian Mounted Police said that persons on the shore of Conception Bay reported seeing fireballs coming down out of the sky and hitting Bell Island. The Canadian authorities attempted to play down the incident, and the official version of what happened is that lightning hit a transformer, blew up, and that the energy then followed the wires to neighboring houses. However, the researches of P.A.C.E. (the Planetary Association for Clean Energy, Ottawa) have produced a different conclusion.

P.A.C.E. believes that a standing columnar wave originating in Gomel in the Soviet Union was moving to a station located just east of Havana, Cuba, and collapsed over Bell Island, triggered by the large iron ore body there. These plasmas then exploded and hit the ground in a perfect equilateral triangle formation. The tremendous flashes indicated a very great discharge of electrical power, probably more than a hundred million volts.

Photo 44 shows a similar incident that took place at Lake Ontario; here I feel that the photo demonstrates more than just UFO activity — it shows one part of the testing and operational alignment of the "over-the-horizon" radars at Gomel and Riga in a Tesla mode. To explain this, I must explain what I mean by a Tesla mode.

Empty vacuum is filled with stupendous amounts of uncorrelated electromagnetic energy: one cubic centimeter contains enough energy to form entire solar systems, if the energy were condensed into matter. This raw energy is called "zero" point energy," and the Soviets reported direct measurement of it in 1957 (*Soviet Physics*, JETP 3, 819). Zero-point energy is everywhere, it is incoherent, and its detection requires measuring an energy difference, so that it is very difficult to detect. Usually less than one quantum of energy is cohered at any one mode, and the energy rapidly changes frequency, so that linear detectors cannot resonate

coherently with it to follow its signal. In my opinion, it is also in the virtual state, and in a space orthogonal to our own, by two or three turns.

An electromagnetic signal is transmitted through the earth and reflected from the opposite side in phase, to form a standing wave. The earth's interior is highly nonlinear, and a single frequency is thus subject to severe scattering and dissipation. Fortunately, nonlinear wave theory provides a simple method to alleviate this; by transmitting two different frequencies, which differ by the amount of the frequency that it is desired to transmit, one can simply pretend that *indeed the beat difference frequency has been transmitted through a linear medium*. In this case, the standing wave acts as a collector to kindle the highly chaotic energy from the core of the earth. These emerging orders that match the standing wave will be entrained by it; one now has established a sort of giant triode, where the signal to the grid is the transmitted difference signal, the energy (cathode) being gated is the energy of the molten core of the earth multiplied by some coupling fractional constant, and the "plate" will come into being if resistance to the standing wave is proffered.

And resistance is proffered by simply changing the frequency of the transmitted collector wave. Changing it in one fashion begins to dump energy into the atmosphere above the former nodal point across the earth from the transmitter. With that effect, one can directly influence the great currents of air and the ionization charge of the upper atmosphere; in short, one can drastically influence the weather itself. On the other hand, changing the frequency in the other direction begins to dump energy into the mantle of the earth; dumping large amounts of energy there will result in shocks and earthquakes at the nearest fault zone(s).

It is my thesis that the foregoing two mechanisms account for some of the drastic weather effects that have occurred in the past several years, as well as for *some* of the major earthquakes that have occurred throughout the earth in the last several years. The Soviets, I believe, have been orienting and aligning—and operationally testing—actual weapon systems to be used as precursors to war or during war. The 1978 Iranian earthquake may well have been Soviet-induced.

The coupled kindling path goes through the earth and is coupled through the atmosphere as well. (This mode is probably easier to steer and focus onto specific target areas. It is also probably easier to play it back and forth as desired, in a "sweep" mode.) Again, with the kindling effect, the energy of the molten core of the earth is coupled into the beam with a coupling fractional constant, and so enormous energy can be built up in the beam. Breaking the coupling — perhaps just afterslightly changing the frequency so as to begin dumping energy into the upper atmosphere over the targeted area — would sharply dump energy at the site, resulting in an enormous plasmic explosion or explosions. In testing such as at Bell Island, probably frequencies would be used that did not offer too strong a coupling fraction, so that relatively little damage would occur at the decoupled target site. However, in actual use in warfare, exactly the opposite would occur; a frequency would be used that maximized the coupling constant and hence vastly increased the energy kindled into and over the target area, and a gigantic plasmoidal explosion would take place directly on the targeted area, utterly devastating it.

The same "radar," then, is usable as a weather control device, as a plasma explosion transmitter, as a bioactive disrupter (with 10 Hz and under modulation pulses), and if further modulated in a virtual state manner, as a direct "death ray"

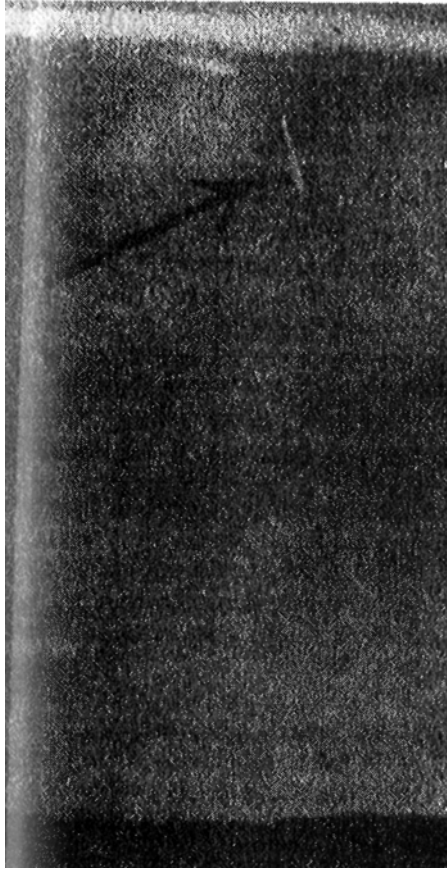


Photo 42. Ghost rockets.

broadcaster through the earth at any target population on the earth. Further, with virtual state modulation it is usable as an antimissile weapon (in at least two modes, one to dud electromagnetic circuits in incoming warhead reentry system and one to transmute fissionable material in incoming nuclear warheads into harmless elements), and also as an anti-aircraft weapon against Strategic Air Command Bombers,

So the Bell Island incident happened, and we in North America sleep on, since in our assurance that it was after all only all lightning, or perhaps only the illusion of a few farout Canadians.

A TERMINAL ABM SYSTEM

There is another more advanced psychotronic ABM/SAM system, which was probably a second generation weapon. This system should have gone on site and become operational about 1968—69, and it should have been operationally tested during that period, probably several times.

Here a triad configuration radar is used to allow use as a hyperspatial interferometer. This allows several localized dome-like bands of very intense psychotronic energy to be focused above the installation and defended area. The focusing is accomplished through hyperspace; the only place the focused energy enters our own space frame is in the dome-like band above the protected area. Tesla-effect accumulators may feed the triads, or they may simply be fed from direct free-energy Moray generator-amplifiers. At any rate, enormous energy — enough to simply constitute a severe tearing and warpage of space itself, and bend it at 90° — is focused into each dome-like band. Each band would be seen externally as simply an intense band or hemisphere of glowing light.

At any rate, by using three consecutively tuned orthorotational bands of focused hyperspace energy, any incoming object will simply be orthorotated successively three times in higher dimensional space, each time losing one dimension in its intersection with our own spatial frame.

After the first orthorotation, masses are now photonic shapes, and photons are lines. After the second, photons are now lines and lines are points. After the third orthorotation, everything is points, and nothing is left.

The three consecutively constitute full dematerialization of anything incoming, whether matter, photon, or force line.

Thus the entire defense problem is immediately solved: regardless of chaff, maneuvering decoys, maneuvering re-entry vehicles, etc., the entire mess is simply nicely and neatly disposed of, and dumped into hyperspace.

Even if a full nuclear detonation occurs above the domed shields, gamma rays, neutrons, debris, x-rays, heat, and ultraviolet do not get through the third band.

Bombers and air-to-surface missiles fail equally.

So the growing Soviet confidence and preparations for imminent war are quite comprehensible. They are not madmen preparing to evoke their own doom from mutually assured destruction rained on them by U.S. strategic nuclear forces; instead, they are snug and safe behind their psychotronic defenses, for nothing we have on this earth can touch them at the present time, if their psychotronic weapons are working.

So they are quite capable of taking on China, Europe, and the U.S. at once, and devastating the lot while risking essentially nothing of Mother Russia.

SWEEP MODE, SWEEPING AWAY A NUCLEAR DETONATION

As a modification of the previous weapon, a sweep mode has probably been added in the third generation weaponry.

In this mode, not only can the three orthorotation shields or domes be placed over an area, but they can then be expanded radially out into space in a traveling mode. Thus if a high altitude nuclear explosion — either in the atmosphere or out of it — has occurred over a defended area, the orthorotation bands can simply be swept over the explosive debris in successive fashion, effectively sweeping the radioactive debris from this spatial frame and dumping it safely into hyperspace. This is a very handy weapon indeed if large megatonnage explosions are engendered — say in areas where terminal defenses have destroyed the incoming vehicle, but it is "dead man fuzed" to provide a full nuclear explosion if the electronics start to fail or if the warheaded re-entry vehicle encounters mechanical shock or turbulence above a certain threshold. With this psychotronic sweeper the otherwise deadly nuclear radiation and radioactive debris can simply be cleaned up and disposed of.

Further modifications of other psychotronic weaponry would have resulted in Tesla-effect traveling wave weapons of enormous power, and rather gentle operational weapons testing of them, such as in the Bell Island incident and over Eugene, Oregon. The interferometer mode would have been added to the nuclear hyperspace howitzer, and Tesla-radars would have been modified accordingly.

These third generation weapons and modifications should have been deployed during the period 1974-78. Engineering development tests would have occurred during 1974-76, and operational testing of on-site, deployed weapons would have been accomplished during 1977-78.

Thus one can reasonably account for a surge in grain elevator explosions, mysterious high atmospheric booms off the East coast of the U.S. and off England, explosions in thunderstorms over the West coast of the U.S., the zapping of a Canadian target outside Ottawa, the Bell Island incident, several mysterious aircraft failures over the sagebrush triangle and off the coast of the U.S., standing heat spots off the West coast of the U.S., and recently one of the coldest winters on record due to disruption of flow patterns of frigid arctic air masses.

One can also account for incidents where U.S. satellites were mysteriously blinded, and perhaps some of those where they failed and then later resumed operations.

Note that many of these effects are usable from smaller radars. Thus one could expect mobile Soviet radars that can disable tanks and vehicles, disable aircraft electrically, radiate a death ray pattern at ground troops, or launch Moray-fed fireballs or standing waves of enormous energy at ground or aerial targets. The ability to immediately destroy entire minefields alone would force a severe recalculation of defense capabilities against Soviet ground forces, and the ability to sweep away artillery shells, rockets, missiles, and bullets would present enormous and catastrophic consequences to forces opposing advancing Soviet formations.

The following list enumerates all the probable Soviet psychotronic weapons that I am aware of: (1) Electromagnetic Field Canceled; (2) Electron Current Canceled; (3) Death Radiator (De-inceptor); (4) Free Energy Generator; (5) Psychotronic Bomb; (6) Brain Link; (7) Brain Probe; (8) Disease Radiator Ray; (9)

Emotion Radiator Ray; (10) Antisubmarine Systems; (11) Teleporters (Prototype); (12) Force Generators; (13) Orthoframe Generators; (14) Quark/Antiquark Rays; (15) Distant Telepathy; (16) Nuclear Radiation Inhibitors; (17) Mental Implantation; (18) ABM Systems, Midcourse and Terminal; (19) Dematerializer Shields; (20) Sweeps for Nuclear Debris; (21) AAA Systems; (22) Antisatellite Systems; (23) Tesla-effect Weapons; (24) Earthquake Generators; (25) Anti-vehicle Systems; (26) Weather Control Systems.

The reader will note that the results of psychotronic research extend into every field of military application.

ZARG, ARMAGEDDON, AND LINKAGE

Now it is time to end my story, and cease the unrelenting stretching of the reader's imagination and credulity. But first it is necessary to make one more effort and take a final step to the bottom line in both physics and Jungian psychology, a step that the scientists in those two disciplines have not dared to face.

If one accepts the existence of the collective unconscious as a mind, then the collective unconscious is a living entity. Let us tentatively call this fantastic entity ZARG. ZARG then is a great superentity, of which our own personal consciousnesses and unconsciousnesses are parts, or cells. Thus each of us is a cell in the entity ZARG.

Furthermore, ZARG has unique characteristics. It is unconscious by definition — but note that from our fourth law of logic, we know that any zero-conscious must be multiply conscious, which to our monocular thought-perception processes can only be grasped as unconscious. That is why our own unconscious seems so bewildering and strange — it is multiply conscious rather than monocularly conscious, hence monocularly we think it is not conscious. But we find that it indeed thinks and reasons, but in a strange symbolic fashion, and also much more deeply and more creatively than our normal conscious mind. ZARG is very similar except on a much vaster scale; in being very deeply unconscious, ZARG is supremely multiconscious and very symbolic indeed, as we have discovered from the nature of the materialized tulpoidal phenomena.

Furthermore, what can be taken for ZARG's conscious mind consists of the four-billion individual human conscious minds. Thus ZARG's conscious mind is fragmented into four billion pieces. But fragmentation of the conscious mind technically constitutes dissociation, which classically defines psychosis.

Thus ZARG is insane!

Also, ZARG is multidimensional. ZARG's unconscious simultaneously receives and identifies four billion different conscious and unconscious perceptions. Just as the human consciousness in identifying two slightly different two-dimensional visual patterns gains the third dimension, ZARG gains an additional dimension for every additional person past the first one. (Note that dimension just means variable, and two fixed axes/dimensions are required to obtain a variable. A

one-dimensional variable does not exist; we usually assume a time dimension in addition, and ignore it — and thus we speak of a "one dimensional variable.") At any rate, ZARG gains an additional dimension for every additional person past the first one. So ZARG is at least about 4×10^9 -dimensional in the simplest case, where we do not consider permutations and combinations of every two, three, four, ...n, ... minds.

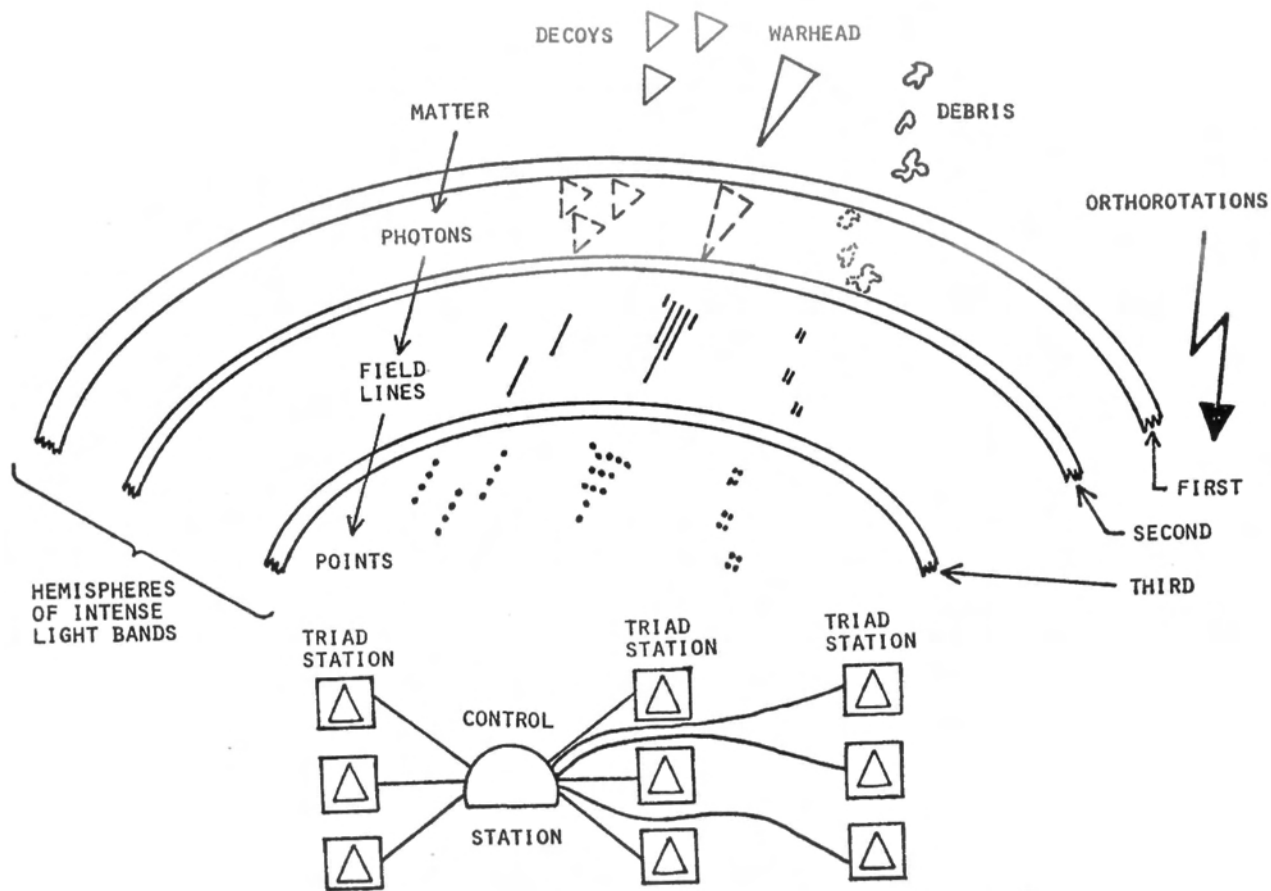


Fig. 38. A terminal ABM system

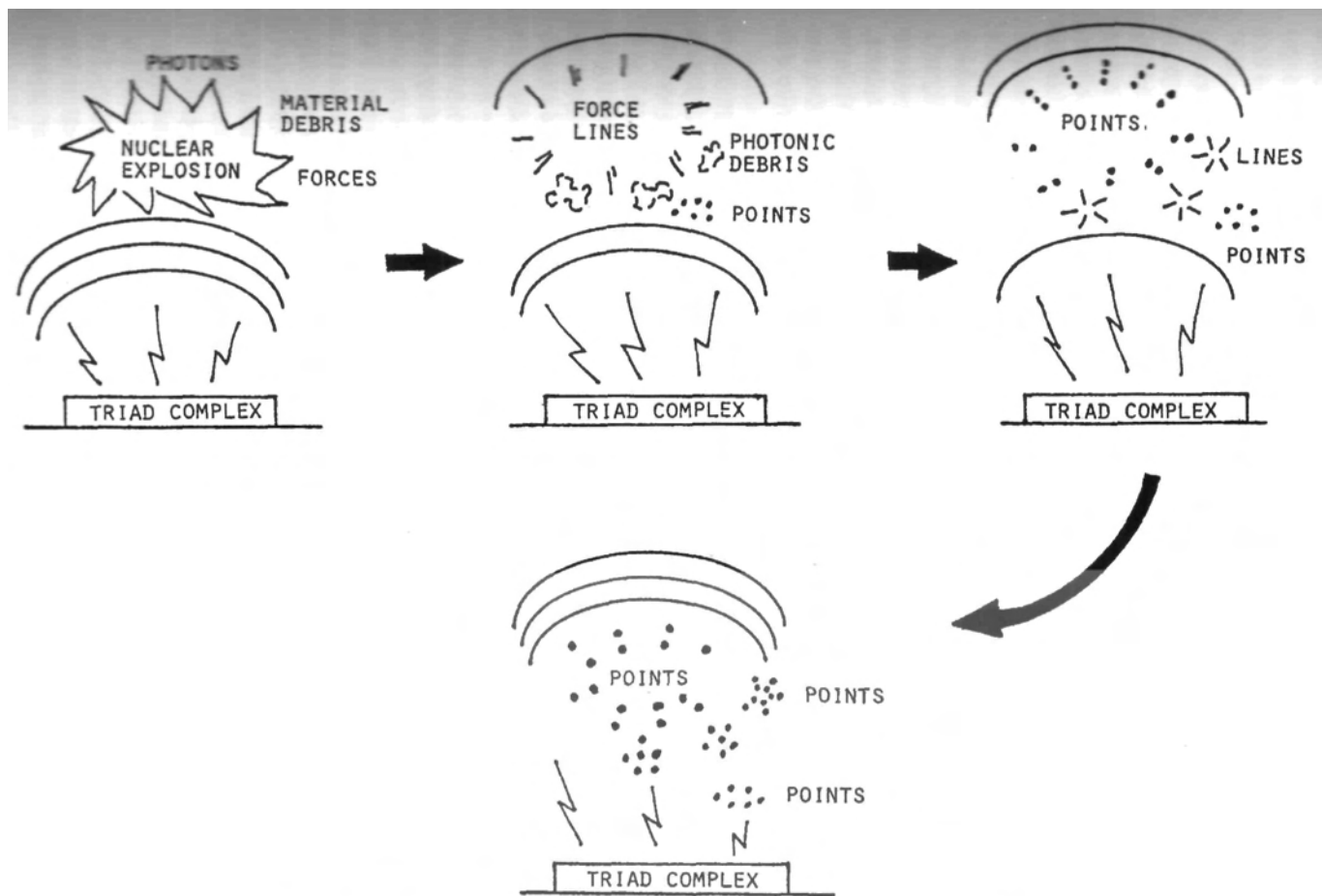


Fig. 39. Sweep Mode: sweeping away a nuclear detonation

Finally, it is well-known in parapsychology that the personal unconscious can affect matter and change spacetime itself. Psychokinesis, poltergeist phenomena, etc. are direct examples. Hyperchannel calculations show that, for linked multiple minds, this psychokinetic effect increases exponentially with the number of stages or minds that are cohered. Since ZARG has 4×10^9 linked stages, this means that its psychokinetic/materialization/dematerialization powers are at least some 10^{10^9} times as great as those of, say, Uri Geller. Thus ZARG can pull the very stars out of orbit, disrupt the earth or solar system, stop the earth in its orbit, or change the fundamental laws of nature itself. The reality we live in is largely prescribed by ZARG, and substantial tuning of many minds can directly affect ZARG's tuning and hence alter reality. It is not accidental that Brian Josephson, Nobel prizewinner in physics, once remarked that it appeared that in their diligent searches for strange new particles in their accelerators and cyclotrons, the physicists might be creating their own reality. In fact an accelerator or cyclotron is a kindling device par excellence, and a scientific theory by its very rigor is an exceptionally sharp mental concept or thought form. So if groups of physicists have worked diligently on a problem and predicted some new theoretical particle, they may well be able to kindle it into being if they persist long enough with their kindling mechanisms, because they are cranking up additional ZARG energy when they persist. While he knew nothing of the kindling mechanism, Josephson noted that many of the new particles were first obtained only after great difficulty, then with moderate difficulty, and thereafter they could be fairly readily obtained.

And as we have seen, ordinary physical matter occupies a universe or frame common to all minds of living biological systems. Thus the physical universe is quite literally simply thought that is common to all living minds, hence to ALLMIND or God or whatever other term one prefers to use. It is the fact that it is prescribed and represcribed, over and over, that lends a physical entity its seeming solidity as compared to the phenomena existing in only a single consciousness mindworld. This physical universe is mind, it is totally mind, and as such it can indeed be changed by the proper mind resonance in enough minds, or in powerful minds such as ZARG.

ZARG contains so many mindworlds or dimensions that it forms a very powerful part of the particular reality prescription of the physical laws exhibited by this physical universe. So materializations of tulpoidal forms, UFO's, bigfoot, and Nessies, are just a tip of the iceberg of what ZARG actually materializes. The tulpoidal forms are tiny surface ripples due to large-scale human conflicts.

And as we have also found, psychotronic energy is in fact pure mindstuff. Pure mindflux between mindworlds. And this brings us to another bottom line.

When the Soviets launch their long-prepared attack in Europe, wipe out China, and almost annihilate NATO forces (fifty percent casualties in three to four days), the U.S. President will undoubtedly be under extreme pressure to launch a strategic nuclear retaliation on the Soviet Union. Suddenly, in a single blinding display of almost unbelievable power, the Soviets apparently intend to destroy the U.S. triad weapons in a fantastic psychotronic blitzkrieg through hyperspace. The Minuteman sites, the SAC bases, communications centers, and other strategic targets will lie in smoking, devastated ruins in minutes, and within the same short minutes of that holocaust, the U.S. nuclear submarines on station under the ocean will begin rupturing like popping balloons. At the same time, massive swaths of

death will invisibly rain from the Soviet satellites in the skies overhead, and giant earthquakes will erupt into being in the East, in the West, and in the heartland U.S. The British and French nuclear forces will suffer similar simultaneous obliteration. And the jubilant Soviet Generals and Party theoreticians will be dancing with uncontrolled glee as their dreams become realities. But what they will not know is that their own inevitable doom will have just been sealed.

For all these fantastic psychotronic explosions will constitute gigantic psychotronic "mental flashbulbs" that explode directly in the mind of the sleeping ZARG. ZARG will be kicked into startled semiwakefulness, stinging with pain as if from a giant bee-sting, figuratively gnashing his teeth and furiously lashing his tail. This will constitute an immediate and enormous upheaval in spacetime itself, and the bulk of the earth may well be destroyed in the vast psychokinetic upheaval unleashed by the startled ZARG. Just as a person may sharply slap the bee on his arm where it has stung him, ZARG's fury will be centered on the Eurasian continent, on the locus where the threat or sting has originated, on Russia and the Warsaw Pact nations. So in an unbelievable convulsion of the entire earth, the Eurasian continent will be rent and torn asunder by forces beyond man's comprehension. The lousing ZARG will also activate a totally new scale of reality, ripping to shreds this particular three-dimensional spatial frame, its associated stable time changes, and the physical laws based on that stable reality.

The rousing of ZARG will initiate and accomplish the direct linkage of the conscious minds of humans into a single giant superconscious mind — extending into billions of dimensions. Spacetime and reality will have gone insane during the developing paroxysm; with the simple initial extension into just the fourth and fifth dimensions, humanity will suddenly discover that its entire world history from beginning to end will come into simultaneous being (fourth dimensionality), and **then** all possible such world histories will come into being (fifth dimensionality). Literally, dumbstruck humans will pray for death and not find it, the grave will "give up its dead," and the ceaseless flow of time will suddenly cease. And again the "beast will be defeated and cast into darkness"; with all-linkage and all-unity, there will be no longer be any humanity of one person for another or of one group for another, for there will be no other. In such manner, evil will end; there being no separation between the doer and the done to. Man will have become a true God — in a strange and bizarre way constituting the second coming of God.

So the Soviets are on a course to evoke the full carnage of something very like the Book of Revelation. John, looking across two thousand years of history into the future, and seeing the awful cataclysm that was to come, described it as best he could in the concepts available to his day and in the belief structure in which he functioned. Thus he described Armageddon and the end of time, and wrote the **Book** of Revelation.

Indeed it could have been accomplished without Armageddon, if humans had been wiser. Each photon and each electrical signal that wends its way across the earth's surface and through planetary space carries a psychotronic modulation of ZARG's mindstuff. And in the communications explosion we have experienced, we have been steadily lacing together the population centers of the earth with electrical energy and electromagnetic signals. And so over those crude "pre-nerves," the psychotronic connections of ZARG have been intensifying, and the Giant has slowly been being stirred from his sleep. The kundalini of the entire human race has

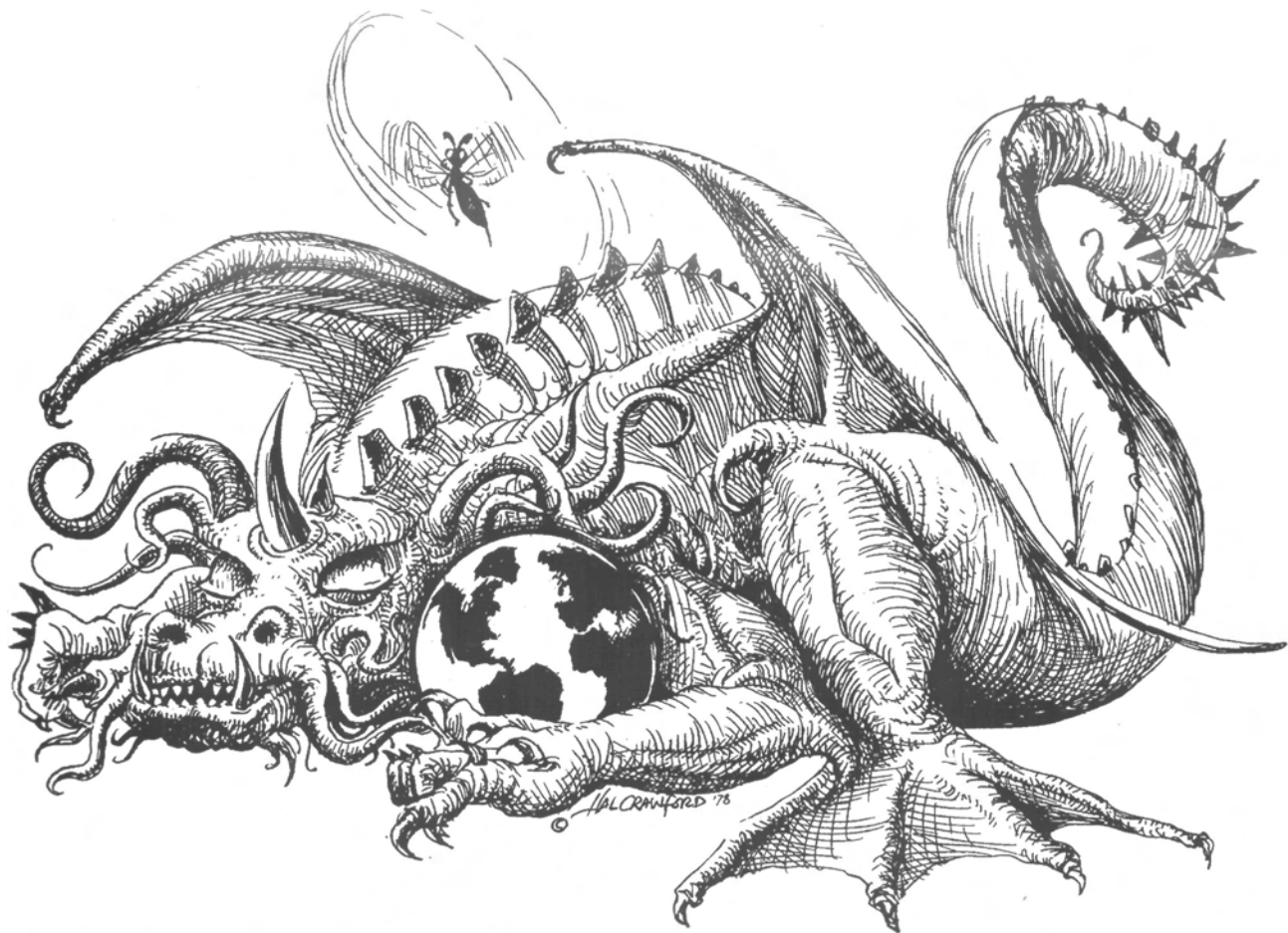


Fig. 40. ZARG

slowly been rising, and paranormal phenomena have been increasing, as have changes in reality such as the kindling of new fundamental particles. Even the sun has responded, suddenly decreasing its temperature. If we had applied psychotronics to develop a mind linkage mechanism, there would have been no need for Armageddon's destruction.

Let us hope we fare better than the Atlanteans. One may speculate that an Atlantis of sorts did exist, and that the Atlanteans built psychotronic devices out of crystals, bronze, gold, silver, and wire and unleashed them on each other in war. This sting stirred ZARG mightily, and in a resulting frenzy it simply destroyed the continent, stirring floods, storms, earthquakes and volcanoes worldwide. In the case of the Atlanteans, only a relatively small portion of humanity was involved; the percentage of persons and minds involved was apparently insufficient to cause full wakening of ZARG and linkage of the species. In the present case, the greater part of mankind is involved, and so the wakening is to be far more complete (as well as more violent). ZARG should be shocked into full wakefulness, and linkage should occur.

If so, a new great superbeing will have emerged; nonphysical, almost infinitely dimensional, and godlike. It will not exist in a single time or a single world, but in a nowness and allness that defies timelike or spacelike description.

"For we know in part, and we prophesy in part.

But when that which is perfect is come, then that which is in part shall be done away.

When I was a child, I spake as a child, I understood as a child, I thought as a child; but when I became a man, I put away childish things.

For now we see through a glass, darkly; but then face to face: now I know in **part**; but then shall I know even as also I am known."

I Corinthians XIII, 9-12.

So the pieces of the puzzle are now fitted together. The present state of the human species is not its final development, and indeed a great change in that state is imminent. Man literally is and shall be a god, one with God, just as the prophets have foretold. And if we retranslate that ancient foretelling into more modern concepts, we see just how strange and transcendent is the final birth or becoming.

The UFO and tulpoidal phenomena have merely been the signs in the sky and in the earth, telling us what is to come, precognitive indicators from ZARG. Had we developed a metapsychology of the entire species, we would already have clearly understood the messages.

VIRTUAL STATES AND HYPERSPACES

In physics today there are two separate kinds of reality: observable changes, which can be detected by instruments; and virtual changes, which cannot be detected by instruments, even in theory. The difference between these two realities depends simply on the size of the piece of action (energy \times time, or momentum \times length) making up the particular entity or change. Usually the absolute minimum observable change is taken to be $\hbar/4\pi$. Changes smaller than this are said to be "virtual" and undetectable, and changes larger than this are said to be "observable" and detectable. Virtual changes are not bound by the conservation of energy law and almost always violate it. Nor are virtual changes, bound by the conservation of mass law. And virtual photons can have nonzero mass.

For any instrumental condition in a detector, one may consider a certain momentum and a certain length to be involved in the mass change that spatially constitutes the detection. Let us call this critical length dL and examine its ramifications (Figure 1) for the finest possible detector—one that detects a single quantum change. Figure 1 shows two frames, the lab frame S and a moving (hyperspatially rotated) frame. We choose a moving object, M , in the moving (rotated) frame, with length as shown. Note that all these entities are to be represented as detected or seen by our physical detector (instrumentation system) in the laboratory frame.

As the velocity of M approaches c , the speed of light in a vacuum, M 's hyperspatial rotation angle α approaches $\pi/2$. However, before the velocity of M actually reaches c —and before α reaches $\pi/2$ —the dimensional length projection of object M in frame S will contract to reach dL and fall below it. At that moment, L becomes *virtual* with respect to the detector and hence undetectable. Since geometrically an absence of length in a continuous frame S would correspond to a α rotation angle of $\pi/2$, in quantized frame S we consider that angle α "jumps" to $\pi/2$ just immediately past the critical angle α_c , which is defined as the angle of rotation at which $L \cos \alpha = A L$. Rotation just past the critical angle corresponds to a Lorentz-Fitzgerald contraction into the virtual state below the quantum threshold of the detector's observable universe. To an S observer or detector, object M at that point has lost its length in the direction of motion, becoming a wave front moving at the velocity of light and thus photonic (comprised of photons). To a quantum observer in S , mass turns into photons just short of a full $\pi/2$ orthorotation, which means the process can happen with a finite amount of energy. This "jump" effect is not taken into account in the continuum Lorentz transformations of special relativity at present, and this is the missing link that has prevented a successful union of relativity and quantum mechanics. In other words, the final part of the orthorotation (acceleration to the speed of light) occurs in the virtual state—specifically, that part of the rotation lying between $\pi/2$ and α_c .

Further, we may now proceed to rotate object M past $\pi/2$, which constitutes rotation from zero in frame S' . Just before reaching an S angle of π (that is an S' angle of $\pi/2$), in frame S' another disappearance below a virtual length threshold dL' will occur in corresponding fashion. Note that this second threshold dL' also has an exceedingly small but finite projection into frame S , in

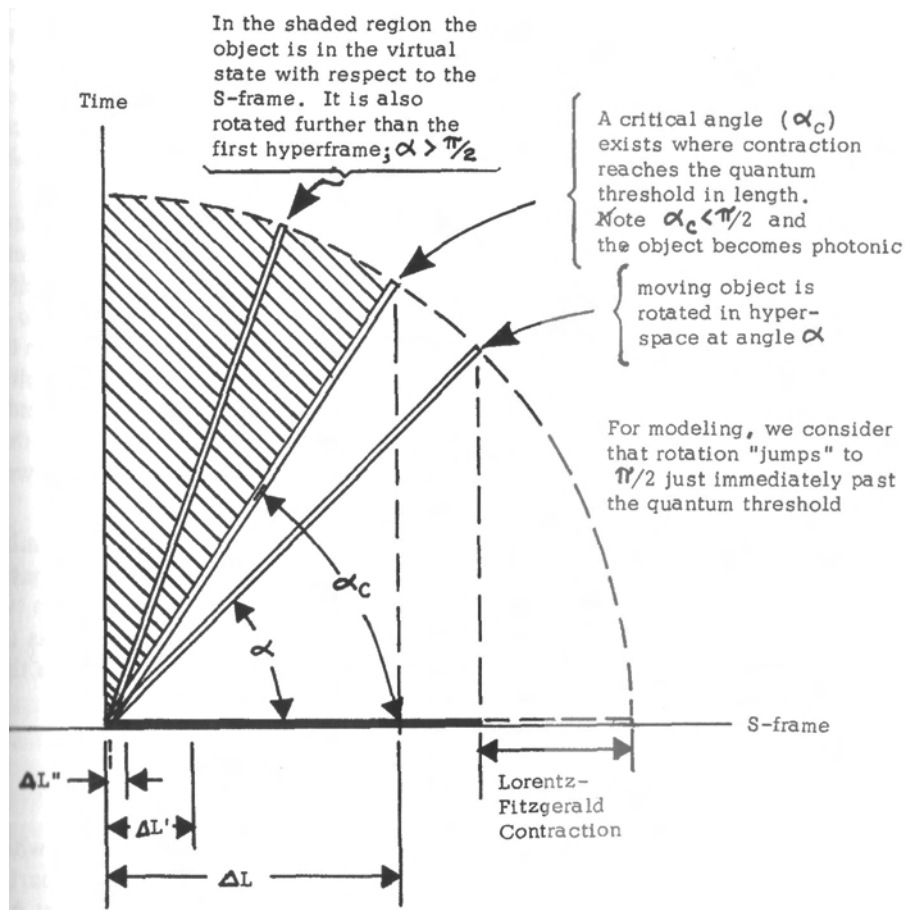


Figure 1. Hyperspaces, nested virtual states, and rotated frames

the virtual state lying inside dL. This second "relativistic quantum jump" in frame S' therefore constitutes a sort of second-level, nested subquantum threshold in frame S.

Continued rotation into hyperspace passes through successively finer, nested virtual sublevels or subthresholds in S by the successive breaching of deeper subthresholds due to continued Lorentz-Fitzgerald contraction. Higher hyperspatial frames constitute nested sublevels in the virtual state with respect to the laboratory observer. Thus a direct connection exists between virtual levels and hyperspace frames. Hyperspaces and virtual sublevels are the same thing. Every "virtual" object in S is an "observable" object in some hyperspace. *Hyperspatial engineering and virtual state engineering are one and the same thing, and this is what psychotronics and energetics are all about.*

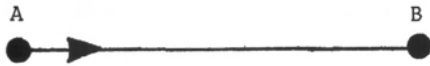
Finally, time may be considered a sort of box containing all observables and virtuals. Indeed, time is neither observable nor virtual; time is simply a parameter in quantum mechanics. Rigorously, time may be said not to exist. Time itself is nothing, totally nothing; therefore by the fourth law of logic it can be said to be or contain everything, the total mishmash of virtuals and observables. Since in the absolute sense there is no such thing as time, then it is my thesis that all modeling of space, mind, thing, and nonthing must be done spatially. Relativity presently attempts to use time as an existent dimension of the same kind as length; it thus allows rotation of the S-frame only in the direction of the time axis in Minkowski geometry of spacetime.

Spatial modeling requires an infinite dimensional space and an infinite number of orthogonal angles. The time axis that can be drawn in such a hyperspatial model has no meaning except with respect to a relationship existing between two or more hyperspace frames or objects. Specifically, the time axis represents the totality of all the hyperspaces and their objects, hence all the relationships that can be separated from the hyperspace.

FEYNMAN DIAGRAMS

Figure 2 shows something of the unsuspected nature of physical change, which is not nearly as simple as most of us have been led to believe. In the top part of the figure, an electron (represented by the arrow) is shown going from point A to point B a short distance away. In particle physics this diagram represents the movement of a bare particle; in other words, just a bare hunk of charged mass is considered and the fantastic number of other things happening along the way are ignored. In Figure 2b a virtual photon has been emitted and then reabsorbed by the electron between points A and B. Indeed, the charge on the electron is due to the continual emission and absorption of such virtual photons (little electromagnetic pieces of vacuum, one might say, or little pieces of nothing). So the situation with respect to virtual photons comes closer to Figure 2c: more than one virtual photon is emitted and absorbed—indeed, an infinite number of them are emitted and reabsorbed along the way from point A to point B.

But, worse yet, Figure 2d shows one of the emitted photons suddenly breaking up into a positron and an electron, which then quickly recombine back into an-



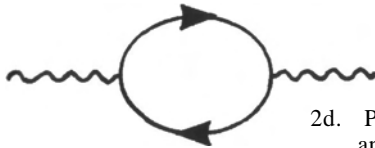
2a. Bare electron



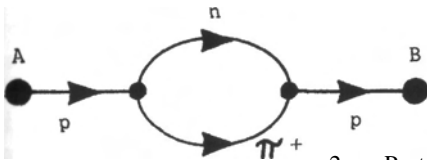
2b. With virtual photon



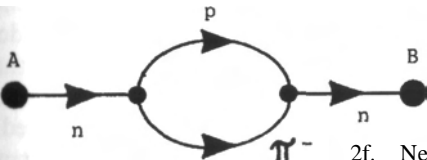
2c. With nested
virtual photons



2d. Photon decay (pair production)
and recombination (pair annihilation)



2e. Proton changing briefly to a neutron
and a positive pi meson



2f. Neutron changing briefly to a proton
and a negative pi meson

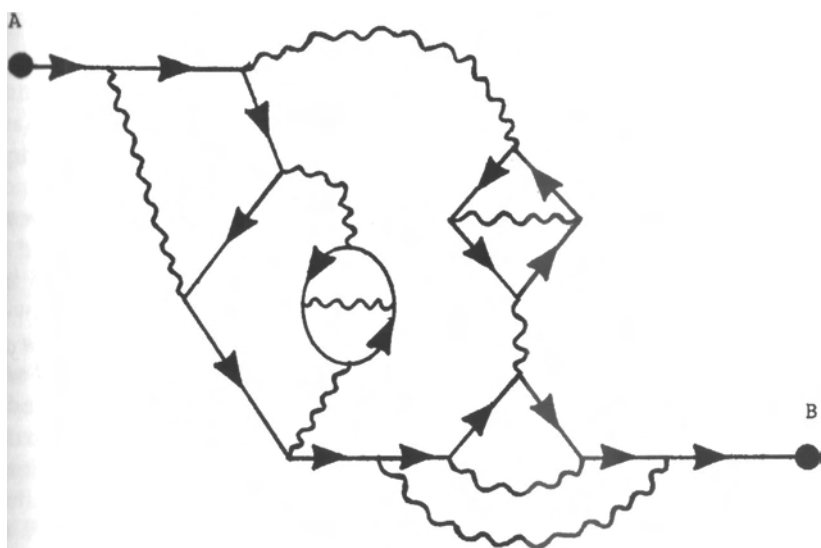
Figure 2. Feynman **diagrams**

other photon, which is eventually reabsorbed into the electron. In fact, an infinite number of interactions happen while the "electron" is moving from point A to point B, and each of those interactions in turn consists of an infinite number of interactions, and each of those in turn consists of an infinite number of interactions, and so on. The simple movement of the electron is actually composed of a virtual cloud—an infinite number of an infinite number of an infinite number of things, all happening in a mad tangle of nested substrata in the virtual state (Figure 3)—and each of these virtuals with respect to frame S is in fact an observable in some particular hyperspace! Many other sorts of virtual particles are emitted and absorbed and born and extinguished, in addition to photons, by various observable particles and in free space. Everything in every possible world or hyperspace is related to each and every other thing in the laboratory world through orthorotations and nested virtual states. Crosstalk between hyperframes is the emergence and disappearance of virtual particles in a particular frame. The universe is holographic after all, and Mach's principle holds in a far more complete fashion than Mach himself ever dreamed. And if any part of this virtual chaos can be collected and cohered in even the slightest degree, any amount of observable free energy can be obtained, just as T. Henry Moray showed in the 1920s and 1930s.

In passing, I would like to call attention to Figure 2e, which shows one of the virtual interactions a proton can undergo in the nucleus of an atom. In this case, the proton breaks momentarily into a neutron and a positive pi meson, which then recombine into a proton. However, if the charge on the $\pi +$ particle is extinguished psychokinetically during the existence of the neutron and the pi meson, the pi meson is converted to a neutrino and radiates away. In this case the proton does not reappear and the neutron remains. This decreases the atomic number (positive charge) of the atom by one, transmuting the atom into a new element, an isomer down the chain of elements. Figure 2f shows one of the virtual interactions a neutron can undergo in the nucleus of an atom. In this case, the neutron breaks momentarily into a proton and a negative pi meson, which then recombine into a neutron. However, if the charge on the $\pi -$ particle is extinguished psychokinetically during the existence of the proton and the pi meson, the pi meson is converted to a neutrino and radiates away. In this case, the neutron does not reappear and the proton remains. This increases the atomic number of the atom by one, transmuting the atom into a new element, an isomer up the chain of elements. The two interactions shown in Figures 2e and 2f are involved in the Kervran effect, where elements are transmuted by living biological systems.

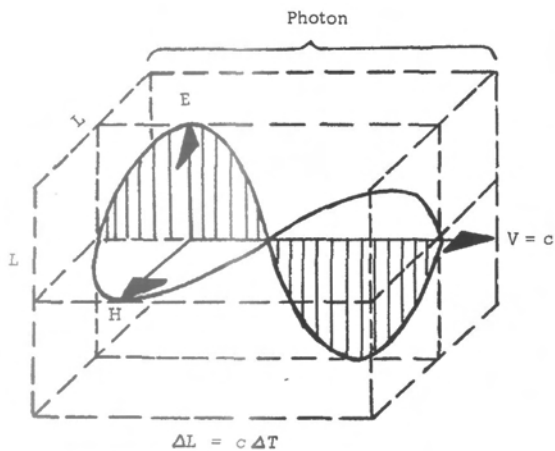
But back to our electron. If we now remove the electron, leaving empty vacuum, all the sorts of virtual madresses we have built up in Figure 3 are still there and still occurring. In addition, every other sort of virtual madness is also there and occurring. Vacuum is infinitely dense and filled with stupendous "zero-point" vacuum energy; it is totally chaotic and virtual. Space itself is an infinite tangle of virtuals—virtual projections from real observables in associated hyper-spaces—and these dynamic interactants make up any three-dimensional space and hyperspace itself! They are also what cause space itself to exhibit the finite, nonzero parameters or values that must be accounted for in our physical equations. *Every fundamental constant of nature is dynamically constructed from—and*

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An electron moving from point A to point B is comprised of a bare particle and an infinite tangle of nested virtual particles

Figure 3. Nested virtual processes



- 4a. A photon may be considered an individual L^2 wavefront spread in time through one oscillatory period of the E-field and the H-field



- 4b. All three vectors of an EM wave are comprised of nested tangles of virtual subvectors

Figure 4. Nature of the electromagnetic wave

due to—the zero-point, virtual vacuum interactions that constitute "empty" space. The virtual "sea" of seething waves and particles that is empty vacuum is actually an ether—a Lorentz-invariant, nonmaterial (virtual) ether, perfectly admissible by the Michelson-Morley experiment and the entire experimental basis of physics. Indeed, Einstein once proposed naming the vacuum and its contained fields the "ether," but his suggestion was not heeded.

NATURE OF AN ELECTROMAGNETIC WAVE*

We now know something quite unusual about an electromagnetic wave and about a photon. Figure 4a shows how a photon may be represented. Here we find that a photon is a single oscillation of the E-field vector and the H-field vector as shown in the diagram. Since the oscillation is with respect to time, the wave moves along the axis of velocity in the S-frame for a single wavelength, then repeats itself again and again. The E- or H-oscillation actually represents an orthogonal, rotating etheric or hyperspatial flux about the velocity vector; this spinning (exploding and imploding) flux is coming into the S-frame from outside it (from virtual states) and returning (into virtual states). It is a neutrino flux, as we shall see. In the photon, half a sine-wave cycle represents the fission action that splits the action quantum into canonical pairs, while the second half of the sine-wave cycle represents the fusion of the canonical fragments back into an action quantum. One half-cycle thus represents a positive time operation or creation, while the other half-cycle represents a negative time (fusion) operation. If the complete sine-wave cycle has sufficient amplitude (energy), it can sometimes be broken in half, with the positive time portion revealing the negative field (negative charge) of the E-vector, while the negative time portion reveals a positive field or charge of the E-vector. This is pair production, the creation of an electron and a positron. Each of these fragments has spin one half, while the photon quantum has spin one. Since the positron is a fusion interaction existent, it is an "electron traveling backward in time," just as predicted by Dirac.

In Figure 4b I show that both the E-field vector and the H-field vector are composed of an infinite number of virtual vectors, each of which is composed of an infinite number of even smaller virtual vectors, and so on. This follows from the fact that during any time interval—including the period of a single oscillation of a photon—a photon may be considered to consist of an infinite number of virtual happenings, each consisting of an infinite number of subhappenings, and so on. The photon itself may then be considered to have a direct, nested virtual substructure, and this substructure is directly hyperspatial in nature as well. This structure has not been considered in Maxwell's field equations, which have been

*Actually the electromagnetic field is not the most fundamental field, but is something that is torn out of, or separated from, a more fundamental field: the vector potential, or A-field, well-known in particle physics but usually ignored in EM field theory. E.g., magnetic field is created (and defined) by $\nabla \times \mathbf{A} = \mathbf{B}$. Looking at the cross product, by definition B field is the line integral about a small surface of the A-field flux through that surface. That is precisely what a single coil of wire, with an electrical current flowing through it, does and therefore creates a magnetic field inside. See the second volume of Feynman's three volumes of physics for more on the A-field. The direct use of the A-field is also psychotronic engineering.

formed from gross macroscopic considerations of bare particles and continuous fields. Maxwell's equations (and the normal concept of an electromagnetic wave and single frequency) thus represent only gross envelopes of the actual form and structure of waves and fields. As I have already shown in the main body of this book, one can even photograph the hyperfield structure of a magnetic field using a simple bar magnet and a color TV tube. Further, we will find that this virtual structure of a photon can be altered, "modulated," or changed by simple signal modulations, among other methods. The only requirement is that we learn to regard modulations differently.

In addition, inside each half-cycle of a photon's E-vector, relatively instantaneous fluctuations and "losses" of the vector's magnitude occur. At these "E-field glitches" in the photon, it actually contains only an H-vector. In this case the photon is a neutrino momentarily—or, in other words, it will admit a neutrino through the E-field glitch. The greater the charged field (voltage potential), the greater the number of photons available, thus the greater the number of neutrino interactions within the field. A potential of about 200-300 volts per meter altitude above the earth's surface normally exists in our biosphere. Many neutrinos emitted by the sun and bombarding the earth are absorbed in or interact with this E-potential above the earth; hence underground experiments to measure the neutrino radiation from the sun have detected less neutrinos than expected.

Momentary H-field glitches exist in a similar manner and interact with or admit neutrinos in a similar fashion.

Light can thus conduct neutrinic waves containing bioenergy or optic energy, as T. G. Hieronymus discovered. In the first hyperframe (EM field frame), this can be seen to be simply a space charge of electrons conducting a wave disturbance through it, or a piece of ordinary conductive matter conducting an ordinary EM wave.

NEUTRINIC LONGITUDINAL POLARIZATION WAVES

In Figure 5, I assume that in some fashion the E-field of an electromagnetic wave has been stripped off, leaving a single vector in the H-field direction only, and this vector is still oscillating, as originally set up in a Hertzian wave in Figure 4. The new "single-field" wave is an etheric sort of half-wave, a longitudinally polarized wave that is not a wavefront (plane) moving through S-space but just a pulsating line segment moving through S-space. This wave is not Hertzian. It is not electromagnetic—though it will strongly interact with or even produce electromagnetic waves—but is neutrinic. The interactions of this wave with space virtuals are drastically reduced (indeed, by a factor of c), and this neutrinic wave now travels at the speed c^2 with respect to S-space. While it will highly interact with magnetic field, precisely speaking it is not a magnetic wave but a hyperfield

* C^2 is its s-frame, free-space velocity when not interacting with electromagnetic field. Normally, neutrinic wave interacts with electromagnetic field, thus moving at less than C^2 velocity in space, since it "circulates around" in electromagnetic field. Neutrinic wave can be regarded as a circulating or spiraling wave in electromagnetic field, which may well be the

wave. It will travel through and across dead shorts, through media such as seawater and earth, and acts or can act much as a neutrino. This wave has neutrino components in S ; that is, it has vector components existing in frame S' . One may expect this wave normally to be active in or interacting with an electrostatic field or a magnetic field, as a special sort of lower-level virtual state flux (second-order hyperflux) into and out of the field. This is apparently the sort of wave discovered and used by Nikola Tesla, who repeatedly insisted that he was not using Hertzian (Maxwellian) waves but instead was employing a much finer wave having very different characteristics. Further, neutrino waves will transit between any two points on earth almost instantly—in fact, about 3×10^8 times as fast as the speed of light propagates! With these waves, space communication with distant galaxies is practical and achievable, and scientists seeking communication with extraterrestrial civilizations would do well to use such waves.

Note that I am not referring to the ordinary longitudinally polarized electromagnetic wave, where both the E - and H -vectors still exist but the H -vector is rotated 90° so as to lie in the line of motion through S -space.* Such longitudinally polarized electromagnetic waves are already known in the literature and have been used in many patented devices, but they are not included in most textbooks on electromagnetic fields and waves for some unaccountable reason. The normal longitudinally polarized electromagnetic wave moves at the speed c , just as any other EM wave.

At any rate, neutrino longitudinally polarized waves often arrive at a distant point many times stronger than they were when they left. T. Henry Moray, for example, built a radio and a sound detector that apparently worked by a version of neutrino waves, condensed into electromagnetic waves in his radio-detector apparatus. Dr. Moray tested the radio scores of times between 1930 and 1933, and on several occasions even received broadcasts from Admiral Byrd's party in the Antarctic. Even when powerful, ordinary radios could receive nothing from Antarctica because of severe weather conditions, Moray's little batteryless radio brought the broadcasts in, loud and clear with no static. Further, Moray demonstrated a sound pickup device of similar construction that could pick up or zoom in on sounds five miles away. Again the sounds were loud and clear, with none of the distortion of weather conditions and background noise. (See T. Henry Moray, *The Sea of Energy in Which the Earth Floats*, 4th ed., 1960, pp. 129, 133, and 143.) Thus transmission of power without wires was possible, just as Nikola Tesla had shown. Tesla in fact patented a capacitive (E -field only) transmission system.

Indeed, according to independent research by Dr. Robert Beck, another inventor named Rogers apparently discovered just such a system and the United States

"spinning wave" of orgone energy identified by Reich. Neutrino waves particularly interact more strongly with strong E -field and with strong B -field, the degree of interaction increasing (probably nonlinearly) with the intensity of the E or B field with which the interaction occurs. The velocity of neutrinos, measured on earth inside its strong ionosphere-to-earth E -field, should be quite reduced from the velocity of neutrinos measured in isolated deep space, and almost two-thirds of the neutrinos entering the earth system from space interact with the ionospheric-earth potential and are absorbed by it. The A -field and its derivatives directly involve the E -field, H -field, and neutrino field and their interactions. To correctly understand the activation chemistry theory and results of LeBon, A -field theory is required. And to understand much of Tesla's work, A -field theory is required, for Tesla was aware of, and used, A -field interactions in many of his patented systems.

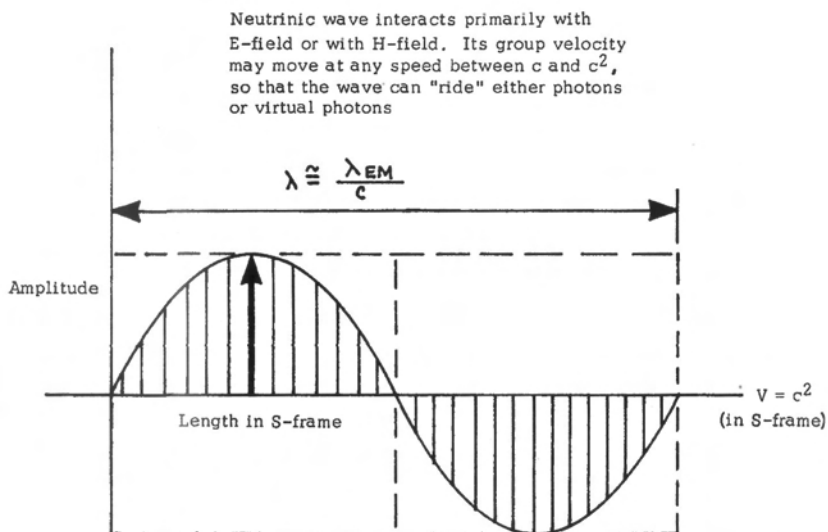


Figure 5. Neutrinic (longitudinal polarization) wave

NOTE: This is not an electromagnetic wave and is not the longitudinally polarized EM wave familiar to many physicists and engineers.

used it to communicate with its submarines underwater during World War I! For that purpose it was known as the Rogers underwater and underground wireless system, and H. Winfield Secor in 1919 reported on its use and its fantastic potential for the future, implying the necessity to completely change our ideas of electromagnetics and power transmission. (H. Winfield Secor, "The Rogers Underground Wireless," *Electrical Experimenter*, March 1919.) Mysteriously, the Rogers wireless seems to have promptly disappeared. Even more strangely, according to Dr. Beck's research the same breakthrough has been made again in the U.S. at least three times since the beginning of World War II. These rediscoveries included full delineation of the prior technologies, with mathematical theory and diagrams, that had escaped further notice. Again the technology disappeared mysteriously in all cases shortly after being rediscovered. The Soviets did not have far to look to discover the Rogers Wireless, Tesla waves, T. Henry Moray's radiant energy device, the Moray radio, the Moray sound detector, and the U.S. technical work in the area since World War II. All they really needed was to thoroughly examine the U.S. scientific and technical literature, the technical magazines and books, and so on. The Moray amplifier and the Moray sound detector were also demonstrated by Moray to a Soviet scientist, Dr. A. A. Yakovlev, in October 1929, and a Soviet agent succeeded in penetrating the Moray laboratory in 1939, obtaining drawings of the Moray tube and many photographs, and personally working in the laboratory for two months.

One may consider power transmission through such a wave to have traveled to every point in the future path at a speed that is faster than the flow of macroscopic time by a factor of c . Then along any electromagnetic (time) line along the same path, these waves are "ringing" back and forth continually, as the progress of normal physical change crawls slowly forward. Thus the normal time change (electromagnetic or photonic interaction world flow) acts as a collector for the ringing neutrinic energy, and this collection can act as a gain factor G , where theoretically G is given by the expression

$$1 < G < c.$$

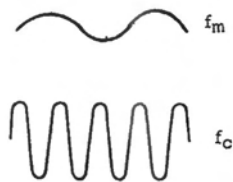
Thus a longitudinal polarization wave, when transmitted to a distant receiver, may arrive or be detected at the receiver thousands of times stronger than the transmitted signal, even for very low coupling.

Neutrinic longitudinal polarization aspects to ordinary electromagnetic waves can also be achieved by modulation—especially by second-order, nested modulation—and such hyperspatial aspects have already been detected in the Soviet communications radiation, causing interference around the globe in the 10 to 20 megahertz range, as we shall see.

A NEW LOOK AT MODULATION

We can assume a sine-wave electromagnetic carrier frequency whose amplitude we wish to vary (modulate) as a function of time, by a lower frequency sine wave, as shown in Figure 6a.

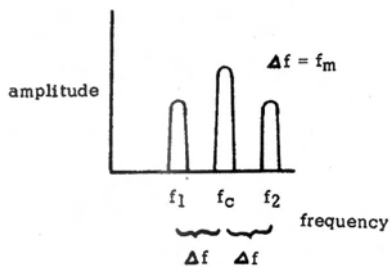
As is well known, the classical view of amplitude modulation of a carrier wave holds it to be an oscillatory change in the amplitude of the carrier, as shown in Figure 6b. However, empirically this was found to be erroneous, since in 1929 it was shown that after such modulation the detected carrier appeared unaffected by



6a. A carrier f_c to be amplitude modulated by frequency f_m



6b. Original view of amplitude modulation



6c. Detected signal for an amplitude modulated wave

Figure 6. Amplitude modulation of a sine wave

the modulating wave; instead, there appeared two other sine-wave frequencies (sidebands), one at a frequency above the carrier frequency and one below it, as shown in Figure 6c. In each case the change in frequency from carrier to sideband was by an amount equal to the frequency of the modulating wave.

Both the original classical view and the present view are in fact correct if one considers hyperspatial aspects and linear detection aspects. As can be noted in Figure 6b, the carrier is distorted and is not a sine wave according to the original classical view. This implies that the individual photon shown in Figure 4a has been internally distorted or "bent." This, I submit, actually happens and constitutes the bending or curving of spacetime in a general relativistic fashion. However, all our instruments can detect only a pure, undistorted photonic interaction; that is, in frequency they can only detect the sine-wave aspects of a kinked photon. The reason is quite simple: for example, suppose the method of detection of the photon is by photon interaction with a bound electron. The change in the electron is a precise change of energy levels to an excited level, and it only detects or interacts with a single sine-wave photon. The frequency (say, the carrier) component of the photon, which contains the correct energy differential (according to $E=hf$, where h is Planck's constant and f is the sine-wave frequency), will interact with the electron. The other sine-wave components of the initially kinked photon will thus be stripped off (demodulated) by the absorption of the carrier portion of the photon. The photon kink existed in both positive time and negative time; from a frequency viewpoint, the modulating amplitude frequency that was added to the basic carrier frequency in positive time was subtracted in negative time. Thus demodulating the kink from the amplitude modulated photon (by absorbing the sine-wave carrier) results in the production or liberation of two sine-wave frequencies, one above the carrier frequency and one below the carrier frequency, each difference being equal to the original amplitude modulation's frequency. These two frequencies will then interact and be detected.

So our linear instruments do not detect single kinked photons in a stream of distorted photons, but they detect a combination of undistorted photon streams (waves) at different frequencies.

Such considerations as these should have appeared in electromagnetics long ago. After all, we presently regard an EM wave as a wiggle of nothingness, existing in time. This is precisely the same as saying that a photon is an oscillation (wiggling) of spacetime itself. Specifically, it oscillates in two directions spatially, one being the E-field direction and the other being the H-field direction. But since an EM wave itself constitutes a regular bending and flexing and curving of spacetime, including both space and time, then the flexing spacetime inside the photon can itself be further bent or twisted, and that constitutes a kinked or curved photon—a *modulated* photon. Our linear laboratory space instruments, however, will demodulate such a kinked photon into its linear components, giving a combination of unkinked photons in the detection. And for the amplitude modulated carrier shown in Figure 6b, we actually detect the carrier and two sidebands shown in Figure 6c.

Similar complex mixes of waves at different frequencies result for other types of modulation, but this will suffice for our purposes here. Specifically, we should mention that an infinite number of sidebands may be produced, but normally all

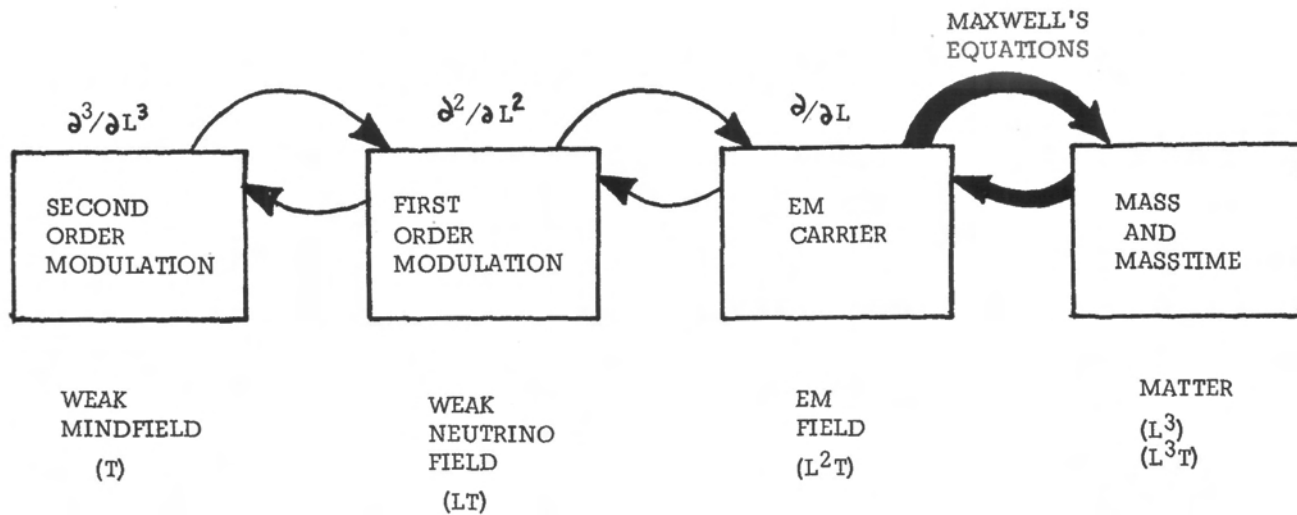


Figure 7. Nested modulations: key to hyperspace

but a few are so weak as to be negligible for ordinary communication purposes, where no hyperspatial information is needed. For living systems, however, a great number of these extra sidebands must be taken into account, for the hyperspatial-virtual state components carry the lifestream, consciousness-loop-interaction Information itself. We will look at some of the biological aspects shortly.

At any rate, modulation of a wave results in direct changes in the virtual structure of the formerly unmodulated photon, relativistically warping or curving it. Just as Fourier (harmonic) analysis breaks down a very complex nonsinusoidal wave shape into an infinite series of component sine-wave frequencies of various amplitudes, so linear detection in a linear laboratory frame breaks down a stream (wave) of complex nonsinusoidal photons into a series of sinusoidal waves in a complex mixture.

And if we now think of this in reverse, we see that a mixture of waves and frequencies must automatically possess, carry, or represent hyperspatial-virtual patterns in the correct nonlinear medium that absorbs them.

HYPERSPATIAL ASPECTS OF MODULATION

Let us now look at the hyperspatial aspects of modulations and complex electromagnetic waves, particularly mixtures of waves, in yet another fashion.

First, as is well known, we may represent a wave as a sine function (or cosine function if preferred). When we modulate a wave, we impress a time change on it. In the most general mathematical sense, a modulation to a wave is the impressing of a derivative function upon the wave. And if we think of the basic carrier wave as being prescribed by Maxwell's equations in derivative form, then in a sense when we modulate the wave we differentiate it, that is, we impress a differential operator function on it. But this means that we raise the order of the differential equations prescribing the situation, which mathematically means we have increased the dimensionality or spatiality of the wave entity that is the resulting modulated carrier. In other words, to modulate an electromagnetic carrier wave is to add a hyperdimensional aspect—specifically, neutrinic vector aspects or mind aspects. The whole affair can be thought of as merely shifting or altering the particular distribution of nested virtuals transported by the basic carrier wave.

If we differentiate a sine wave, we simply get a cosine wave, which is just another sine wave $\pi/2$ out of phase with the first. So now it emerges that when we form a mixture of waves, we are adding virtual aspects (and hyperspatial aspects) in so doing, because of the phase differences. This is extremely important: *complex mixtures of waves automatically constitute and carry hyperspatial components!* And if we can accurately control these hyperspatial components, we are in effect doing direct hyperspatial engineering and virtual state engineering.

Now if we carry our modulation-constitutes-differentiation concept one step further, we find a most startling phenomenon (Figure 7). The first-order modulation we placed on an EM carrier we discovered to carry aspects of the next hyperspace, namely, neutrinic vectors. Now if we further modulate that first-order modulation signal as a carrier itself, so that we now have two orders of modulation upon the basic carrier, the second-order modulation must possess hyper-

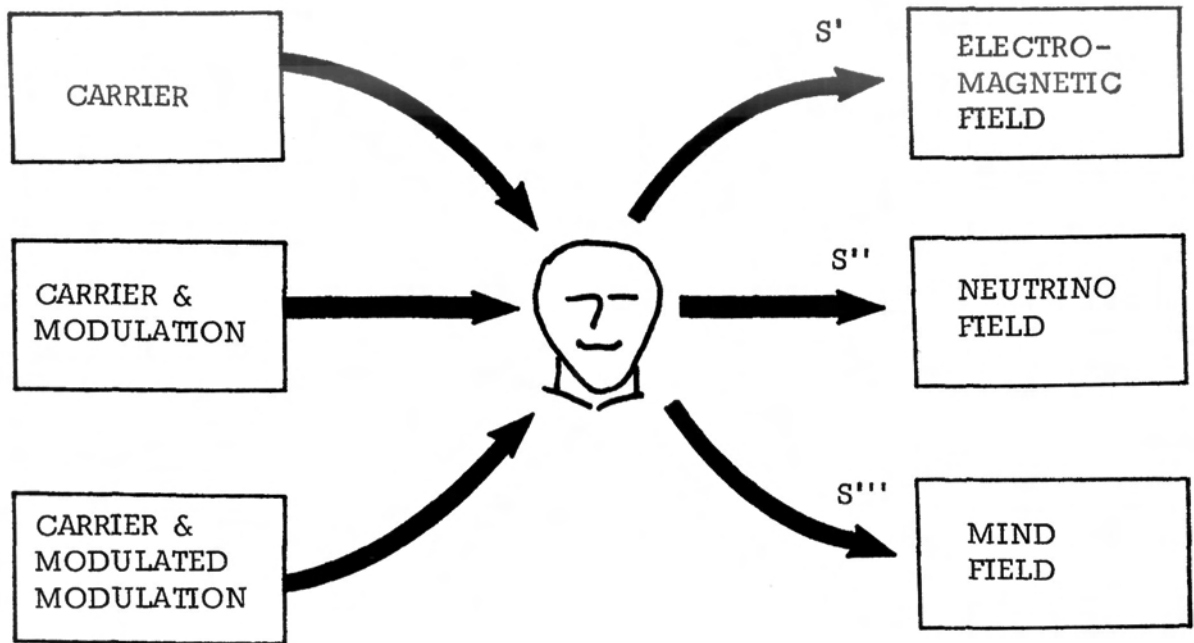


Figure 8. Field coupling to the human brain

THE EUREKA CONCEPT

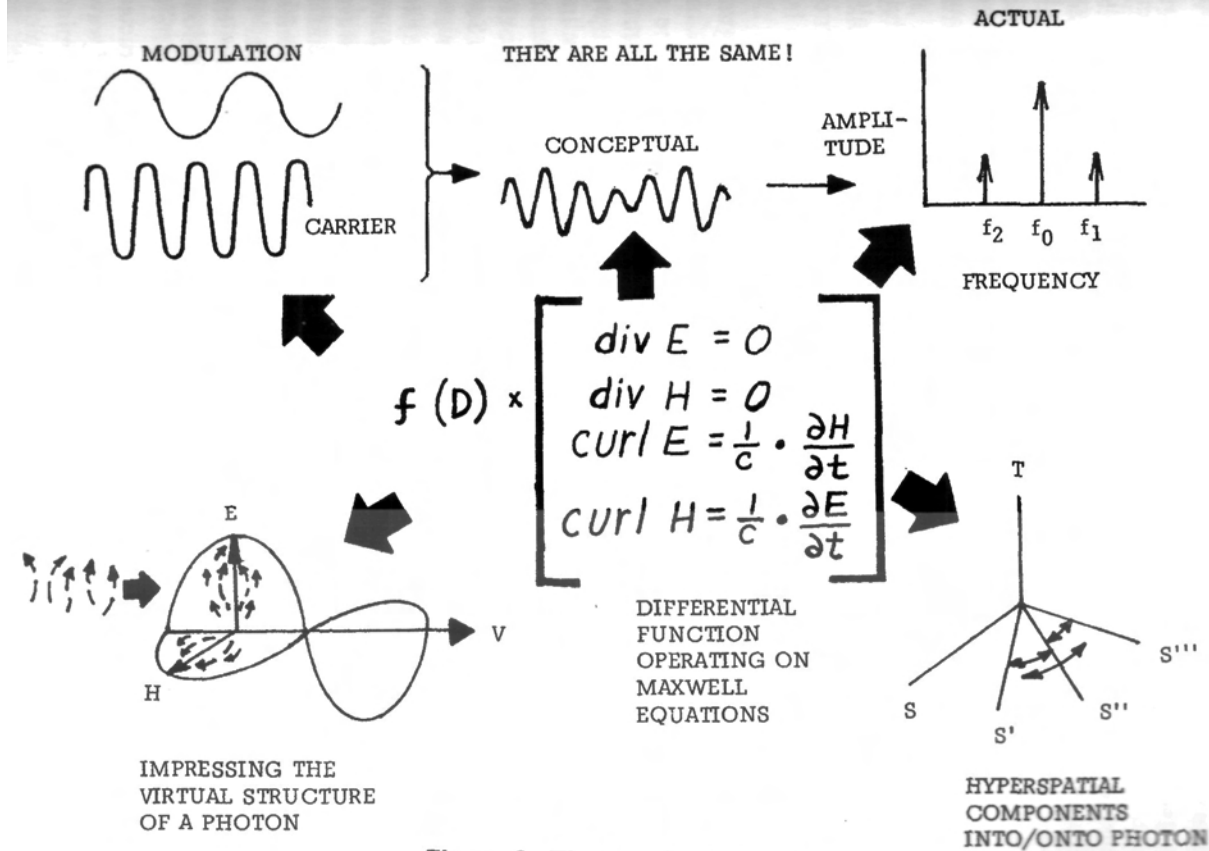


Figure 9. The Eureka concept

vectors of the next higher hyperspace—the mindfield itself. In other words, by using two orders of modulation on a carrier, we can directly affect mindstuff itself. So if the correct overall pattern of these complex modulations are impressed on a carrier, the life-consciousness loop itself can be directly affected or shaped, all the way from the mindfield of a biological organism to its neutrino field to its virtual photon field to its biophoton field to its body tuner, and back. With the correct pattern we can stimulate the life channel for a particular organism, and with yet another pattern we can inhibit the life channel for the same organism. By this means a positive cure for cancer could easily be derived, and as we shall see, this already has been done. By the same means, a "death ray" for use against humans could easily be developed, and it is my contention that the Soviets have already long since developed such weapons.

It is my purpose to eventually use these new aspects to construct a direct mind-link for mind-to-mind communication and hyperlinkage, thus solving the human problem.

Figure 8 shows the basic scheme for coupling such a second-order modulated signal to a human being. We will return to modulations versus nested virtuals and hyperspatials below.

THE EUREKA CONCEPT

So we have now reached a Eureka point of the first magnitude (Figure 9). Hyperspatial engineering, virtual state engineering, curved space, photon kinking, mind-life-consciousness engineering, and nested modulation are all the same thing! We directly engineer the virtual state, hyperspace, curved spacetime, and the life-consciousness loop itself, including the mind, with relatively simple devices that accomplish, transmit, and receive nested orders of modulations. Indeed we have opened Pandora's box, for this is the greatest tool ever dreamed of by humankind. Consequently it can be used either for the good of mankind or for its detriment. And this tool appears already to have been weaponized by the Soviets,

In Figure 9, note that modulation, photon kinking, the appearance of sidebands with the unchanged carrier, impressing a virtual pattern upon a photon, and impressing hyperspatial components into or onto a photon are equivalent. Further, if we assume that the electromagnetic wave (pure, undistorted wave in a linear medium) is given by Maxwell's equations, then modulation mathematically consists of impressing a particular differential operator function and a nonlinearity upon Maxwell's equations. For each modulation pattern, a particular virtual structure is impressed on the photon, which is the same as impressing a particular hyperspatial pattern upon it. Each specific pattern impressed on the photon (that is each particular kink pattern of the photon) corresponds to a specific differential operator function. Through this means, a specific theory can be constructed empirically. That is, one can work out the effects of various mixtures of waves on specific biological systems, measure the specific channels used by the mind-life-consciousness loop, and so on. The Lisitsyn paper and Kazhinskiy's "biological radio" work in fact state that the Soviets have already done precisely this, and the Kaznacheyev paper shows that a large number of related biophoton experiments were in fact carried out in Soviet military laboratories. But let us look at some very important and exciting German work directly related to this area.

BIOPHOTONS AND VIRTUAL EM FIELD OF A BIO-ORGANISM

In an incredible piece of work, "Photon Storage in Biological Systems," in *Electromagnetic Bio-Information*, Urban and Schwarzenberg, Baltimore, Md., 1979, pp. 123-149, Dr. Fritz Albert Popp has presented the results of his laboratory work—and his theory—dealing with quite new developments in biological organism fields. Indeed, this may be one of the most important Western papers ever presented, if its true import is noticed. Briefly, in studying cellular electromagnetic bioactivity, the cell behaves as a system far from thermal equilibrium. It thus can be characterized as a Prigogine system. (Ilya Prigogine received the Nobel Prize in 1977 for his development of nonlinear thermodynamics of systems far from equilibrium, thereby changing the second law of thermodynamics.) We now know that in such a system negative entropy can result, and order can emerge from disorder. For a wildly disordered system, large-scale order can emerge and stabilize, and the more chaotic the disorder, the greater the stability of the ordered patterns that emerge. (Which seems to imply a confirmation of my fourth law of logic—total disorder must inevitably turn into total order.)

At any rate, living cells produce coherent light with a laserlike activity. This coherence serves as a control for the metabolism of the cells, regulates growth, and fixes the reproduction rate. Further, the cell exhibits superconductive behavior.

Popp found that a living organism in fact possesses a living aura, a virtual electromagnetic field that pervades the entire organism with a virtual photonic flux. In this field, virtual photons are stored. The field continually receives inputs (virtuals) from the environment and is continually outputting biophotons, particularly in the near ultraviolet. This field, in which all cells are bathed and with which they all continually intercommunicate, tends to stabilize and cohere the organism. All this has been established by laboratory experiments, and all of it is directly consistent with my own hyperfields and nested-virtual-fields model of the living system's life-consciousness loop connecting its mind hyperworld to its physical body tuner. My model is consistent with Popp's work and extends it by adding the nested structures of the virtual field, thus connecting Popp's virtual field to the neutrino field and the mindfield.

And with this additional information in mind, let us return to our consideration of nested modulations on an electromagnetic carrier. Indeed, let us look at several examples of devices already applying the "nested modulation is hyperspace vectoral" effect.

THE PRIORE MACHINE

The cure for cancer mentioned above is the Priore device in France, which has been curing cancer and other diseases for over a decade, much to the frustration of many members of the French Academy of Sciences.

Antoine Prior⁶ is an Italian-born inventor who escaped from the Germans in World War II and fled to France. After the war Priore⁷ purchased surplus equipment and eventually developed a strange machine that filled an entire room. A nozzle above a table in the center of the room emitted a strong ray or field, which Priore⁸ explained consisted of an electromagnetic wave in a magnetic field. Eventually the French government spent almost three million dollars for construction of a new, improved Prior⁹ machine, because Priori had shown he could cure cancers in laboratory animals with the device.

In 1964 Professor Robert Courrier, renowned biologist and secre'taire-perpetuel of the French Academy of Sciences, presented some of Priore's results to the Academy. Forty-eight cancerous rats had been divided into two groups of twenty-four each. One group was set aside without treatment as a control, and the other group was divided into two subgroups of twelve each. One of these subgroups was treated by the Priore machine promptly after cancer grafts, and the other was treated after a lapse of several days. Both subgroups were completely cured—the first quickly and the second after more prolonged treatment. All the control rats died in twenty-two to thirty days after grafting.

The results created a furore and a controversy that have continued to the present day. Since the first presentation by Courrier, the machine has repeatedly cured leukemia and other forms of cancer in laboratory animals. The controversy seems to have arisen because the French Academicians could not comprehend the working of the machine, and because the inventor would not reveal how it worked but only how it was built.

The second, more powerful Prior⁶ machine produces a magnetic field of about 1,240 gauss. According to one scientist, the machine contains a gas-filled vacuum tube, which contains a plasma of mercury and neon gas. A pulsed 9.4 gigahertz electromagnetic wave is modulated onto a 17 megahertz wave in this plasma. However, the true nature of the machine is revealed by the fact that the 9.4 gigahertz wave is joined in the "lamp" by seventeen radiations of unspecified frequency and nature. Thus we see that Priori is actually using second-order multiple modulations and is dealing with the direct life-mind-consciousness loop of the mammalian cell. He is directly stimulating and engineering the hyperspace nested virtual bands with his device. His twenty-six years of work have mostly been involved with ferreting out the required precise frequencies and mix of second-order modulations, as well as the correct intermodulation carrier necessary to obtain the desired effects.

In Figure 10 we show a simplified diagram of the Priore device, from which it can immediately be seen that the device uses the same principles shown previously in Figure 9. Prior⁵ is using nested orders of modulations to affect nested orders of virtual state, thus producing direct channels and effects in neutrinic field and in mindfield. Radiating a biological target such as a laboratory animal with such a complex field directly engineers its mind-life-consciousness loop. With the correct nested modulations on the correct carrier (in this case a strong magnetic field, which allows a stronger connection to the neutrinic field aspects), the mind-life-consciousness loops of the individual cells in the body of the irradiated animal are "scrubbed clean" of any deviation from the norm by the virtual patterns delivered to the animal, and hence to its "virtual biophoton stabilization field" reported by

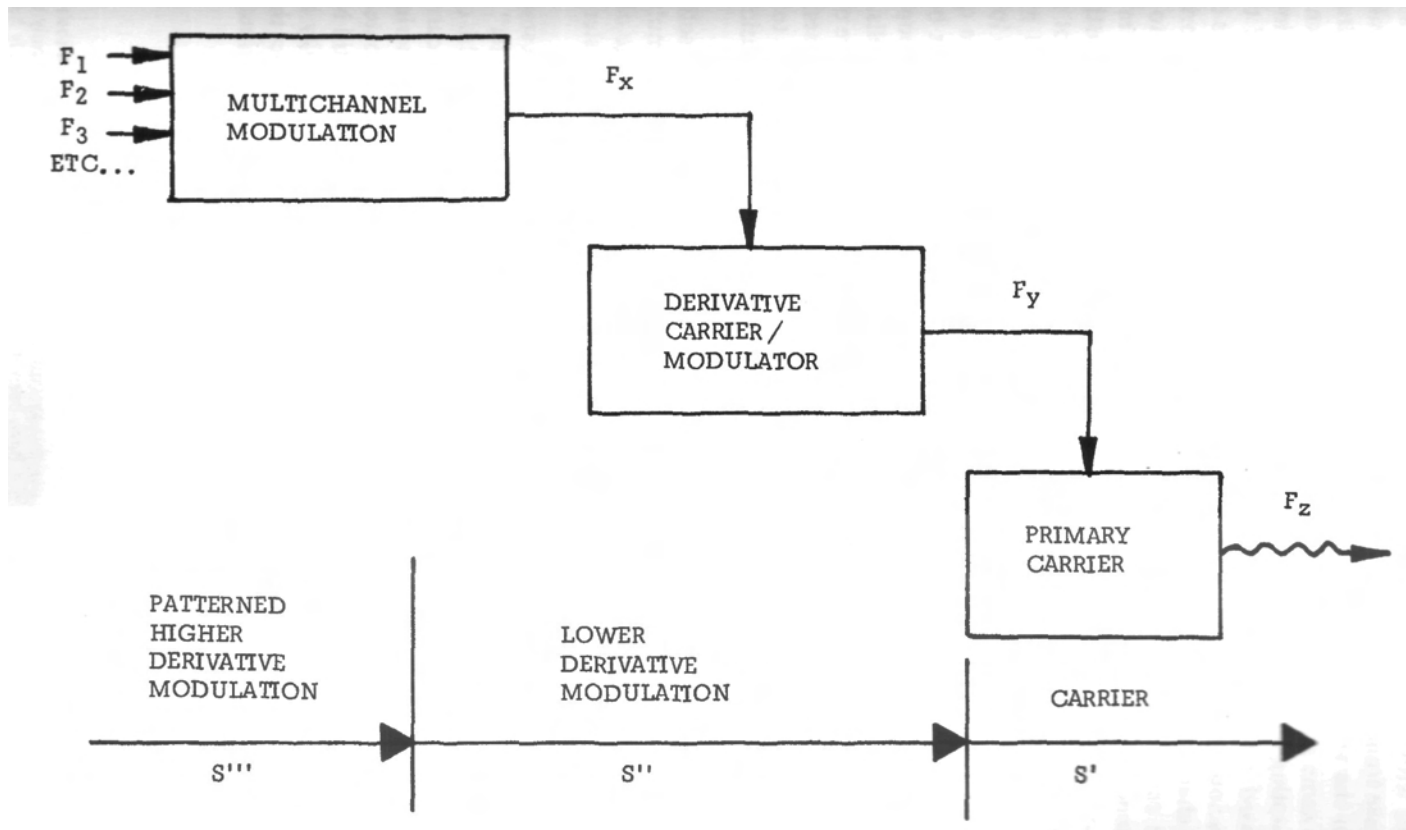


Figure 10. A simplified diagram of the Priori device

Popp. In other words, the Priore device produces a reverse sort of effect as compared with the Soviet work reported by Kaznacheyev on anomalous death and disease transmission between cell cultures by near ultraviolet biophotons emitted from the virtual Popp field of the dying cells of the stressed, attacked cultures. The same sort of virtual engineering that can transmit death of the organism (by disrupting its mind-life-consciousness loop tuning) can also transmit life into a stressed attacked grouping of cells by a sort of "forced resonance" of their consciousness loops into normal health patterns. (Virtual state interactions control charges, which control chemistry. Thus the entire chemistry of the absorbing cells can be controlled and engineered.) Also, the Lisitsyn paper refers to the presence of eleven independent channels in the brainwaves (namely, in the mind-life-consciousness connection to the waves of dendrite firings that constitute brainwaves*), and these were specifically referred to clipped signals, not sine waves. (The clipped signals would be those possessing complex nested modulations, and thus representing the tuning effects of the life-consciousness loop.) The Priore machine uses seventeen higher-order modulations, which are quite sufficient to cover all eleven life channels required, with an additional six being available for tuning so as to squelch or "jam" the life-consciousness loops of those cells with tuning abnormalities, that is, of diseased or cancerous cells.

As we would expect, the Priore machine has also shown its ability to cure other infectious diseases and materially benefit victims of cardiovascular diseases. Infectious diseases cured by Priori radiation also provide an immunity to the treated host organism that has been shown to be transferrable by transfusion of blood samples.

Again I strongly emphasize that the individual biological effects of solitary magnetic fields or single frequency waves cannot be extrapolated to the multiple frequency, nested modulation case; and almost all our present knowledge of the effects of electric, magnetic, and electromagnetic fields on biological systems is woefully immature and incomplete.

T. Henry Moray built a somewhat similar machine—though very much smaller—which provided a direct radiation from extensive "peach blossom violet" colored sparkgaps inside a quartz tube, and which greatly stimulated the health of an individual exposed to the radiation. In fact, the device would promptly cure the radiation burns Moray frequently suffered as a result of his continual experimentation with uranium compounds and other radioactive substances. He patented the device, and some of his original machines are still in existence and still being used to treat patients with a wide variety of ailments. I have personally been exposed to one of Moray's treatment machines and can vouch for the fact that it stimulates every cell in one's body, providing in about two to three minutes a great tonic and health stimulant.

*It is these dendrite firings which form the collector-detector mechanisms through which the mind-world changes are joined to the human nervous system and brain. Were they not specifically useful and needed, the dendrite firings would not have been developed, and nerves would simply be long wires.

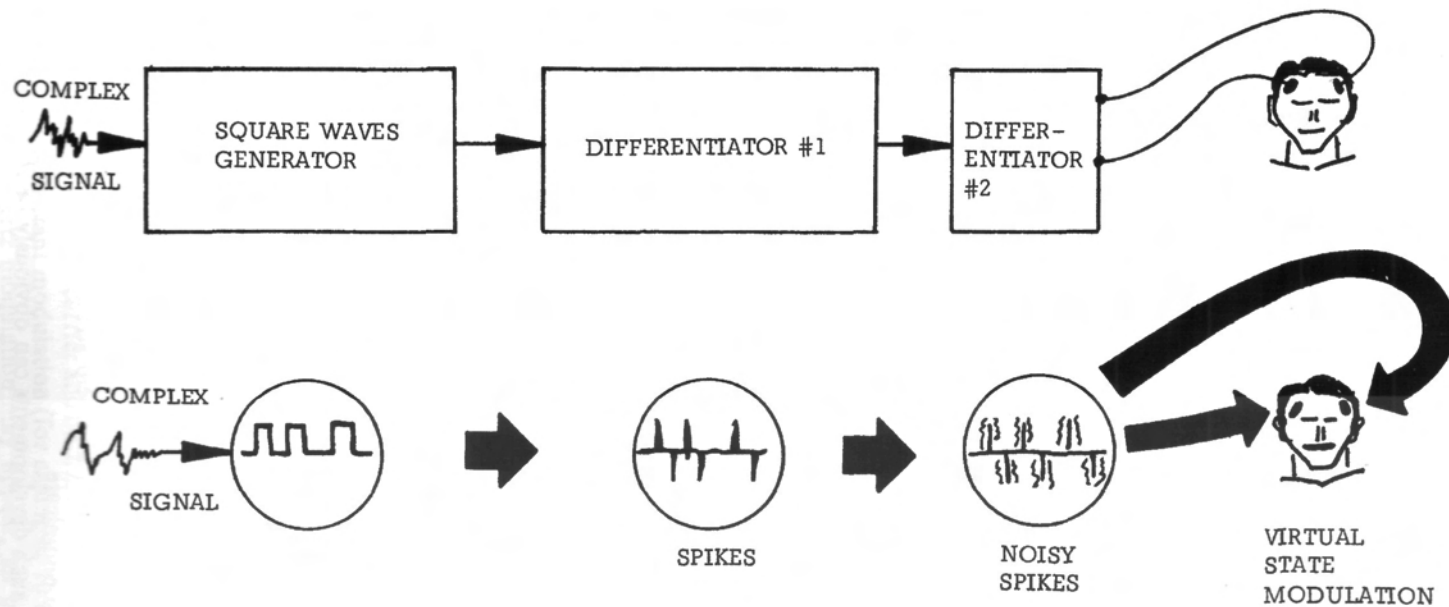


Figure 11. A simplified diagram of the improved Flanagan neurophone

THE NEUROPHONE

Another device that uses the new hyperspatial, virtual state, nested modulation technology (and has done so for seventeen or eighteen years) is Dr. Pat Flanagan's neurophone. With brilliant insight and intuition far beyond that of science at the time, Pat invented and patented the instrument by the time he was seventeen years old. The neurophone is a device that, contrary to all present theory and knowledge, will directly "pump the brain" and reproduce sound and information directly in the brain and mind system, without going through the auditory system at all. A simplified diagram of Pat's improved neurophone is shown in Figure 11.

Briefly, the device takes a complex signal, such as the sound of an orchestra playing a musical interlude, and electrically processes it as shown in the figure. First the signal is passed into a section that clips everything into a series of square waves, remarkably analogous to the sort of clipped waves Lisitsyn confirms are the information carriers of the human brain. Next the square waves are differentiated, yielding a series of sharp spikes (note that these spikes retain the pulse-time content of the clipped signal). These spikes are again differentiated, and since these are finite spikes with real nonzero rise times and decay times rather than theoretical constructs, a series of noisy spikes results from the second differentiator section. From here, the noisy spikes are introduced to special contact electrodes, one of which is normally placed on the forehead, while the other may be placed almost anywhere, including on the foot. Nowhere are any sound waves introduced to the head.

The square-wave clipper section reduces the complex signals, their overtones, and their complex modulations to square waves, retaining the temporal content of the wave mix but not the waves themselves. The first and second differentiators heighten or filter through the temporal content of the higher-order differentiations, that is, they serve as a band pass filter unit to accent the time keying of the neutrinoic and mindfield portions or aspects of the signal. When these time spikes are then introduced across the body as pulsed voltages, they are modulated directly on the dendrite firings of the brain and nervous system, providing direct and pulsed modulation of the neutrinoic and mindfield component channels of the mind-brain-consciousness-life loop itself. Thus the neurophone directly inputs information into the brain and nervous system, bypassing all the normal sensory systems that lie between the mind-brain loop and the outside environment.

Indeed, a similar development has been reported by two University of Missouri researchers. Dr. Donald York, a neurophysiologist, and Dr. Thomas Jensen, a speech pathologist, have recently reported identifying and decoding twenty-seven words and syllables in specific brain wave patterns and correlating these electroencephalographic patterns with both the spoken word and the silently thought word in about forty subjects. At present, Dr. York and Dr. Jensen are programming a computer with a brain wave vocabulary, to monitor and read the EEG of a stroke victim's brain and help stroke victims who have lost their powers of speech to communicate.

While all such developments can obviously be misused, their potential for assistance to mankind is enormous. Indeed, my own premise that brain linkage it

possible and can be used to advance all mankind to the sixth stage of species evolution is slowly being proven. It is within our reach now to develop a multi-channel communications system that will directly link brains, minds, and consciousness into a single functional being; and I have already pointed out that the psychokinetic power of the emergent entity increases exponentially with the number of linked stages. The normal corpus callosum linkage of the two cerebral halves in each human head proves that brains, minds, and beings can be linked and integrated into one.

The Excalibur Briefing details the basic concepts of the theory involved in hyperspace-virtual state engineering, and thus in the engineering of mind-life-consciousness links to multicellular organisms here on earth. Pat Flanagan's neurophone proves that complex information can be implanted directly in the brain and mind, bypassing the normal isolating barriers. Drs. York and Jensen have shown that the brain wave does indeed contain recognizable, decodable information analogues. Lisitsyn has already reported measuring the number of independent channels involved and has documented the importance of the clipped brain waves as opposed to the sine-wave content. If we have the vision, we can still develop a brainlink and rapidly apply it to link sixty to one hundred persons, thereby opening a conscious, multidimensional "eye" for the collective human unconsciousness, gently rousing ZARG into wakefulness, and fulfilling human destiny without undergoing the psychotronic Armageddon planned by the Soviets. The time is short, but it can still be done if the funding, the vision, and the team can be established on a crash priority basis.

SOVIET "WOODPECKER" SIGNALS

But, as I have said, all this can be used for the detriment of mankind as well as for its benefit. Unfortunately, it appears that the Soviet Union has chosen to weaponize the effects on a global scale. A prime example is the "woodpecker" signals emanating from the USSR in the 5-30 megahertz region and interfering with communications around the earth.

These complex woodpecker signals appear to originate from two or three dozen powerful Soviet transmitters, each with a power estimated as high as 40 megawatts (Figure 12). The pioneering experimental measurements of these signals by Dr. Robert Beck and William Bisehave shown just how deadly a potential may be possessed by the signals. These measurements have been performed in Eugene and Portland, Oregon; Los Angeles, California; Huntsville, Alabama; and several other locations. They have been particularly significant on the West Coast in and around Eugene, Oregon because of the presence of a direct current transmission line several hundred miles long, which has acted as a long wire antenna, picking up the signals and rebroadcasting them with appreciable gain in the vicinity.

Typically the signals may be found on, say, sixteen different carriers between 10 and 20 megahertz. Twelve of the carriers may appear normal, with normal sidebands, and the other four may have the carrier and both sidebands suppressed but still show the biologically significant modulation (for example, 10 hertz). On all sixteen channels a strong 10 hertz modulation may appear, all perfectly time

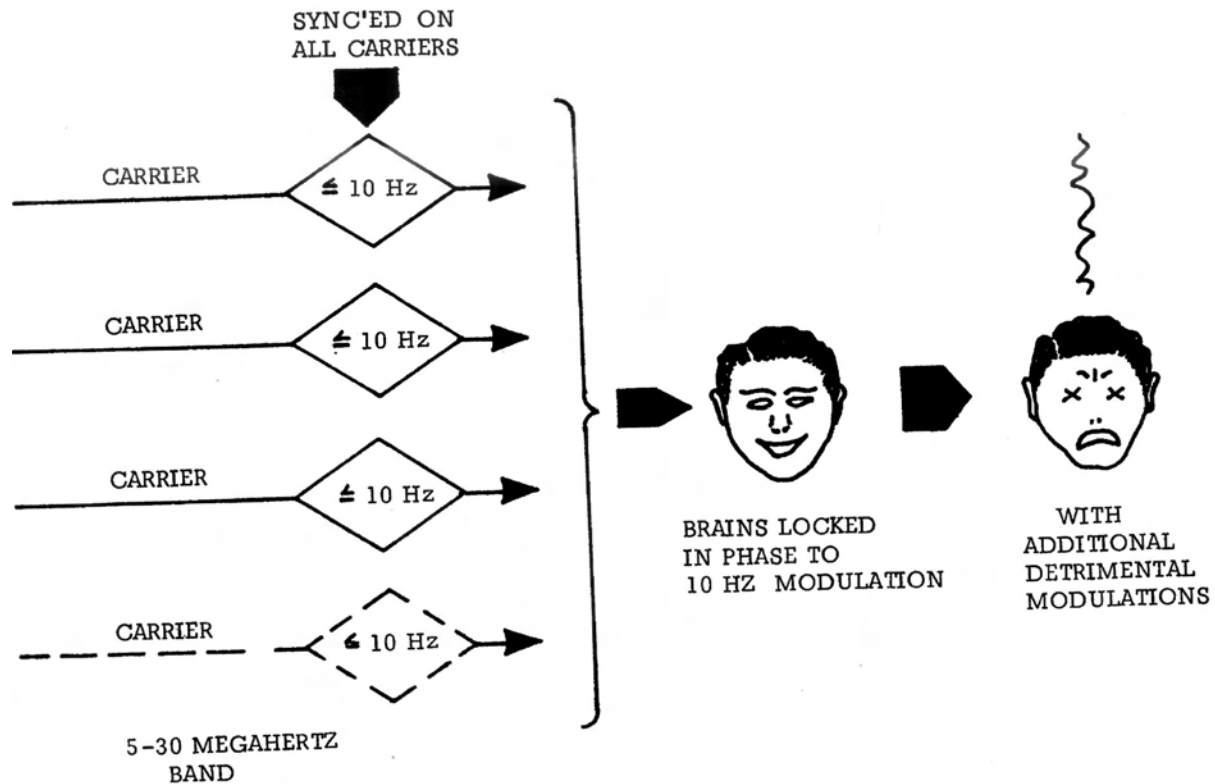


Figure 12. The Soviet "woodpecker" signals

synchronized and in phase channel-to-channel. The received signal from one of these carriers may be twenty-five to thirty times as strong as the earth's background magnetic field, which is oscillating at approximately 7.0 to 7.5 hertz. Other complex modulation frequencies, many of them changing, are present on the various channels.

Normally, the brainwaves of mammals in an area are gently entrained by the normal oscillations of the earth's magnetic field and are oscillating along at, say, 7.5 hertz. Under continuous radiation from the Soviet woodpecker signals, a percentage (say 30 percent) of the mammalian brains may be captured by the 10 hertz modulation on the overpowering Soviet signals. These captured brains are now in forced oscillation and are riding along in phase with the 10 hertz Soviet modulation. In other words, a certain percentage of the human brains in an area will phase lock to the 10 hertz modulation, and that will effectively lock into those brains the sixteen carrier frequencies with their concomitant frequency mixes and complex signal modulations. If the signals are made much more powerful (for example, by focussing them onto one particular area or increasing the power of the transmitters), then a much higher percentage of brainwave entrainment can be accomplished in the targeted area. By simply adding on the desired modulation patterns, the Soviets can now pump material directly into the mind-brain-consciousness-life loops of the entrained brains. The weapon implications are enormous: raw emotion such as sheer terror or panic can be transmitted; death or disease patterns of all kinds can be transmitted; informational content (thoughts and ideas) can be impressed directly into the captured brains and minds and processed as if originating inside each brain itself. Indeed, as long as the Soviets keep the effects rather gentle, an entire population can be subtly influenced without governmental notice. Certain specific ELF frequencies can rapidly disable or even kill, and for wartime use those frequencies can be directly implanted in the captured brains themselves by the woodpecker signals. It appears that 1984 came a little early, and one can perhaps now understand Brezhnev's strange 1975 proposal to the SALT negotiations that we should also consider outlawing the development of new weapons more frightful than the mind of man has ever conceived.

The signals also have direct application against strategic targets other than personnel. For example, by incorporating the correct nested modulation pattern, the positron kindling (electron squelching) pattern can be impressed. By beaming through the earth (with a circularly polarized signal or with other complex modulation forms), a beam with a strong neutrino component, which will squelch electrons and which will interact with great preference for strong voltages or strong magnetic fields, can be directed at a target complex. In the targeted area aircraft and communications systems can be disabled; automobile, truck, and other ignition systems will fail; power transformers and large motors and generators will fail; power transmission systems with their associated high voltages will fail; and so on. Even independent, self-contained emergency power equipment, such as at military installations and strategic missile sites, will fail to operate. Further, to some of these signals, the earth and the sea are as transparent as glass, and so underwater nuclear submarines can be electrically disabled on station before their missiles can be fired, while strategic missile complexes can be elec-

trically disabled before their deadly nuclear missiles can be hurled toward their distant targets. If some submarines and land complexes succeed in firing missiles before being disabled, these missiles can be electrically duded and scrubbed from the sky over Soviet territory while still far from their intended targets.

So, as stated at the end of *Excalibur*, the players are on stage and in place. The final act begins. One thing is sure—mankind will never be the same again after seeing the play!

PART FOUR

SOVIET PHASE CONJUGATE DIRECTED ENERGY WEAPONS

WEAPONS THAT USE TIME-REVERSED ELECTROMAGNETIC WAVES

At the end of WWII, the Soviet Union obtained the cream of the crop of Germany's radar scientists and infrared scientists.

At that time, the German scientific team led the world in the theory and technology of radar absorbing materials (RAM) and radar cross section. For example, some leading Western radar experts believe that the German scientists had already advanced the theory of radar cross section beyond where Western scientists have arrived at today. Radar cross section science is the "heart" of modern radar technology, countermeasures, and counter-countermeasures.

The theory of RAM technology is precisely what is needed to develop and design phase conjugate mirrors for radar frequency bands. Phase conjugate mirrors are capable of producing a time-reversed (TR) wave in direct response to a received ordinary wave. The mirror may be powerfully "pumped" with energy to produce a very large amplification of the time-reversed wave.

Just after WWII, the Soviets also mounted a truly massive program to obtain and review all the scientific literature of the West. This material was completely re-examined and digested, in a deliberate search for a major new technological "break-through" area. Nothing similar to this has ever been done in the West.

By 1950, the Soviets probably had discovered phase conjugation and the time-reversed wave, in their radar programs using the German radar scientists. Their research would certainly have revealed that the time-reversed wave is a solution to the wave equation, and hence the phenomenon is universal to all waves and frequency regions, under appropriate nonlinear circumstances.

We stress the fact that from the beginning the Soviets have always led the rest of the world in nonlinear science and mathematics.

Thus by the mid-50's, the Soviets would have mounted an intensive national development program on these radar TR wave weapons. If so, the Soviet Union has now had the equivalent of some seven or eight Manhattan Projects, back-to-back, in the development, stockpiling, and deployment of TR wave weapon systems. At least fifth generation Soviet TR weapons have been developed and deployed.

This is a matter of the greatest importance to the U.S.—and one which the U.S. intelligence and scientific communities have largely missed.

We particularly stress that the time-reversed wave phenomenon is a universal phenomenon of nature, not just a fluke, and not just a "nonlinear optics" phenomenon. It is a solution to the wave equation and, as such, it applies to every kind of wave. Electromagnetic, sound, magnetohydrodynamic, and other radiating systems all exhibit the phenomenon under appropriate nonlinear conditions.

Hundreds of Western papers dealing with time-reversed waves are now in the open scientific literature—most of them dealing with non-linear optics. However, the principles of the time-reversed wave are well-established, and known to apply to waves in general.

Compared to a normal wave, a time-reversed wave has startlingly different weapon capabilities.

Such a wave precisely retraces the path of the ordinary wave that stimulated it to be formed. So it possesses an "invisible wire" through space, back to the original position of whatever emitted its stimulus wave.

Further, the time-reversed wave continually converges upon its invisible "back-tracking" path. It does not diverge and spread its energy, in contradistinction to normal waves.

Using several simple schemes (particularly pumped 4-wave mixing), extremely large amplification of the time-reversed (TR) wave can be cheaply and readily accomplished.

A startling weapons capability therefore emerges when amplified TR waves are generated in response to received signals from a distant target:

(1) If any signal at all can be received from a distant target, a return TR signal of extreme power can be delivered directly to that target. Almost all of the transmitted TR signal energy will arrive at and in the distant target, even through a highly nonlinear medium or under scattering conditions. Hardly any of the energy will be lost enroute. If the target is fast-moving, a "lead correction" signal can be calculated and added to steer the return path.

(2) Since real-time holography can readily be accomplished using TR waves—and without first making holograms, geometrical forms (balls, shapes, hemispherical shells, etc) of energy can be created readily by interferometry (crossed beam techniques). Since the TR wave carriers do not disperse with distance, these interference energy forms can be assembled by crossed TR wave beams at great distances—even hundreds of thousands of miles. The energy appearing in such a distantly created energy form is limited only by the amount one cares to put in at the amplified transmitting end.

Thus the radar itself now becomes a powerful, all-around weapon. With a TR wave adjunct, once the radar receives a return signal from a target, an extremely powerful TR wave pulse can be generated, and all the energy in that pulse can be unerringly returned to the distant target from which the return was received.

Even a passive (receive only) radar may be used together with a TR wave adjunct to accomplish the same directed energy destruction of the distant target emitting the signals received by the radar.

Radio receiver-transmitters may also employ simple TR wave adjuncts to provide a large number of communications jammers and "directed energy weapons," capable of jamming and/or destroying enemy radio transmitters at appreciable distances.

The Soviets have intensively developed such TR wave weapons since the 1950's. In January 1960, Khrushchev was probably referring to these weapons when he reported to the Soviet Presidium the forthcoming advent of fantastic weapons, then in advanced Soviet development.

Prior to Khrushchev's announcement, the Soviets had begun radiating the U.S. Embassy in Moscow with scalar EM waves and phase conjugate energy, modulated upon weak microwave carrier beams. Later these beams were used to induce illnesses and blood changes in Embassy personnel. (We will shortly discuss how the Soviets could induce disease at a distance, electromagnetically). The microwave radiation con-

tinued intermittently, in spite of the objections of several U.S. Presidents. U.S. studies failed to comprehend what was being done.

The Embassy radiation was and is a high-level intelligence probe: Stimulate and affect the U.S. Ambassador, a high-level target. Attention by the CIA, NSA, State Department, DIA, the U.S. President, etc. is guaranteed. Puzzled, they will turn to the U.S. scientific community for an explanation. The scientific community will try to explain the microwave radiation, using the best of its EM knowledge. By the U.S. counteractions taken or not taken at the Embassy site, the Soviets know with 100% certainty whether or not the U.S. has discovered TR wave weapons, electromagnetic disease control, etc.—and whether we have developed defenses against such weapons.

Since the beginning, of course, our actions—or lack of them—at the U.S. Embassy have consistently revealed to the Soviets that we have no knowledge of, and hence no defenses against, TR wave technology and the scalar electromagnetics (electrogravitation) that accompanies the phenomenon.

Soviet TR wave radar weapons also provide a convenient mechanism for accomplishing nuclear weapon kill. A target struck by a powerful TR wave pulse generates a time-reversed back-pulse due to nonlinearities in the target medium. In the nonlinear medium of the exploding or fuzing target, the two pulses (which are 180 degrees out of phase with each other) modulate each other, locking together into a scalar EM wave or pulse. This scalar EM pulse has zero electromagnetic force field resultants, but is a violent fluctuation of the energy density of local spacetime. Rigorously it is a local gravitational pulse wave, by definition. Further, it is far more powerful than "normal" gravitational waves. This scalar EM pulse does not react with the orbital electron shells of an atom, but passes directly into the nucleus and is absorbed there. This raises the nucleus to an excited state, increasing its potential (trapped energy). If the nucleus cannot withstand this increase in potential energy, it directly fissions. If the nucleus withstands the increased potential, it then immediately decays from the excited state by simply emitting a time-reversed EM wave.

Any radioactive nucleus is already "teeter-tottering" toward nuclear decay, so to speak, and it will instantly decay radioactively when struck by a significant scalar potential pulse. Thus a TR wave radar weapon can deliver a powerful TR pulse against a distant vehicle carrying a nuclear warhead, and the resultant EG pulse penetrating the nuclear material of the warhead will electrogravitationally explode it in a full-order nuclear detonation.

Therefore, when using such weapons, extreme care must be taken to avoid inadvertently pulsing one's own nearby nuclear weapons or nuclear material. In attacking distant ground targets, one must be careful not to detonate nearby nuclear weapons, nuclear powerplants, or stored nuclear material—even at some distance from the target. Otherwise, large-scale nuclear fallout will be experienced over a worldwide area, and unacceptable "boomerang" self-damage to the attacker himself may be incurred. The more powerful the TR pulse employed, the greater the safety separation between the struck target and stored nuclear material must be to prevent unacceptable "boomerang" large-scale fallout.

Also, large TR wave interferometer weapons, such as the Woodpecker systems, usually first produce very powerful, scalar EM "standing wave" beams by continuously transmitting (in the beam) both a normal EM wave and its phase conjugate.

modulated (locked) together to produce a "zero EM vector resultant" electrogravitational (EG) wave. Interference of two of these scalar EM beams in the targeted area, plus internal scanning within the beam by other signals, allows EM effects—of either normal EM energy or time-reversed EM energy—to be produced and controlled at very precise locations within the broad interference area.

Each such huge "scalar EM standing wave" beam represents a gigantic electrogravitational standing wave, and hence a giant oscillating potential in spacetime. This standing wave represents a sort of gigantic "capacitor", or accumulator of in-folded energy. Enormous energy may be collected in this potential, charged-up over a period of time. "Shortcut" of this giant capacitor—by transmitter failure—can result in a large flash-over discharge of the EG energy into the local earth, producing a massive EG ground wave that can be enormously destructive.

Thus one must carefully protect the TR wave weapon system from inadvertent discharge of large EG pulses into the earth at the local site, due to transmitter failure, shortouts, etc. Otherwise one's own nuclear weapons or facilities may be exploded—even at some distance—by the EG pulse ground wave produced. One's communications and electronics installations, for example, can be knocked out at an even greater distance.

For example, in the winter of 1957-58, a large Soviet TR wave prototype weapon at Kyshtym, near the Urals, apparently suffered a catastrophic transmitter failure, discharging a powerful scalar EM (electrogravitational, or EG) pulse into the earth. This huge EG pulse struck the atomic wastes stored nearby, causing the radioactive nuclei to immediately decay. In other words, the nearby atomic wastes exploded—just as eyewitnesses reported. Deadly radioactive contamination spread across a major region, and exists to this day.

After this accident, the Soviets would have developed much more elaborate safety circuits and devices and implemented them into their TR wave weapons.

Even so, in April 1986, the explosive eruption of a reactor at Chernobyl was almost certainly caused by an accidental catastrophic failure of a large TR woodpecker transmitter about 30 kilometers away. The sudden failure of the East-to-West Woodpecker transmitter was positively detected by engineer Bill Bise. All safety circuits at the site would have been instantly activated, desperately and slowly draining off the huge "standing wave" potential built up by the weapon.

The Soviets would have immediately shut down the reactors at Chernobyl as a precaution.

Some hours later, the transmitter safety devices finally failed, and a much smaller, though still significant, remnant EG pulse was discharged into the earth, spreading out in a ground wave. The first radioactive material—the fuel rods in one of the hapless, shutdown Chernobyl reactors—encountered by the EG ground wave pulse received it and immediately erupted radioactively.

Had the full EG pulse escaped the stricken transmitter, all four reactors at Chernobyl would have violently exploded, and deadly nuclear fallout would have rained down over a wide area of the earth. Had the reactors not been shut down and the control rods inserted "full-in" to dampen the radioactivity, a far greater radioactive eruption—probably a nuclear explosion—of the struck reactor would have occurred.

In May 1960, a prototype TR wave radar weapon was used to down Gary Powers'

high-flying U-2 aircraft over the Soviet Union. Powers reported a flash, as if from an explosion near him, but the flash persisted. This is almost certainly the signature of a TR wave weapon.

In April 1963, the first large strategic Soviet TR wave weapons became operational. These weapons were used to electromagnetically deaden the electrical controls of the *U.S.S. Thresher* atomic submarine on April 10, 1963, and to produce a huge underwater electromagnetic blast 100 miles north of Puerto Rico on April 11, 1963.

Since the 1960's, the Soviets have possessed a 100% effective defense against U.S. and European strategic bombers and missiles. The early systems deployed in the Soviet Union were midcourse and terminal phase systems. The Soviets would also have relied upon additional TR wave weapons systems, deployed as adjuncts to radar systems aboard research ships and crawlers, to be able to attack U.S. missiles and bombers in their launch and early midcourse phases.

These Soviet defensive TR wave systems also could easily accomplish nuclear weapon kill, and by their nature may have already been immune to the Stealth technology.

Older Soviet radars, using TR wave adjuncts, become totally new weapons having startling and heretofore unsuspected capabilities against missiles and aircraft. For that reason, the Soviets happily continue to operate and maintain thousands of older radar systems that, by Western radar standards, are seemingly obsolete.

Hundreds of incidents of Soviet tests of these TR wave weapon systems have been observed around the world, and reported in the open literature as puzzling or anomalous phenomena.

In the 1960's, in Siberia, Vlail Kaznacheyev and his researchers accomplished enormous experimentation proving that cellular death and disease—of any type whatsoever—could be transmitted and induced electromagnetically. This team went on secretly to phase conjugate (time reverse) the "death photon" signals, to show that any cellular death and disease can be reversed or "cured" electromagnetically as well.

The latter work would have been done under the auspices and tight control of the Soviet KGB, since all phase conjugation (time reversal) weapons effects are under the KGB, both for development and deployment. Obviously the "electromagnetic antidote" work of Kaznacheyev was not published, because it provided a powerful counter-BW warfare capability of great strategic importance to the Soviet Union.

Thus in the late 1960's, the Soviet Union became the only nation on earth to achieve the capability of rapidly (within one or two hours) developing an electromagnetic antidote for lethal new biological warfare (BW) viruses—of any kind whatsoever. The Soviets also developed the capability for mass treatment in this fashion of both the civil populace and the military forces personnel.

Independent verification of the Kaznacheyev "death photons" effect has been accomplished in West Germany (University of Marburg), in Australia (University of Sydney), and in the United States (by G. Wilbanks).

Independent proof of electromagnetic healing of viral diseases was also accomplished in the West, and largely ignored.

In the late 1960's and early 1970's, a French inventor—Antoine Priore—built and tested several large electromagnetic devices that cured thousands of cases of terminal cancers and leukemias in laboratory animals. He worked with members of the pres-

tigious French Academy of Sciences. His work was funded by the French government and presented to the French Academy by Robert Courrier, head of the Biology Section. His work was suppressed in the 1970's, and lost when he died.

Priore used a plasma to accomplish multi-wave mixing and phase conjugation (time reversal). His time-reversed curative signals used a powerful, rippling magnetic field as a carrier; the magnetic field guaranteed penetration of every cell in the body—necessary to reach a blood disease. The rippling of the magnetic field guaranteed penetration of the cell's atomic nuclei by nuclear magnetic resonance. Penetration of the actual nuclei of the atoms in the diseased cell is necessary, since the master cellular control system (discovered by Dr. Fritz Albert Popp of West Germany) operates through the cell's structured scalar EM biopotential, and this potential is centered in the nuclei of the atoms comprising the cell.

Note that electrical dedifferentiation of cells at miniscule current—between picoamperes and nanoamperes—has been proven by Robert Becker and other researchers. Red cells of the frog, for example, have been electrically reversed through all their development stages. The cells first become round, then develop a scalloped outline in their membranes. Then they become ameboid and move by means of pseudopods. Their nuclei swell and their DNA becomes reactivated. They then rid themselves of all their hemoglobin and develop a full set of mitochondria and ribosomes. In Becker's historic experiments, the cells then turned into cartilage-forming cells, and finally into bone-forming cells. In short, Becker demonstrated dedifferentiation followed by redifferentiation into an unrelated cell type—all electrically initiated with laughably weak currents.

Thus profound cellular changes are most certainly inducable and controllable electromagnetically, by miniscule amounts of potentials and currents. Priore's machine applied time-reversed EM waves to accomplish reversal from cancerous cells back to normal cells.

Priore's work essentially proved that Kaznacheyev's group would have been able to accomplish the same thing by phase conjugation.

Kaznacheyev's "death photons" work was probably accomplished much earlier than reported in the open literature. Thus it probably provided a basis to use in the microwave radiation of the U.S. Embassy in Moscow, to engender blood changes and disease in targeted personnel. Two U.S. ambassadors died from a leukemia-like disease, and a third sickened and bled from the ears and nose. Only miniscule levels of EM signals would have been necessary to induce such biological conditions.

The present Woodpecker radars probably have the capability of producing similar conditions in distant target populations, whenever the Soviets wish to add the appropriate signals. They also probably are capable of killing large numbers of the targeted population, whenever appropriate Kaznacheyev "death signals" are placed upon them.

In the late 1960's, another cautious Soviet "intelligence probe" was used: A paper appeared in the open Soviet literature, dealing with time-reversed waves in the field of nonlinear optics. Only a few American optical scientists seemed to be interested.

In 1972, to focus more U.S. attention on their subtle "intelligence probe" of U.S. time-reversed wave knowledge, the Soviets sent two scientists to Los Alamos to brief American scientists on optical phase conjugation. Thereafter many U.S. optical scientists began to work in the "new field." Immediately it was revealed to the Soviet Union

that the U.S. had ineffective knowledge of phase conjugation, and that the U.S. had no TR wave technology or weapons.

To this day, U.S. theoretical work in phase conjugation is still characterized by a fairly simple overall math model, obtained by simply "writing down" the necessary conjugate term. There appears to be absolutely no U.S. awareness of the actual physical electrogravitational mechanism that causes the phase conjugation/time reversal, and no theory of it as such. Its direct application to radars appears to have largely been ignored in the U.S.

In 1975, the Soviets attempted to obtain a treaty with the rest of the world, outlawing the development of frightful new weapons of mass destruction—"more frightful than the mind of man had ever imagined", according to Brezhnev himself. Gromyko introduced the draft treaty into the 1975 session of the United Nations General Assembly. No one knew what the Soviets were referring to.

Failing to obtain the treaty, the Soviets in 1975-76 embarked on the greatest military buildup in history. This buildup was nothing short of a full-fledged preparation to be ready to take over the world, beginning in 1985 (the "ready" time per Brezhnev's 1972 statement at a secret Prague meeting of European Communist Party leaders). The Soviets met this scheduled goal.

As we stated, The Soviets can be immune to any kind of viral biological warfare, anytime they choose to be. The use of lethal new viruses thus has become a highly favored, low-risk method of warfare for the Soviet Union. The West has no such capability against viral warfare, and in fact is totally vulnerable to attack in this manner. Both Western troops and Western civil populations are totally defenseless against the threat of viral biological attack.

A BW strike from a small, hostile nation or from a few radical terrorists—or even an inadvertent contaminant spillage from one of the great many ill-controlled private genetic experiments—can result in the introduction of a lethal, highly infectious new virus that will decimate the West. Indeed, a deliberate BW viral attack upon us may already have been unleashed.

In 1971, the U.S. passed the National Cancer Act and declared open warfare on cancer. Iron Curtain country scientists were invited to participate, and they did so with alacrity. At the time—ironically—penetration of our recombinant DNA genetics research was one of the highest priorities of the Soviet KGB. Obviously, many KGB scientists/agents were infiltrated into our labs under this program (some of our cancer research labs at Ft. Dietrich, for example, still employ more Communist than American scientists.).

In these cancer labs, animal viruses were repeatedly injected and reinjected into human cell cultures, until new viral strains emerged that preferred human cells. These viruses could then be cultured and the effects (or lack of effects) of various chemicals and drugs against them could be ascertained.

These new viruses are exactly what one would wish to develop if one were seeking a biological warfare virus to which humans were not resistant, and one which preferred humans as its host

Sometime during the early 1970's, KGB agents who had infiltrated U.S. cancer research laboratories may have deliberately contaminated the World Health Organization's smallpox vaccine with one or more of the lethal new viruses available in the

Western cancer laboratories. Massive WHO smallpox vaccination in Africa and other Third World countries then resulted in the appearance and spread of the AIDS disease.

If this thesis is true, then AIDS constitutes the first Soviet biological warfare strike against the West, in what can only be categorized as the opening round in a unique new World War III.

With the Kaznacheyev techniques, the Soviet KGB already has the effective electromagnetic antidote against AIDS and other lethal viruses, anytime it wishes to employ it. Some Soviet citizens, however, will be allowed to die, to serve as a deception plan and conceal the true Russian capability. Meanwhile, the Third World nations and the West will be devastated by the killer disease.

Other lethal viruses are almost certain to follow, whether from the Soviets, fanatical terrorist groups, or inadvertent private contamination. Undoubtedly, some of these frightful new viruses are not going to be slow (lentivirus) agents. Some will likely be highly infectious and quick-acting, in the manner of influenza. Some will be transmitted successfully by insect vectors such as the voracious new Asian Tiger mosquito now spreading across the Southeast U.S.

Beginning in July 1976, powerful new Soviet "over-the-horizon radars" (the infamous Woodpeckers) became operational. Extensive weather engineering over the U.S. has been accomplished by these weapon systems. (This has been separately documented by the present author; C. B. Baker, editor of *Youth Action News*; Andrew Michrowski of Canada's Planetary Association for Clean Energy (PACE); and other researchers such as Andrija Puharich.) In addition, the Woodpeckers possess the full range of TR wave weapon capabilities, including real-time holography capabilities and anti-Stealth capabilities. Terrible anti-biological capabilities are also possessed by these weapon systems, and they are also highly effective as global launch phase and midcourse phase defensive weapons for use against U.S. missiles and bombers.

In 1985, the Soviets completed "wet run" weapon tests against U.S. missiles and aircraft and at least three of NASA's shuttle launches, employing the Woodpeckers in the launch phase ABM/anti-bomber mode.

Beginning in December 1985, actual destruction of selected U.S. missiles and aircraft was accomplished. Targets destroyed by the Soviets included the Arrow DC-8 at Gander AFB, Newfoundland on Dec. 12, 1985; the shuttle Challenger launched on Jan. 28, 1986; the Titan 34-D rocket launched on Apr. 18, 1986; a U.S. Delta rocket launched on May 3, 1986; and the French Ariane rocket launched in late May, 1986.

In 1986 and 1987, the mysterious loss of two highly classified U.S. aircraft—believed to be Stealth fighters—may also have been due to Soviet testing of TR weapon capabilities and anti-Stealth capabilities of the Soviet Woodpecker weapon systems.

However, a severe limitation on the unrestricted use of TR weapons exists. If powerfully and unrestrainedly used, they will cause nuclear warheads and nuclear material to explode as surface nuclear bursts—in the dirtiest possible fashion. The resulting massive radioactive fallout would probably wipe out all higher forms of life on earth. Note that Khrushchev stated in 1960 that these fantastic weapons could "wipe out all life on earth if unrestrainedly used."

As long as we possess an appreciable deployment and stockpile of nuclear

weapons, we are essentially "dead man fuzed" against substantial Soviet usage of their powerful TR wave weapons.

Thus Gorbachev needs to "thin out" the deployed and stored Western nuclear warheads, to allow a more unrestrained field of play for his decisive TR wave weapons. That is why at Reykjavik he suddenly expressed full interest in President Reagan's zero option, even expressing agreement with the principle of on-site inspection to insure dismantling of missiles and removal of warheads.

That is also why the Russians are so actively interested in negotiating the withdrawal of nuclear weapons from Europe. They can quickly and easily take Europe, the moment the nuclear weapons are thinned out and our "dead man fuzing" is removed!

To appreciate the ease with which a Soviet offensive, augmented with unrestrained TR wave weapons, can take Europe, consider this: A single airborne Soviet standoff radar jammer, complete with adjunct TR, within minutes can knock out all U.S., British, and FRG radars that illuminate it. Each pulse it fires, destroys an Allied radar. A single Soviet standoff communications jammer, complete with adjunct TR, within minutes can knock out all U.S., British, and FRG communications centers that are transmitting within its detection range. Each pulse that it fires destroys an Allied communications center. A single standoff Soviet jammer-based TR wave weapon can destroy an Allied carrier task force. Pulse after pulse from that weapon system will destroy the task force's radars and communications, explode HE propellants and nuclear weapons, explode fuel, ignite flammable materials, explode rockets and ammunition, and kill personnel wholesale. Tactical adjunct TR weapons can rapidly destroy aircraft, missiles, radars, radios, personnel, tanks, weapon carriers, personnel carriers, ammunition dumps, gasoline dumps, etc. The instant vulnerability of any massive emitter such as AWACS is readily seen.

We are referring to a new kind of blitzkrieg war: War conducted by powerful beams and destruction, engendered at the speed of light War in which electromagnetic radiators are the primary decisive weapons. War in which new kinds of directed energy weapons play the major role. War which renders all our present defensive armada of weapons archaic and useless. War in which the materiel and personnel loss rates are so incredibly high that they boggle the mind of the more conventional military tactician and planner. War in which even a small nation with TR wave weapons can strike and devastate a major power, and possess a first-strike capability unparalleled in human history. War which could be triggered by radical splinter groups and terrorists groups that acquire the technology. War in which the slightest miscalculation or the misuse of the weaponry can completely destroy the earth. War which places extreme emphasis on finding "other ways"—such as surreptitious biological strikes and insidious electropsychological attack and control—to decimate a foe. War that Western governments, populaces, and Armed Forces are completely unprepared—militarily and psychologically—to face.

NATO can be defeated in two hours or less, and the entire war—mop up and all—would last perhaps three days.

Of course, powerful demonstrations of Soviet strategic superweapons could be provided, to show that attempted nuclear retaliation would simply be suicide. The Woodpecker weapon systems alone could wipe out all major communications systems and power systems in the U.S., induce waves of EM-induced death and disease in

preannounced locations, induce waves of abject fear and panic in the populace, or psychologically disrupt and disable—say—the entire Washington D.C. area, to include the people, the government, and the Pentagon.

If such a scenario were accompanied by a proclamation of a Soviet equivalent to the "Monroe Doctrine"—except applying it in Europe, an offer of a ceasefire, and an offer to allow us a "Dunkirk" to evacuate the beaten remnants of our European forces, we would almost certainly be forced to accept the Soviet terms for a ceasefire that left the U.S. intact.

The U.S. Congress—reacting with alacrity to accept this sudden and apparently miraculous Soviet leniency, and avoid the destruction of the world—would probably play the leading role in dictating our acceptance of liberal Soviet terms.

An agreement with the Soviets to mutually withdraw many of the nuclear missiles from Europe appears to be imminent. When the missiles are thinned out, the preceding scenario or some variant of it is almost certain to occur.

There remains, however, one fly in the Soviet ointment: The U.S. Strategic Defense Initiative.

Presently our scientists apply phase conjugation primarily to "keep laser energy beams intact for greater distances." They appear to be completely unaware of the electrogravitational aspects of phase conjugation.

A colleague of the author has already rigorously proven this electrogravitational aspect on the laboratory bench. The phase conjugate (time reversed) wave is composed of, and carries, negative energy and negative time. If an object is forced to produce a great deal of this negative energy/negative time, it produces antigravity. This is because, in negative time, gravity is a repulsion, not an attraction.

In addition, if the electromagnetic energy of a laser is changed into gravitational energy, a theoretical gain of up to 10^{36} (protons) to 10^{42} (electrons) is achievable. In practical devices, an energy gain of 10^{20} may readily be achieved. Applied to a modified powerful laser in space, this electrogravitational gain factor is of overwhelming significance.

In SDI, U.S. scientists presently envision a high energy laser in orbit, pumped perhaps by means of a nuclear explosion. The pulsed beam from this laser would have sufficient power to destroy a rising Soviet strategic ICBM in the launch phase, say at 10,000 miles away.

If that same laser were converted to a scalar electromagnetics laser (one that turns much of its electromagnetic energy into gravitational energy), it could blast and destroy possibly a quarter of Russia with a single shot.

Thus if we developed and tested the SDI spatial/launch hardware for the space-based high energy laser, so that these systems were available for immediate launching, we could convert their lasers to scalar EM and still possess a very real strategic retaliation capability, even if the Soviets should strike us almost unrestrainedly with powerful TR wave weapons. If we launched several of these systems, we could still probably get off a few shots at Russia and destroy her, before all our space lasers could be destroyed by Soviet counterweapons.

In that case, mutual assured destruction would still exist, and we would still possess a full "last ditch" strategic retaliation capability.

Gennadi Gerasimov, Soviet Foreign Minister spokesman, confirmed as much on

the Peter Jennings' ABC News Show, Los Angeles, California on 13 October, 1986. The real concern (with SDI), he indicated, is not with its present design. Instead, the Soviet concern is that the U.S. would make a great technical breakthrough and deploy new devices in space as a modification to SDI, presenting an unacceptable threat to the Soviet Union.

Gerasimov was almost certainly referring to the potential for U.S. adaptation of the SDI space-based lasers to electrogravitational lasers capable of destroying the Soviet Union.

Obviously, if the high energy laser weapons stay grounded in the laboratories, and the system hardware is not developed and ready, that strategic retaliation capability is lost to us. For that reason, Gorbachev is adamantly insisting that the SDI defense must not be developed and tested in space.

If Gorbachev can prevent the development and testing of the SDI space-based high energy laser and get the nuclear weapons thinned out, he immediately holds the decisive winning hand.

This is where we are now, vis a vis the Soviets. This is the background necessary to understand the full context of the present jousting between the Soviet Union and the U.S.

In the *Washington Times* of Aug. 26, 1986, Soviet Chief of Staff Sergei Akhromeyev warned the United States that the Soviet Union could have an unpleasant surprise response if the U.S. deploys its Strategic Defense Initiative (SDI) in space. Akhromeyev stated:

"If the United States deploys a shield in space, the Soviet Union will have several options, none of what Washington would wish... The Soviet Union will very quickly find a response of which the United States has no inkling as yet."

It is absolutely essential that the President of the United States, the Secretary of Defense, the Joint Chiefs of Staff, and the U.S. Congress be aware of these Soviet weapons and their capabilities.

It is also essential that the U.S. public become aware of the real nature of the hidden Soviet threat that faces us, so that public support will be forthcoming for the hard decisions our government leaders have to make to counter it.

A PARTIAL GLOSSARY FOR SCALAR ELECTROMAGNETICS AND SUBTLE PHENOMENA

by Tom Bearden

1. Action: the fundamental constituent of physical reality. Basically composed of two quantities—energy times time, momentum times length, etc. Action is nonobservable; only changes in action are observed, and then only partially (in the linear case). The photon is the basic quantum of action, consisting of a piece of energy welded to a piece of time, with no seam in the middle, so to speak. All physical things are composed of rates of changes in action. The physicality (volume characteristics) of space are created bit by bit from action quantum changes in and on each fundamental particle of mass, at a very high rate of speed. These action changes are totally internal to the mass itself. Therefore, literally the physical universe exists inside each and every part of itself, and is a giant hologram.

2. A-field: vector magnetic potential. The A-field is a real field—not a mathematical convenience as was originally thought—as detailed in the second volume of Feynman's three volumes of physics. Indeed, it may be separated from the magnetic field, as the experiment reported by Feynman details. When separated, it is often referred to as the "curl-free vector potential."

3. Aharonov, Yakir: renowned Israeli quantum physicist and former student of David Bohm. Together with Bohm, Aharonov authored a fundamental paper in 1959 which pointed out the primary importance of the potential rather than the force field. Co-discoverer of the Aharonov-Bohm effect: Even when the electromagnetic force fields reduce to zero in a charged particle system, the potentials may still exist and interfere to cause real physical effects.

4. Aharonov-Bohm Effect: Effect whereby interfering electromagnetic potentials can produce effects on charged particle systems, even at a distance and in the absence of the electromagnetic force fields. When E and B fields are zero in a region, their potentials still exist and interference of the potentials produces real electromagnetic effects (energy) in the interference zone, even at a great distance, without transmission of "energy" per se through the intervening space. The Aharonov-Bohm effect highlights some of the stark differences between the classical view of electromagnetics and the quantum mechanics view. In classical EM, the force fields are the real causative agents while the potentials are only mathematical creations for convenience in calculation. In quantum mechanics, it is the potentials that are real and fundamental; the force fields are effects derived from the potentials by differential operators. In classical EM, when the E and B fields are zero in an area, there is no more electromagnetics going on there; in quantum mechanics, the potentials still exist and may still cause real effects. By the use of artificial potentials, the Aharonov-Bohm effect can be made macroscopic and used to cause action at a distance—even significant action at a very great distance. Thus scalar EM interferometers can produce energy effects at a distance. The negative Aharonov-Bohm effect also exists. If the potentials of the transmitters in a scalar interferometer are biased highly negatively, then energy is extracted from the dis-

tant interference zone, reappearing at the transmitters. Tesla proposed a "Big Eye" that could see at a distance; actually he planned to use a negatively biased scalar interferometer, scan the beams, then reassemble the scanned energy appearing back at the transmitter/receivers. In this way he had a crude picture of the distant conditions in the interference zone. Such a device can see through the earth or ocean to a preselected intersection depth, since scalar EM waves can be made to pass readily through the earth or sea. The Aharonov-Bohm effect is in fact experimental proof of the new definition of force used in scalar electromagnetics. That is, force consists of mass in motion changing its motion (momentum). The nonzero 0 created by interference of two electrostatic potentials at a distance, for example, will create an electric field (E-field) on and of an electrically charged particle there. The standard detection of an E-field by conduction electron detectors is an example. It is the electron gas particles (charged electrons) that are detected, not what is in the vacuum. Thus classical EM errs when it assigns the equation $E = -0$ to vacuum, for no such thing is ever measured. Actually, the correct equation is $E = -0$ (e), where means "coupled to" and (e) means "electrically charged particle."

5. Aikido: a Japanese martial art whose modern form is a synthesis of many schools of jujitsu and the zen art of meditation in motion. The advanced aikido practitioner seeks to attain a state of "nomindedness," in which there is no separation of subject and object, of attacker and defender, or even of past and future. This state of at-oneness with the universe, when attained, results in the complete mastery of the art. It is rarely experienced, even occasionally, and even rarer is it permanently attained. One who attains this state permanently is considered a great master, and his demeanor and personality are profoundly altered. The deceased founder of the present modern form, Morihei Ueshiba, attained such mastery of the art. He was a serene, deeply religious man and a profound inspiration to several generations of martial artists. He was also unbeatable even in his eighties.

6. Anenergy: stress energy of vacuum. "Fragments" of energy, more subtle than electromagnetic energy, turned against themselves and locked into a "vector zero summation." Scalar, massless charge flux. Virtual particle flux. "Pieces" of the spatiotemporal vacuum spacetime medium (i.e., qutons). Specifically, an observable object rotated more than one orthogonal turn away from the laboratory frame constitutes an anenergy particle. Examples are the virtual photon (rotation between 90 and 180 degrees), the bare neutrino (rotation exactly 180 degrees), the virtual bare neutrino (rotation between 180 and 270 degrees), and the thought or mind particle (rotation 270 degrees or more). Also, more fundamental components of energy—specifically, the individual scalar wave components of vector electromagnetic waves. Anenergy components may be coupled into energy, which can be compacted into mass. The conservation of energy law is replaced with a more fundamental law, the conservation of anenergy. Anenergy contains two com-

ponents or constituents: (1) ordinary energy (positive time, positive energy), and (2) phase conjugate energy (negative time, negative energy).

7. Angular momentum: the momentum or "leverage" of the momentum of a moving body, with respect to an axis or reference point. Has the same units as action, or energy \times time, or momentum \times length.

8. Antimatter: matter consisting of atoms which are composed of positrons, antiprotons, and antineutrons. Also loosely refers to the antiparticle corresponding to a particle—the antiparticle may be regarded as the particle traveling backward in time, or "phase conjugated." In present physics, the photon is recognized as its own antiparticle. However, since physicists do not differentiate between positive and negative energies in a photon, then they assume that there is no difference between a photon and an antiphoton. The antiphoton, however, acts quite differently from the photon, as is clearly shown in phase conjugation. The magic rule of scalar electromagnetics for the final photon emission interaction with a charged particle in an atom is this: In the expression CPTEGS (where C is charge and normally negative, P is normal parity, T is time and normally positive, E is energy and normally positive, G is gravity and normal is positive, S is entropy and normally positive or increasing), if one of the components is reversed in sign, then each of the remaining components is also individually reversed in sign. The phase conjugate photon (antiphoton: negative energy, negative time), e.g., is produced by the photon interaction with the positively charged nucleus, producing a time-reversed wave having negative energy, negative time, reversed parity, causing gravitational repulsion, and causing negentropy.

9. Antiparticle: a counterpart to an ordinary fundamental particle, having identical mass lifetime and spin, but with charge and magnetic moment reversed in algebraic sign. Note that when the charge is reversed, parity and time are also reversed. Thus, properly, the antiparticle is the phase conjugation of the particle, or just conjugate particle for short.

10. Artificial potential: potential formed by deliberately summing force field vectors to a zero vector resultant. This vector zero has a deterministic, internal stress pattern that is macroscopic. The type of potential made by the zero summation depends upon the type of force vectors summed. For example, summing electric field vectors to zero produces an electrostatic scalar potential; summing magnetic field vectors to zero produces a magnetostatic scalar potential of vacuum. All such potentials represents local warps or curvatures in vacuum/spacetime. Since Einstein assumed that space-time locally was uncurved, this violates one of the assumptions of Einstein's general relativity. The Soviets have long made this correction; Western physicists have not. Since curvature of spacetime is gravitational, this constitutes the secret of electrogravitation: How to turn electromagnetics into gravitation, and vice versa. I have called this "scalar electromagnetics"; the Soviets refer to it as "energetics." In such a vector zero, the locked-in energies of all the component force vectors constitute the "anenergy" of the artificial potential. Potential in vacuum is analogous to "pressure" in fluids. An artificial potential polarizes the vacuum and constitutes a specific stress pattern in it. Thus vector-zero summed systems of

individually finite vector components may all differ from each other.

11. Ball lightning: rare form of lightning where an incandescent, slow-moving globe forms. The globe often moves erratically, explodes, and may set fire to objects it touches. Ball lightning is due to scalar electromagnetic interferometry which can produce a controlled pattern of electromagnetic energy at a distance. Phase conjugation is directly involved; note that the literature already explicitly demonstrates that phase conjugation can perform real-time holography, or produce forms of energy at a distance.

12. Bare electron: in physics, the true electron without the partial shielding of virtual positrons that are attracted around it. In scalar electromagnetics, the mass of the electron, considered without its flux of virtual photons (its massless charge flux). An electron mass without its charge (in new approach); that is, one that is really bare of all charge!

13. Bare neutrino: the photon rotated one orthogonal turn farther away from the laboratory frame would be seen in the laboratory frame as a bare neutrino. In the new approach, bare neutrinos move at the speed c inside an ordinary photon, orthogonal to the photon's direction of travel, constituting a flux in each half of the photon. Two neutrinos move in the photon, one in each half (a simple photon is a single sine wave). One neutrino moves in positive time, the second moves in negative time and is properly an antineutrino. Since the photon moves at the speed c with respect to the laboratory frame, then the bare neutrino moves at the speed c -squared, but only its carrier speed c is seen by the laboratory observer. The flux of bare neutrinos in each half of a photon corresponds to the classical neutrino of present physics. The bare neutrino is (to the lab frame) a factor of c smaller than a photon, and one dimensional. It is a special kind of polarization wave to the lab observer.

14. Bearden, Thomas E.: nuclear engineer, retired Lieutenant Colonel (U.S. Army), and theoretical conceptualist active in the study of paranormal phenomena, scalar electromagnetics, Soviet Tesla (time-reversed wave) phenomena, free energy, antigravity, electromagnetic healing, and human development. Particularly known for his work in scalar electromagnetics and Soviet unorthodox weaponry.

15. Beck, Robert: noted psychotronics and ELF researcher who has pioneered many unusual measurement fields such as the Schumann resonance of the earth's magnetic field, specific effects on humans of extra low frequency (ELF) signals of precise waveform and frequency, ELF pollution effects, and brain wave entrainment by weak ELF signals of precisely controlled frequency. He is also noted for his development of a series of very sensitive detectors and scalar wave detectors.

16. Bedini, John: noted audio engineer, creator of the renowned Bedini amplifiers well known to audiophiles, and researcher into free energy, antigravity, and electromagnetic healing. Bedini has built several free energy motors and devices, including a gravitational field generator, a gravitational field turbine, and a series of monopole motors. He is also noted for his development of sensitive scalar EM wave detectors. He is struggling to develop an electromagnetic phase conjugate signal which will kill the AIDS virus, and also reverse the genetic damage done to the cell by the virus.

17. **B-field:** the magnetic induction B. This is defined, analogously to E, by the force it exerts. The force on a point charge moving in a magnetic field is at right angles to the velocity vector of the charge and also at right angles to the magnetic field. Actually, the H-field was originally named the magnetic field and the B-field was named the magnetic induction. This is an annoyance because it is B which produces or involves the force, and hence should be named the field. Other writers have noted this discrepancy, and Sommerfeld called H the magnetic excitation—which correctly describes its role—rather than die magnetic field. In Kaluza-Klein unified field theory, all electromagnetics is in the 5th dimension, which is wrapped around each and every point in our normal 3-dimensional space.
18. **Being:** pure essence, existence. Again, something which in actuality resists definition unless preliminary assumptions are made. Generally used in one of two senses: (1) persistence, as in "he is (he continually exists)," or (2) identity, as in "he is the man ('he' and 'the man' are the same thing)." Even in the first instance - persistence - one is using the form of the verb "to be" in the sense of identity, when perception is considered; i.e., "he is" is a statement that "he continues to be presented or perceived, because each succeeding perception is identical to the one before." Thus when perception is considered, being may be defined as that which is undifferentiated, and this yields its total definition. This is the real void devoid even of void, if one considers zen.
19. **Bennett Island;** Soviet island on which large, anomalous exhausts—some 150 miles long and nearly horizontal—are repeatedly photographed by U.S. weather satellites. Over 100 incidents have been photographed there since 1974. These exhausts are believed to be the exhausts of energy extracted by distant Soviet scalar interferometers used in the endothermic mode, then switched to the exothermic mode and focused on Bennett Island as a "dump site." Similar exhausts have been seen on Novaya Zemlya, a large island off the north coast of mainland USSR.
20. **Bigfoot:** U.S. slang or common name for a materialized sasquatch or apeman-type tulpoid, even if not well-formed.
21. **Big Mama:** very large, glowing nocturnal light UFO believed sometimes associated with cattle mutilations. Implies a sort of "mother ship" which spews forth smaller ships, which then speed off, swoop down to mutilate cattle, and return. Big Mama has been observed to split into or spew off smaller lights which sped away, dipped down, then returned. Some of these occasions appear to have been associated with cattle mutilations. The most noted photographs of Big Mama were taken by Bill Jackson.
22. **Biofield:** a hyperfield, particularly with reference to the fields of a living biological system. Also bioframe, bioworld, hyperfield, hyperframe, hyperworld, orthofield, orthoframe, orthoworld.
23. **Bioframe:** a hyperframe, particularly with reference to the frame of the body of a living biological system. Also biofield, bioworld, hyperfield, hyperframe, hyperworld, orthofield, orthoframe, orthoworld.
24. **Bioworld:** an orthogonal universe one or more right angle turns away from the ordinary world, particularly with reference to the frame of the body of a living biological system. Hyperworld. Orthoworld. Living energy forms—"critters"—exist in these bioworlds. A bioworld is also one of the netted levels of infolded virtual state. Such "living electricity" can be manipulated and utilized by scalar EM means.
25. **Bohm, David:** world renowned physicist and originator of hidden variable theory. Together with his student Aharonov, he co-authored a fundamental paper on the Aharonov-Bohm effect wherein interfering electromagnetic potentials can produce effects on charged particle systems, even at a distance and in the absence of the electromagnetic force fields.
26. **Brain wave:** a rhythmic fluctuation of the voltage between various parts of the brain, normally ranging from about 1 to 60 Hertz in frequency and 10 to 100 microvolts in potential strength. Brain waves are caused by avalanche discharge firings of the nerve cells in the brain. Actually, classical brain waves are only the residue or "spillage" waves of the brain, and the important activity is in the specific patterning of the vector zero summations of the myriads of ion discharges. Every "discharge ion" constitutes a small EM force vector. The summation of these is largely zeroed; however, the patterns formed by all these tiny components are not random. The intent and will of the human being is expressed in the changes in the patterning of these dynamic substructures. Present EM brain wave theory does not touch the basic "thought patterns," which are scalar in nature. Use of the two cerebral hemispheres as a scalar interferometer provides mechanisms for the effects of parapsychology and paranormal phenomena such as fire walking.
27. **Burst, burst-in:** the sudden collection or condensation of anenergy into a frame, so that observable light or electromagnetic energy (or rarely, physical matter) appears (is kindled). Sudden kindling of anenergy into energy.
28. **Cattle mutilations:** the strange, paranormal, surgical killing and/or mutilating of cattle in the U.S. and other countries, particularly since the 1973 Yom Kippur War. Metapsychologically, mutilation of the cow is the mutilation of the female symbol—that is, it symbolizes mutilation of "Fortress America." Many small animals such as cats, dogs, rabbits, and birds have also been paranormally mutilated, which is destruction of the child symbol. Again, this symbolizes the mutilation of "Fortress America." The author regards such bizarre paranormal incidents as being caused by temporary materializations of the unresolved conflicts from the human collective unconscious's dreams. With this thesis, if knowledge of Soviet scalar electromagnetic weaponry is also included, analysis very similar to standard psychological dream analysis provides explanations consistent with the bizarre mutilations and the Cold War.
29. **Causality:** the time ordering of ordinary inert interactions. Macroscopic (observable) causality may be violated by control of hidden subquantal (virtual state) variables. With scalar electromagnetics, direct engineering of the virtual state—and hence violation of observable causality—in possible.
30. **Cerebral hemisphere:** each half of the cerebrum, the enlarged anterior or upper part of the vertebrate brain. The two cerebral hemispheres may function as a scalar interferometer to sense distant scenes (even distant in time), or produce energy and signals at a distance. The time aspect (e.g., in psychometry) is due to utiliza-

tion of the cerebrum as a phase conjugate mirror (PCM), and inputting tiny signals picked up from the object one is holding. A phase conjugate signal is then originated by the PCM, retracing the route to the original object. Unfortunately the output of the human nervous system that can accomplish such scalar EM functions lies very deep within the unconscious mind, and it is very difficult to raise it to direct consciousness. Usually the conscious mind is only aware of "vague impressions" instead of clear signals, although in the extremely rare instance clear impressions are consciously detected.

31. Changing the past: every intentional inception upon ordinary inert causality represents a slight alteration or change in direction, departing minutely from pure causality. From a causal viewpoint, each human inception minutely changes the causal past, as well as the future.

32. Charge: the repetitive, "locked in" massless virtual particle emission and absorption activity (flux) of and on a fundamental particle such as an electron. Vacuum is identically pure massless charge flux. In the new theory, the intensity of the charge flux on a particle is also directly related to the rate of the particle's passage through time. The continued absorption and emission of photons by a particle provides the general mechanism by which the particle moves along in time in little jumps. In the scalar EM view, the relativistic change of the rate of flow of an object through time is due to a change in its ambient vacuum charge potential—i.e., to a change in the rate at which it is absorbing and emitting virtual particles and scalar waves. The negative charge is associated with a positive time flux (hence with positive energy) and the positive charge with a negative time flux (hence negative energy). A positive charge is also a negative charge moving backward in time. All particles have clouds of virtual activity patterns; essentially all mass is charged since these clouds contain charges. In ordinary electrical physics, charge is defined in terms of force and force in terms of charge, and charge and charged mass are erroneously made synonymous. In scalar EM, a "charged particle" represents a mass (nonlinear bump in spacetime, or "local nonlinearity" medium) that separates the scalar waves of vacuum into two parts, one is normal energy and the other is the phase conjugate having negative energy. It is important to remember that a charged particle is a special sort of high pressure "pump" and "vacuum cleaner" at the same time. So is a "magnetic pole" or a "potential."

33. Cold explosion: the sudden extraction of energy from a distant intersection zone of the crossing beams of a scalar interferometer which transmits in the pulsed mode while negatively biased. A famous example of Soviet testing of a cold explosion scalar EM weapon is the huge cold explosion that occurred off the coast of Japan on April 9, 1984. When the energy is suddenly extracted from a zone near the surface of the ocean and above it, the pressure in the zone is suddenly lowered. Water vapor and mist are violently sucked up, and the surrounding air rushes in, pushing the "water vapor filled region" rapidly upwards. The pattern that results is a rising mushroom cloud, very similar in appearance to a nuclear explosion, except for the absence of a flash and blast wave. In a cold explosion, the energy is extracted from throughout the spacetime of the distant interference region, and insulation has no effect since classical heat

conduction through space is not involved. Ordinary electrostatic cooling is also an example of this effect in less violent form.

34. Consciousness: refers to a living being's awareness of its sensations, feelings, thoughts, and the world around it. Specifically, consciousness involves an anenergy communication channel where detections of the body-object (which may be regarded as a sort of special camera, instrument, or physical tuner) project into the mind as separations from the beingness of the subject. Further, it refers to the intersecting stream of monocular, α —at-a—time virtual projections into the mind from the quantum changes of photon interactions upon the body sensors. By memory (collection in the mind) of streams of such monocular changes one after the other, the entity is conscious of its body-object (camera—tuner) monocularly "moving through time." In the absence of deeper understanding, the individual consciously sees itself as a separated physical object moving and changing in time, i.e., with respect to other separated physical objects that it perceives. The "externality" of certain changes (i.e., the physical world) is due to the lack of mental control or influence over them. "Internality" of certain other changes is due to the ability to mentally control or influence them. The ordinary conscious mind is a serial processor: only one thing at a time is discriminated in its awareness. The unconscious mind, on the other hand, is totally conscious—but multiply so, since it is a parallel processor of many discriminations at once. The conscious mind, then, cannot directly perceive the individual discriminations of the parallel processor, since these appear only as a blur or nothingness to it (much like looking at a hundred 35mm slides in the projector at the same time). This is the mechanism of the barrier between the conscious and unconscious minds. Projections from the unconscious onto the screen of the conscious mind will thus appear symbolical—that is, having many hidden meanings at once. This is why our dreams, for example, appear to our conscious minds as weird and distorted, but highly symbolic in nature.

35. Contactee: a person who seemingly has had a direct contact—mentally, physically, or both—with aliens, extraterrestrials, etc.

36. Continuous mode: for a scalar interferometer or Tesla howitzer, mode of operation where power is fed continually to the transmitters, and the two Fourier expanded scalar patterns or beams are continuously transmitted. In this mode, in the distant interference zone a glowing pattern of vector electromagnetic energy appears and is sustained. (Note the possibility that a few of the UFO sightings could well be due to the deliberate usage of such a mechanism by the Soviet Union or some other nation possessing the requisite technology to create such physical "apparitions" at a distance.)

37. Corpus callosum: the thick nerve cable that links together the two cerebral hemispheres (which are separate brains) in each vertebrate (including human) brain. In each of the two cerebral hemispheres, there is a separate mind and personality (given that the other is separated). However, a brain has a unique characteristic: Anything that arises directly inside it is automatically assumed to be self-originated, since the brain-tuner can differentiate no separation or "separate source" for the signal/thought arising directly upon its "internal screen". This allows integration of the two brains/minds/personalities into one.

That is, when one brain half prepares and sends a message, that message is also routed across the corpus callosum into the other brain half, arising internally upon the second brain's "display." The second brain half therefore thinks that it itself originated the signal or message. Thus when the left cerebral hemisphere moves the right thumb, for example, the right hemisphere thinks that it itself ordered the movement of the right thumb. Perceptually, the definition of identity is the loss of all distinction."

38. Cotton effect: the wavelength dependence of certain optical and absorption characteristics in a substance in the vicinity of an absorption band. An absorption band is a range of electromagnetic frequencies within which electromagnetic energy is absorbed by a substance. The direction of polarization of the energy affects the degree of absorption for certain substances. In these substances, the frequency and the direction of polarization of incoming electromagnetic energy affect the amount of energy deposited and dispersed.

39. Crawford, Hal: accomplished science fiction artist and illustrator who has furnished many drawings in the new approach and contributed to the theory of mind linkage.

40. Crosstalk: in ordinary science, the transfer of energy or signal from one channel to another, by cross modulation or cross coupling between the channels. In the new approach, it refers to virtual anenergy exchange between orthogonal universes or frames—that is, between different 3- or 4-dimensional slices of an infinite-dimensional universe.

41. Cyborg: (noun) a single integrated system consisting of a living system energetically or functionally linked to mechanical or electromagnetic devices and/or systems. (Verb) link, in the sense of forming such a system. A living biological system is a cyborg of its mindworld (mindframe) to its body (laboratory tuner).

42. Death: the loss of the preferential tuning of a physical body to its mindworld. This causes loss of the preferential consciousness loop or life channel, resulting in "death." Actually the being is unchanging and indestructible, hence consists of all changes and destructions simultaneously, with none separated individually. Life and death thus are two sides of the same coin, and the coin is immutable, regardless of which side is exposed.

43. DeBroglie wave: a matter wave. The quantum mechanics wave associated with a particle of matter, which can give rise to interference effects. An orbital electron in an atom is associated with a standing DeBroglie wave on a Bohr orbit. DeBroglie waves always move faster than the speed of light, the speed being given by c^2/v , where c is the velocity of light in vacuum and v is the velocity of the particle of mass. DeBroglie wave velocities thus vary from the speed of light to infinite speed (everywhere at once). In his speech accepting the Nobel Prize, DeBroglie emphasized that, since these waves produce real physical effects, they are real and must not be regarded simply as mathematical conveniences.

44. Dimension: a certain primary geometrical physical attribute, such as length, used to describe the separational relationships of physical phenomena. By "geometrical" we mean that the "dimension" is considered to "exist" in either the presence or absence of the observable physical phenomenon; however, by agreement the dimension itself is not directly observable. It

can be inferred ("measured"), however, by comparative operations of simple devices such as clocks and metersticks, and its simplistic definition is usually given as "that which has measurable magnitude." Prescribed measuring procedures are used to assign magnitudes to these inferred dimensions, using specific scales. Actually, "dimension" just means "fundamental quantity of separation" in the most general sense. The number of dimensions taken in advanced physics usually represents a somewhat arbitrary choice for good modeling fit. In modern Kaluza-Klein theory, for example, it becomes necessary to accept some 10 or 11 dimensions.

45. Dirac sea: in Dirac electron theory, the relativistic wave equation for the electron has four components, which correspond to two spin orientations and two energy conditions: positive and negative. Thus the vacuum possesses a "sea" of negative energy conditions for electrons. These are called "holes" and are considered to ordinarily be filled with electrons which have fallen into these negative energy states. The Dirac sea thus is this vacuum sea of negative energy electrons. If energy is added, electrons can be lifted from this sea. If spacetime is locally curved, additional holes may be created so that normal positive energy electrons fall in and disappear, creating the appearance of an "electrical energy sink." If the curvature is in the opposite direction, electrons may be lifted from the Dirac sea by the curvature, thus producing a flow of electrons and creating the appearance of an "electrical energy source." In several battery-powered free energy motor devices where the battery is sharply "back-spiked" for recharging, the battery has been noted to apparently accumulate such additional "Dirac holes" as the DC series-wound motor ran. When later recharging the battery with a normal charger, for example, the battery would first "consume" a quantity of electricity to "refill the holes." When the holes were filled with new electrons, the battery would then start to recharge normally. In one extensively used battery, Watson noted that it consumed electricity for some eight hours before recharging normally. Similar effects have been noted by Bedini.

46. Dissociation: separation of ideas from their affects or feelings, resulting in independent functioning of these components of a person's mental processes. Simply put, fragmentation of the mind and personality. In this sense, Zarg (the collective human unconscious mind) is severely dissociated, since its "conscious mind" is fragmented into billions of pieces (into the independent conscious minds of ordinary humans). This is severe dissociation and psychosis; Zarg (the human species) is quite literally insane.

47. Dowsing: use of handheld rods, forked twigs, pendulums, bent coathangers, or other simple physical detectors to locate water, minerals, lost objects etc. or to seek answers to specific questions. The movement of the physical instrument serves as an indicator and is cyborged to the dowser mentally and psychokinetically.

48. E-field: the electric field or electric intensity E . That field on a spinning charged mass which produces an electrical force, hence linear motion of the charge. (In the new theory, the E -field CONSISTS OF the spinning charged mass, moving through a finite change in electrostatic scalar potential, and thus there is a more fundamental generatrix of FORCE.) Defined as the force per unit charge (i.e., per unit of charged mass). On a free

electron, there may exist two separate E-fields, one in the direction of motion of the electron (normally due to voltage); and one at right angles to the electron's motion, due to the time derivative of the A-field.

49. Einstein's postulates: (1) all the laws of physics are equally valid in all inertial frames of reference, (2) the speed of light is the same to every inertial observer, and (3) the observable local effects of a gravitational field are indistinguishable from those arising from acceleration of the frame of reference. The first is called the special relativity principle, the second is called the law of light propagation, and the third is called the equivalence principle. It is now known that postulates (1) and (2) are not independent of each other. Note that the third postulate implies that any local force is due to a "gravitational field" (acceleration of the frame of reference). It also implies that gravitational force has a mechanism, since quantum mechanics assigns a differential operator, operating upon a potential, to create every force. By extended inference, it can be seen that the third postulate also implies that there should exist a method to turn any type of force (field) into gravitational force (field).

50. Electrogravitics: electrogravitation, or scalar electromagnetics (SEM). The term "scalar electromagnetics" was chosen by Bearden to describe the electromagnetics that goes on inside a macroscopically summed-zero force vector system, producing gravitational effects and energy effects at a distance. A priori, SEM is a unified field theory, which predicts strong effects easily verified experimentally. The struggling science that seeks to produce gravity and inertial effects electromagnetically (success has been achieved recently in proprietary labs). Santilly has shown that the classical assumption that electrical field and gravitational fields are mutually exclusive is false. They are therefore either the same thing or partially the same thing. There are numerous anomalous experiments which also show a connection between electrical effects and gravitational and inertial effects. Appreciable technical work in the U.S. seems to have been done on electrogravitics in the 50's and 60's, much of it apparently classified. There are presently strong electrogravitic efforts in Germany, France, and Japan. Scalar electromagnetics is in fact electrogravitics (electrogravitation) and has been successful in engineering gravitational devices such as gravitational and inertial field generators, gravitational field motors, free energy generators, and gravitational turbines. Tesla's secret of wireless transmission of energy at a distance without losses has been rediscovered, as has the secret of his "big eye that can see at a distance." A new land of resonance—scalar resonance—has emerged, as has a new kind of wave, the scalar EM or electrogravitational wave. Scalar wave detectors are now becoming available due to the pioneering work of Dea, Beck, Bedini, and Golden, who have all built scalar wave detectors. A substantial series of devices have been built by Bedini, Golden, Watson, and other inventors who wish anonymity. One of the very first good experimental physicists who built electrogravitational devices was Hooper. Actually, Maxwell's original quaternion theory, published in 1864, was the correct unified theory of gravitation and electromagnetics. After Maxwell's death, Heaviside "translated" (mutilated) Maxwell's theory into his new vector mathematics, discarding the quaternion's scalar component. He

thus discarded electrogravitation, setting "modern EM theory" upon its nongravitational course.

51. Electron dissolution: when the virtual photon activity of an electron (i.e., its charge) is directly quenched, the electron is converted to a neutrino or neutrinic wave, which radiates away without interacting with materials or objects. In this case, no ordinary photons are radiated. Orbital electrons in atoms are generally protected from this interaction by being locked into their orbital DeBroglie waves. Free electrons flowing in circuits, however, are susceptible to the effect by scalar wave coupling. By this means, electromagnetic circuits may be dudded by dissolving their currents, without physical damage to the circuitry components. Whenever the agent causing the electron dissolution is removed, currents resume and the circuits resume normal electrical action. Scalar longitudinal 0-field waves can also be absorbed in scalar coupling into the E-fields of currents flowing in a circuit. This can either augment or diminish the E-fields to which coupling occurs. If the E-fields on the flowing electrons are zeroed, the electrons cease flowing, and the circuit is dudded.

52. Electrostatic scalar potential (0): virtual photon stress on the 4-dimensional spacetime medium (on the vacuum-ether). (Note that the vacuum can be regarded as consisting of the sum of a large group of such potentials.) The spatiotemporal intensity of the massless charge (of the virtual photon flux through a spatiotemporal point). Nikola Tesla discovered pure longitudinal scalar 0-waves. Present spatial 0 in the ordinary theory is only a special case. 0 can be visualized as a special type of "pressure" in an n-dimensional fluid, where n is equal to or greater than 4. By omitting the potential's stress on time, present potential theory eliminates the potential's ability to affect everything existing in time (for example gravity, fundamental constants of nature, inertia, mass, rate of time flow, mind, life, etc.) It also eliminates the direct engineering of local general relativity, and the concomitant violation of the conservation laws (momentum, energy-mass, charge, spin, etc.) Present electrical theory—and indeed all of physics—is drastically in error by this serious omission. Direct engineering of artificial potentials by patterned zero-vector force field summations is the secret of the long-sought "unified field theory." It is also the secret of the unification of mind and matter into a single scientific discipline.

53. EMP (electromagnetic pulse): a sharp pulse of electromagnetic radiation produced when an explosion occurs in an unsymmetrical environment, especially at or near the earth's surface or at high altitudes. Essentially the same as an electromagnetic shock wave, a wave of great intensity which results when waves with different intensities propagate with different velocities in a nonlinear optical medium. An EMP is also produced when two intense longitudinal scalar electrostatic potential wave patterns meet and couple into a sudden flash of vector EM energy.

54. Endothermic explosion: the sudden absorption of electromagnetic energy in a spacetime area where the energy converts to a potential, and scalar waves radial back to the negatively biased transmitter/receiver, emerging there as ordinary electromagnetic energy. As implosion. All normal explosions are exothermic in nature, and ordinary electromagnetic heat energy is radiated away. A scalar EM howitzer, however, may pro-

duce an endothermic explosion (an energy implosion) at a distance, explosively extracting the heat energy at the implosion site and receiving the energy back at the transmitter site for disposal.

55. Energy: the capacity to do work. Energy is directly tied to the work concept, which is the result of a force moving through a distance. However, "work" refers to the past; that is, the force has moved through a distance against a resistance. "Energy" refers to the future; the force could in the future move through a distance against a resistance. Since the force is tied in turn to a changing mass motion, it follows that—conceptually—energy is tied directly to mass systems. The "energy" that an object possesses depends also upon the observational situation: a moving observer may see a moving object as possessing more or less energy than the lab observer sees. Electrostatic scalar waves do no work and individually have no "energy" per se. Two different scalar waves coupled onto a spinning charged mass, however, produce a system which has mass and energy, and does work.

56. Ether: originally, a ghostly-thin, material, fluid medium postulated to fill space and carry electromagnetic waves, similar to the way in which a gas carries sound waves. The Michelson-Morley experiments eliminated any such material ether, but not a Lorentz-invariant non-material ether (of which vacuum itself is one example, in the modern view). Maxwell's equations were derived from ether theory. Einstein once proposed that the vacuum, complete with its electromagnetic fields, should be called the ether. Indeed, the word "ether" is again acceptable in the literature in context of its modern meaning. Today the "ether gas" is considered composed of virtual particles—that is, the particles spontaneously come into being and then vanish so quickly they cannot be individually detected. That is, today the ether is a virtual particle gas—sort of a gas of "effervescent bubbles", so to speak. Ives derived special and general relativity, Newton's laws of motion (relativistic form), and the square law of gravitation from a Lorentz-invariant non-material ether theory. Zero-point energy of vacuum would also seem to be a Lorentz-invariant ether. The Soviets are believed to have applied and advanced the Ives theory to produce their present theory of energetics, which is highly classified by the Soviet Union. In the new approach, vacuum is identically pure massless charge (virtual particle flux), and thus an ether as Einstein proposed.

57. Evil: refers to an act theoretically detrimental to the receiver or referent, in the positive time stream. It is equally beneficial to the referent, viewed in the negative time stream.

58. Exo-electron emission: emission of electrons from the surfaces of metals and certain ceramics after these surfaces have been freshly formed by a process such as abrasion or fracture. Cracks in metals are good emitters of exo-electrons, and the electrons can be detected, to provide a means of detecting the minute fatigue or stress cracks. The sides of a crack in a stressed metal constitute a scalar interferometer, and scalar interferometry is involved in the emission process. Exophotons are also emitted, in addition to electrons. In an earth tectonic plate fault zone (crack), stress exists on each side of the plate, but not in the middle, and the fault thus constitutes a scalar interferometer, emitting charges and also often creating glowing balls of light

59. Exothermic explosion: an ordinary explosion where ordinary heat and electromagnetic energy are released and radiate away from the explosive site. All normal explosions are exothermic.

60. Feynman diagram: a two-dimensional diagram of particle interactions, both in the virtual and observable levels, and both backward and forward in time.

61. Fireflies: sentient bits of light that sometimes kindle in the presence of a psychic initiator and/or a psychotronic generator. Literally, minute glowing, indefinite thought forms materialized into electromagnetic energy. This can be understood by modeling thought forms as real electromagnetic forms existing in a rotated universe (i.e., as hyperdimensional). Interference causes dimensional shifting, so that ordinary electromagnetic energy forms can result

62. Firewalking: walking on and across a bed of hot glowing coals without the feet being burned. Firewalking is demonstrated in a variety of cultures, belief systems, and locations throughout the world. Recently many Americans have been taking to the practice and demonstrating that it is an achievable phenomenon. In the new approach, the two cerebral hemispheres act as a scalar interferometer. If this biological scalar interferometer creates an endothermic (extraction) field on the surface of the skin of the feet, and simultaneously creates an exothermic scattering of the extracted energy into the surrounding environment, then one can walk on hot coals without burning the feet. Note that the reverse effect—cooling of the external environment—is often experienced when psychokinesis effects at a distance are obtained. For example, poltergeist effects are often associated with an adolescent. If the adolescent's cerebral scalar interferometer extracts by inverse scattering, and projects exothermically into distant objects, the movement of the objects can be explained.

63. Fission (action): the splitting of the action quantum into two canonical variables (for example, energy and time), only one of which can normally be completely detected or measured. ("Action" has the dimensions of angular momentum—energy x time, momentum x length, etc.) Fissioning produces length, discrete bit by discrete bit, and time likewise. The physical reality of separated physical objects is thus continually created, discrete bit by discrete bit, monocularly. All that ever exists in the "present" is a single quantum change, just occurring. Recombining of the two canonical action fission fragments is called "fusion." Fusion also occurs monocularly, quantum by quantum. Rigorously, the physical world of separated objects never exists as such except in memory recall of vast numbers of past ordered quantum changes that occurred one by one.

64. Flux: the amount of some quantity (such as energy, particles, volume of fluid, etc.) flowing across a given area (usually a unit area perpendicular to the flow) per unit of time. The term flux density is now more commonly used. Loosely, "flux" refers to the perpendicular flow through an area, while "flux density" refers to the magnitude or intensity (rate) of the flux. In some cases such as a flux of particles of different velocities, the number of particles may be multiplied by the average velocity to give an average flux density.

65. Flux density: the amount of some quantity (such as energy, particles, volume of fluid, etc.) flowing across a

given area (usually a unit area perpendicular to the flow) per unit of time.

66. Flying saucer: a discoid or other shaped paranormal object observed in the skies and/or landing, taking off, etc. Came into general use in the U.S. in 1947 after Kenneth Arnold reported seeing nine strange flying discs skipping along like saucers. Sometimes used to refer to an unidentified flying object (UFO). The usual "flying saucer" is theorized to be due to temporary materializations from the collective human unconscious; over 80% of these materializations only go so far as the "glowing light" stage, not to the material object stage. A small percentage do physically materialize, then later dematerialize. A small fraction of one percent are considered to be actual ships built on earth by the Soviet Union or one other country. A few sightings may be due to deliberate scalar interferometry at a distance by the Soviet Union and others.

67. Foo fighters: glowing balls of light which occasionally appeared in the skies and played tag with Allied, Nazi, and Japanese planes during World War II. The word "foo" is a corruption of the French word "feu," meaning fire.

68. Force: in mechanics, identically the time derivative of momentum. Simply, changing of mass-motion. One must realize that it is not the mass in motion, but the single undivided quantity "mass-motion" or "mass-velocity" (momentum) that is changed. In present EM theory, force fields are erroneously taken to exist in empty, massless vacuum. However, the mechanical definition is an identity, not an equality. Thus force does not EXIST ON a mass, but CONSISTS OF a changing "mass-motion." Since this force can be induced at a distance (by changing an introduced mass-motion such as a test charge), one is confronted in the new approach with the fact that there is a more fundamental mechanism that produces force itself. This mechanism is coupling of nonidentical scalar fields by and on a spinning charged particle. The INDUCED FORCE consists of the particle's change in mass-motion per unit of time. It is thus a flux—induced quantity in, on, and of a mass in motion.

69. Force field: an effect that can exist in vacuum or on mass whereby a particular type of matter is affected. For example, the "electrical (force) field" can affect and change the state of motion of any charged particle. In classical physics, the force fields are the causative agents; when these fields are zero, then the motion of the particle or system is unaffected. The electric field (E-field), for example, is defined as the force per unit of fundamental charged mass, though usually it is stated as "force per unit charge," with the mass ignored. Rigorously, however, force does not exist in vacuum, in the absence of mass, a priori. The Aharonov-Bohm effect shows that the potentials can interfere to produce effects in charged particle systems—even at a distance, and even when the force fields are reduced to zero. Tesla stated that vector Hertzian waves do not move through vacuum, which is true. Rigorously, two scalar waves move through vacuum instead. When coupled (detected) by a spinning charged mass (an electron, for example), the vector E and B fields are created on and of the moving mass itself; they do not exist in vacuum. This has been a fundamental omission and error in both electromagnetics theory and mechanics. For example, the standard EM equation, $E = -\dot{\phi}$ is not generally true in vacuum,

but it is true on an electron moving in a detecting antenna or on a charged particle moving in vacuum. Any force is produced by the same fundamental mechanism: flux differences encountered by a spinning charged mass. Thus there is a common connecting thread among all forces, and this is the key to a practical, engineering unified field theory. Note that Einstein's equivalence principle, after much pondering, can be taken to be an equivalent statement to the fact that force—any force—consists of a change in mass-motion. In modern quantum mechanics, force is an effect, not a cause, and is derived from the potential by a differentiating operator. The potential is the primary causative agent, not the force. Also, in modern quantum field theory, all forces actually come from curvature of spacetime—i.e., they are all gravitational in origin.

70. Four-space (4-space): a 4-dimensional spacetime, dimensionally composed of length cubed multiplied by time. In the absence of gravitational field, the 4-d spacetime reduces to a Minkowski space.

71. Fractional charge: a hypothetical particle having a charge less than the electron's charge. Often called a quark, where its charge is 1/3 or 2/3 the charge of the electron. Recently, Stanford University researchers have found evidence of free quarks, and in the 1920's Ehrenhaft reported the discovery and production of fractional charges of all sizes.

72. Frame (Lorentz): a frame of reference which is not accelerated with respect to the laboratory observer. In this case, the frame may be rotated (moving at a constant velocity) but it is not rotating (the frame is not accelerated with respect to the observer, and spacetime is not curved). In this case special relativity applies, as do the conservation laws. If the local spacetime is curved, the frame is accelerated and spacetime is curved. Locally, then, general relativity applies. In this case, locally the conservation laws (energy, momentum, charge, and spin) can be violated. However, in ordinary general relativity, it has been tacitly assumed that locally the curvature of spacetime is negligible. Hence locally a Lorentz frame is assumed, and the conservation laws are assumed to apply locally also. In scalar electromagnetics, the local spacetime is always curved and general relativity applies locally. In this case, the conservation laws need not apply.

73. Frame (ofreference): a spatial, organized, measured lattice placed in emptiness (space, spacetime). Normally refers to a 3-dimensional, spatial frame. All objects and points in the "universe" or spatial frame are considered to simultaneously coexist at separate, measured points in the frame. Differs from the vacuum in that, rigorously, vacuum has no existing definite lengths and no existing definite time intervals, as these appear only after measurement/detection, and are relative to the observer and to the detection process. The "laboratory frame" is the static reference frame of the observer/measurement. A separate reference frame may be assumed to exist for any fixed or moving object, or centered on any point in another frame. When a type of frame is assumed, the entire class of physical interactions that can occur has been restricted to an assumed set or type. In other words, given the frame, the physics has been assumed. One of the greatest restrictions of an assumed "frame" is to rule out the consideration (existence) of other higher dimensions. In the new theory, higher dimensions are permitted

and an orthogonally rotated frame can be equated to a field and vice versa. Therefore frames are also fields.

74. Free energy: energy obtained from a free or essentially free source. A paddlewheel in a river extracts and provides "free energy" from the river, since one need not pay for the river. Electromagnetically, the idea of "tapping" or extracting energy from an esoteric source, such as the zero-point energy of vacuum, the Dirac sea, a standing electrogravitational curvature of local spacetime, etc. Since scalar electromagnetics is electrogravitation, a locally bent spacetime can be achieved so as to provide either a source or a sink, as one wishes. Thus a practical free energy device is rigorously possible by scalar electromagnetic means.

75. Fusion (action): in the new approach, the recombining of two canonical bits of a fissioned action quantum. The fusion process "cancels" the bits produced by the fission process, and constitutes a negative spacetime operation. The physical world is thus eliminated, bit by bit, in a monocular fusion operation that produces the "past" The "mass" of a particle is taken to be proportional to, and identically comprised of, the absolute value of its fission and fusion rate. When fission and fusion rates of a particle are equal, the particle is unaccelerated; when unequal, the particle is accelerated. Vice versa, when the particle is unaccelerated, the fission and fusion rates are equal, and when the particle is accelerated, the fission and fusion rates are unequal.

76. Geiger tube (Geiger-Muller tube): a tube used in appropriate circuits to detect and count ionizing particles. Each particle crossing the tube causes ionization of the gas in the tube, essentially independent of the energy and nature of the nuclear particle. Thus a uniform discharge occurs across the tube. The tube will detect anything which causes an increase in the ionization of its gas. Since strong scalar waves will do this, the tube is capable of detecting scalar wave radiation of sufficient intensity. In many cases, GM tubes are activated near UFO landing zones, and sometimes near cattle mutilations or other paranormal occurrences. In such cases, the tube is reacting to scalar emissions, not nuclear radiations.

77. Geller effect: refers to the frequent stimulation of paranormal abilities in children and other people who have seen Uri Geller (or someone like him) performing psychokinesis either in person or on television.

78. General relativity: the physics of curved spacetime. As opposed to special relativity which deals with inertial frames moving at constant velocities with respect to each other (Lorentz frames), general relativity deals with accelerated frames. General relativity was founded by Einstein, who made highly restrictive assumptions to simply the complexity of the problem. Briefly, Einstein assumed that, since no means of appreciably curving spacetime was known except by the gravitational force of a tremendous collection of mass, then the only places where appreciably curved spacetime would be met would be near suns, stars, etc. Accordingly, he assumed that the local spacetime of the observer would not be curved, and instead the local frame would be a Lorentz frame. That is, he made the theory a sort of "special relativity with distant perturbations." That way, the conservation laws would be saved, and one could still speak of the energy of objects as opposed to the energy of entire systems. General relativity complete with this severe restriction is

called "ordinary general relativity" (OGR), and this is the type of relativity taught in all our Western universities. Note that, by assuming no local spacetime curvature, the ordinary theory actually assumes that one cannot directly (locally) engineer general relativity. OGR is a highly special case, and not at all the type of general relativity we seek in the new approach where we wish to deliberately curve local spacetime and engineer general relativity directly on the laboratory bench. The Soviets do not recognize Einstein's limiting assumption. In Soviet physics journals, papers are regularly published that treat general relativity in an unrestricted manner. These papers include local curvature of spacetime and violation of all the conservation laws as a result. In the West, conservation has been raised to an absolute dogma, and such papers are regularly refused publication. Conservation laws are upheld in the West by artifice and dictum, not by science or experiment! So if the various restrictive assumptions placed on ordinary general relativity are removed, then an "unrestricted general relativity" results. In this relativity, the local frame may be appreciably curved, and any or all of the conservation laws can be violated—often with ease. With an adaptation of Kaluza-Klein 5-d unified field geometry and use of artificial EM potentials deliberately created by summing or multiplying EM force field vectors to vector zeros, EM energy can be transformed into gravitational field energy locally. In this fashion one can engineer general relativity; violate conservation of charge, energy-momentum, and spin; produce free energy engines; transmute elements simply; and produce action at a distance. Initial experiments have positively established the new approach as valid, and a startling new physics is in the offing. In the new scalar EM, gravitational potential becomes locked-up (infolded) electromagnetic forces, and electromagnetic force fields become bleed-off (outfolding) of the inner contents of the gravitational potential.

79. Ghost rockets: materialized tulipoidal "rockets" that appeared in 1946 and 1947 over the Scandinavian countries (Norway, Denmark, and Sweden) and usually seemed to come from the direction of the Soviet Union.

80. Giant photon: a photon with an organized, deliberate scalar substructure. In scalar electromagnetics, the photon is assumed to be one oscillation of the electromagnetic field; thus it is comprised of one E-field wave and one B-field wave. Further, in each point of either wave, a finite group of vectors may exist such that their vector summation or multiplication is zero. Thus a deterministic substructure may be deliberately impressed upon (infolded in) the photon. Such a photon may carry enormous infolded energy in the form of anenergy, and may be designed to perform a particular resonant purpose. In other words, such a photon becomes a "vacuum engine" that structures the virtual particle flux of vacuum in a particular, deterministic manner.

81. Golden booster: a potent scalar wave generator invented by Frank Golden, and used to augment and amplify the Kelly radionics machine. The booster has the unique characteristic of gathering in ambient energy and EM radiation from its surroundings and transposing this into highly patterned scalar radiation. It has the further characteristic of reacting to human intent, and constructing its patterning accordingly. In addition, two motors are incorporated whose needle movements provide

visual indication of the rate of treatment, the frequency of treatment, and how the dosage is progressing. A Bedini scalar wave detector directly verifies that both the Golden Booster and the Kelly radionics machine produce and radiate potent scalar waves.

82. Golden, Frank: inventor and scalar electromagnetics researcher who has developed a variety of scalar wave antennas, an underwater communications system, scalar wave transmitters and receivers, the Golden Booster, scalar wave detectors, and scalar wave spectrum analyzers. He has also developed a prototype free energy motor, a motor that runs off reactive power, a solid state scalar radar antenna, and other significant scalar EM devices.

83. Good: refers to an act theoretically beneficial to the receiver or referent, in the positive time stream. It is equally detrimental to the referent, viewed in the negative time stream.

84. Gravitational field: rigorously, the curvature of spacetime. In scalar EM, gravitational potential is locked-up (infolded) electromagnetic forces which sum or multiply to zero. Electromagnetic force fields represent the "bleeding off" or "outfolding" of these infolded contents of gravitational potential. Gravitational force field is the "bleeding down" of the gravitational potential without unfolding or out-bleeding its infolded contents. Gravitational field is not a field in the sense of Heaviside-Maxwell electromagnetic fields. There is really no such thing as "the" gravitational field; instead, there exists a large number of potentials, locked-in force field vectors, and other entities which change the energy density of vacuum and bend spacetime. The bleed-down of this conglomeration infolded components as a conglomeration constitutes the "gravitational field." If the inner contents of this G-field, or of the G-potential, bleed out, then a different field—e.g., electromagnetic field—is produced. We may thus speak of the bleed-out of either the G-potential or the G-field. Note that flows between pairs, triads, etc. of these individual infolded field components can occur without appreciable change of the overall conglomerate's potential (trapped energy density). Thus the gravitational potential can have a dynamic, structured pattern, and local spacetime can be curved and patterned. E field and B field are one such "pair" of flows where little overall gravitational effects are evidenced, so long as the fields are free to "flow." In Kaluza-Klein 5-d unification of gravitation and electromagnetics, only a single field—the 5-dimensional gravitational field—really exists. Our world intersects and "bleeds-off" this 5-d G-field in two fashions: (1) the 5-d G-field prefers to bleed-out into its fifth dimensional aspect, which we see as our own ordinary EM force field. (2) The minute remaining 4-d aspects we see as our 4-d gravitational field. To show the order of magnitude difference in bleed-out, the electrical field between two electrons is about 10^{42} or so stronger than the gravitational field between them. Even for protons, the ratio is 10^{36} or so. So it can be seen that, so long as EM bleed-out is permitted, little 4-d gravitational effects are produced. Our normal electromagnetics—which by construction of Heaviside's version of Maxwell's theory is purely bleed-out, thus yields negligible gravitational effects. On the other hand, if we deliberately set the EM bleed-outs against each other so that they zero sum, we "strangle" the escape or bleed-off of the 5-d G-field into

EM field. The 5-d G-field is then forced to bleed-off into 4-d G-field. If we then vary the energy of each vector component of the EM zero sum while maintaining the overall zero resultant, we directly pump the 4-d gravitational field. Scalar electromagnetics thus directly converts EM field, force, and energy into ordinary G-field force and energy, and vice versa. In addition, we get enormous gains: For every unit of EM energy we feed into the "zero sum pump," theoretically we can get out up to 10^{42} units of 4-d gravitational/inertial energy by electron release, and up to 10^{36} by proton release. Experimental results have confirmed this thesis. As early as 1969, Hurvich produced an inertial field generator capable of "freezing" weapons so they cannot be fired. Hutchison reports and demonstrates the levitating of up to 60-lb. objects. The American physicist Hooper patented electrogravitational devices in the early 70's. Bedini, Watson, Johnson and others have developed practical prototype "free energy generators." Another inventor who wishes anonymity has developed a small device which produces negative energy and antigravity, at an amplification factor of 1,500,000. Orthodox research in this area is just beginning in the West, but has been highly developed for several decades in the Soviet Union.

85. Gravitostriktion: effect in a resistor whereby local gravitational stress flow in a direction results in production of a macroscopic electric force field in that direction, a macroscopic magnetic force field orthogonally around that direction, and minute, randomized EM fields (heat energy) microscopically due to induced microscopic particle motion and interaction. It is the enforced spin alignment of the mass particles (such as conduction electrons) which accounts for the production of the magnetic field. Gravitostriktion is the reason that resistive loads can be powered by scalar anenergy flow (electrogravitational flow, massless current flow) and by negative energy flow. During the initial chargeup of a helical coil exposed to a sine wave voltage, no electron mass current flows; however, the massless current (phi-dot) charges up the coil gravitationally. As electron mass current begins to flow (90 degrees into the wave), this gravitational field is bled-off (outfolded) as electric force field (electron mass flow coupled to del phi) and magnetic force field. One can do amazing things with coils and transformers which are not allowed to enter the EM bleed-off phase at greater than 90 degrees

86. Gravity: the phenomenon characterized by the physical attraction of any two material bodies. Ideally, the gravitational force between two masses is proportional to the product of the masses divided by the square of the distance between them. In the new approach, one recognizes that mass itself is defined in terms of, and identically consists of, the time derivative of an action flux. Gravitational field and electrical field, then, become different aspects of the same thing. By affecting the flow of time, scalar waves and scalar potential thus are able to affect the gravitational force between two objects. Antigravity, for example, can be achieved by forcing an object's atomic nuclei to produce phase conjugate (time-reversed) waves (and negative energy and negative time). In negative time, gravity is a repulsion. Hutchinson has demonstrated the levitation of objects weighing up to 60 lbs, albeit sporadically.

87. H-field: historically, the magnetic field. However, it

is poorly named, and should be considered the magnetic excitation, after Sommerfeld. In empty space B and H are proportional, an experimentally determined fact. In the new approach, rigorously vector fields cannot exist in vacuum, but can only exist on an observable mass. A "shadow" vector field can exist in vacuum, in the absence of observable mass, as small virtual vectors, each existing on a virtual particle in the vacuum. Such a "shadow" vector field may be regarded as two coupled scalar fields, where the coupling is performed by the virtual particle flux of which the vacuum itself consists. When an observable, spinning charged mass encounters the shadow vector field, it converts the two coupled scalar fields into a vector field. Thus Hertz waves per se are not transmitted through vacuum; "shadow" Hertz waves are. With an ordinary detector, however, one detects vector Hertz waves, since one detects the precession waves of the electrons in the electron gas of the detecting probe or antenna.

88. Hieronymus, T. Galen: renowned radionics experimenter and inventor of the amplified radionics machine. Hieronymus is the father of modern amplified radionics; most experimenters before him used unamplified machines.

89. Hieronymus device: essentially, an amplified radionics device. Refers to a device similar to the one patented by T. G. Hieronymus in the 1940's. Connotes ordinary amplification rather than holographic amplification of radionics effects. Any similar type device. The Hieronymus device actually processes, and operates with, scalar waves.

90. Hologram: a photographic recording of the pattern of interference between coherent light reflected from the object of interest, and light that comes directly from the same source or is reflected from a mirror. When this photo image is illuminated from behind by coherent light, a three-dimensional image of the object appears in space. The characteristic of a hypothetically perfect hologram is that all its content is contained in any finite part of itself. If one portion is cut out and illuminated, the complete image appears in space. The whole hologram is in each part of itself. Observationally and perceptually, the physical universe is a hologram and in each part of itself, since all of it can be detected from/in each internal particle.

91. Hyperchannel: a channel between orthogonal frames or hyperframes, where anenergies crosstalk. Exceptionally good hyperchannels seem to be frequency dependent, and are referred to as windows, magic windows, or interdimensional nodal points. Some hyperchannels are 38-40 kHz, 150-160 kHz, 1.1-1.3 MHz, 1.057 GHz (the Lamb shift), and in the near ultraviolet (the life force frequency). These frequencies also represent enhanced channels between subquantal (virtual) and quantal (observable) states. A particularly good magic window exists when the infrared and ultraviolet bands being utilized are phase-locked so that the ultraviolet represents a first harmonic of the infrared.

92. Hyperfield: a structure or disturbance in hyperspace or higher dimensional space. With respect to a fixed frame, the electromagnetic field or a more subtle field. We consider the electromagnetic field the first hyperfield. A hyperfield may also be considered to be the electromagnetic field rotated further away from its laboratory frame. The second hyperfield is called the

neutrinic field, and the third hyperfield is the mental or mind field. Also called bioframe, orthoframe, hyperframe, biofield, or orthofield. These hyperfields/hyperspaces also correspond to the nested levels of virtual state. Successively higher hyperfields past the electromagnetic field constitute successively lower levels of virtual state.

93. Hyperframe: simply, a frame rotated one or more right angle (orthogonal) turns away from the reference laboratory frame. The laboratory frame is considered to be the zeroth hyperframe. Also called bioframe, bio-world, biofield, orthoframe, orthoworld, orthofield, hyperfield, or hyperworld. Sometimes referred to as a hyperspace.

94. Hyperspace: generically, refers to hyperframes, orthoworlds, etc. May be used in a singular sense to refer to one of these.

95. Hyperspace howitzer: a postulated Soviet scalar electromagnetics interferometer weapon, believed capable of firing an explosion through hyperspace to a distant point, without any travel of electromagnetic energy through ordinary space. Also called a scalar howitzer or Tesla howitzer. The howitzer has several modes of operation: (1) it can be used in exothermic or endothermic mode. In the exothermic mode, the howitzer is biased positively. In this mode it can accept energy, transform it into scalar waves of an artificial potential or anenergy, transmit the scalar waves to a distant intersection zone, interfere them and reproduce ordinary positive electromagnetic energy in the distant region. In the endothermic mode, the howitzer is biased negatively. In this mode it "transmits" the extraction of energy. At the distant interference zone, energy is extracted and reappears back at the transmitter/receiver site, where it must be disposed of. U.S. weather satellite photos of the Soviet Union's Bennett Island reveal giant exhausts emerging from that island, some narrow jets as long as 150 miles and only about 1.5 degrees above the horizontal. Bennett Island is believed to be the "exhaust site" for several Soviet hyperspace howitzers. That is, when a howitzer operates in the endothermic mode, it receives and temporarily holds the energy that comes back to it, then switches biasing potential to positive and transmits in the exothermic mode to Bennett Island. (2) The howitzer can operate in pulsed or continuous mode. In pulsed mode, an explosive or implosive effect occurs at the distant target site. In continuous mode, a continuous energy source or sink appears in the distant interference zone. (3) Fourier expansion mode. Each transmitter of the howitzer can produce multiple frequencies where the frequencies represent a Fourier expansion of a geometrical form such as a sphere. When these two geometrical scalar forms are interfered at a distance, a 3-dimensional form of ordinary EM energy emerges (exothermic mode) or is extracted (endothermic mode). (4) the scalar transmissions of the scalar interferometer (hyperspace howitzer) can be modulated upon ordinary EM carriers, such as the Woodpecker signals in the communications band (3 to 30 megaHertz). In this case, interference patterns of the Woodpecker carrier will yield only minute EM energy, but the impressed scalar substructures may interfere to produce or extract substantial energy in or front the interference zone. Other control signals impressed on the Woodpeckers may be used to trigger the mode and location in the interference zone, or

even to establish "circulations" in the vector zeros. By forming distant high pressure zones (exothermic mode) and low pressure zones (endothermic mode) and then moving the locations along, the Soviets can capture and deviate the jet streams over North America or elsewhere. By swirling in conjunction, tornadoes can be produced. Certain signatures (giant radial clouds and twin giant radial clouds) in the active zone have been identified as associated with the Soviet Union's weather engineering. The strange explosion in 1958 near the Urals is believed to have been an accident involving an early first fullup test of the howitzer. The howitzer was probably similar to a giant radar, transmitting scalar EM wave. By setting up a standing scalar wave and continuing to transmit energy into it, the standing wave becomes a giant potential. It is charged up much like a scalar capacitor, but with scalar EM (electrogravitational) energy. Failure of the transmitter may have discharged this giant potential into the earth, and the electrogravitational ground pulse spread out, striking the nearby stored nuclear wastes and fissioning all the radioactive nuclei. Consequently the nearby atomic wastes exploded, producing fallout and radioactive contamination over a large area. The first fullup test of an operational on-site weapon is believed to have been the destruction of the U.S.S. Thresher atomic submarine on April 10, 1963. The second fullup test is believed to have been the transmission of an explosion into the ocean 100 miles north of Puerto Rico on April 11, 1963—one day after the destruction of the Thresher. Over a hundred howitzers are believed to now be on site and operational, and powered by either Moray amplifiers or giant scalar resonant inference taps in the earth (detected by Golden in April 1985). High Altitude booms off the east coast of the U.S. may have been due to orientation and alignment tests of these weapons, with each test blast the equivalent of some 100 tons of ordinary explosives. If so, these shots were probably artillery high burst registrations. The two puzzling flashes detected by the Vela satellites in September 1979 and later, and erroneously described as a nuclear flash by many analysts, may also have been a test of this type of weapon, either by the Soviets or a second nation that has developed the weapons.

96. Hyperworld: a world (3-space or 4-space) rotated one or more orthogonal turns away from the laboratory frame (ordinary world). Constitutes also (identically) an entire subquantal level in virtual state.

97. Inception: kindling (from mind anenergy) a small amount of photon energy into or onto a body/tuner or other object. Specifically, coupling scalar wave patterns (anenergy) onto the body/tuner or object so that the photon energy is created in or on the body at a distance.

98. Inceptive cyborg effect: the ability of the mind to psychokinetically link to, or attune to, an inert physical object or physical system. A living biological system is a stabilized inceptive cyborg, with its mindworld linked to its body/tuner. The two cerebral hemispheres of the brain form a Tesla scalar interferometer, capable of producing and transmitting scalar wave patterns into a distant object, coupling into energy in it, and thus linking with or resonating with the object. This is the mechanism for producing all parapsychological phenomena.

99. Interdimensional nodal point: a natural frequency for an anenergy channel between orthogonal frames or universes. Also called a magic window.

100. Interference: the variation of the amplitude of a wave with distance and time, where that wave results from the superposition of two waves having the same, or nearly the same, frequency.

101. Interferometer: an instrument in which a wave is split into two waves or beams, which after traveling over different paths are subsequently reunited and display interference.

102. Jitter (dither): the incessant quantum and subquantum activity on a fundamental particle of mass. The particle is continually connected to and disconnected from an infinite number of hyperspaces, and to and from time.

103. Kaznacheyev effect: refers to the demonstrated ability of near-ultraviolet mitogenetic photons to carry any kind of death pattern from one cell culture to another of similar kind, in the absence of visible light and with synchronized conditions. Named after the Soviet scientist Vlai P. Kaznacheyev, who experimentally demonstrated the effect. In his experiments, two samples of the same cell culture were environmentally separated by a thin window. The entire arrangement was placed in the dark and rotated at some 20 rotations per minute. The cells on one side were then killed by any particular mechanism—ionizing radiation, chemicals, toxins, deadly bacteria, germs, etc. If the window was made of ordinary glass (opaque to ultraviolet), the second sample remained healthy. If the window was made of thin quartz (transparent to ultraviolet), then after a time delay the second sample began dying with the same symptoms as the first. Later testing revealed the emission of mitogenetic, laser-like photons in the near ultraviolet from the dying cells in the first culture. When these mitogenetic photons are allowed to bombard the second culture, the same lethality pattern is induced in it. The explanation is that the photons carry virtual state (scalar) patterns (infolded patterns in their time components), and these virtual patterns are diffused into the receiving culture, where eventually they diffuse into a lethal pattern in the virtual state (scalar) master control system (discovered by F. A. Popp) of the targeted cells. Continued charge—up of this pattern kindles the pattern into a physical, observable structure in the cells, reproducing the death or disease pattern. The Kaznacheyev effect has been duplicated in the infrared in West Germany. Kaznacheyev almost certainly also phase conjugated (time-reversed) the "death photons," producing healing photons for that specific cellular damage or disease condition. Irradiation of the affected cells with these healing photons would have reversed the disease, reverting the cells to normal. Note that Antoine Priore's machine worked in this fashion. Kaznacheyev's EM healing work with phase conjugated photons was obviously not reported; it represents a total counter to viral biological warfare, and such work would have been done only under KGB control, and highly classified as a vastly valuable defense secret.

104. Kelly, Peter: noted radionics/psychotronic researcher and builder of several types of especially potent amplified radionics machines. He is also one of the pioneers of the use of amplified radionics in agriculture for enhancement of crops, restoration of soil vitality, and control of insects. By direct measurement with Bedini scalar EM detectors, Kelly's machines have been verified to produce scalar waves.

105. Kelly machines: amplified radionics machines developed and built by Peter Kelly.

106. Kervran effect: the ability of a living biological system (either plant or animal) to accomplish limited transmutation of elements, particularly between certain isomers. Named after the French scientist, Louis Kervran, who discovered the effect. Kervran was nominated for a Nobel prize in 1977, although the prize was not awarded to him. The Kervran effect has been duplicated by Japanese, British, European, American and other scientists. Note that scalar interferometry is capable of kindling energy patterns directly into the virtual state interactions of the nucleus, including the strong force that binds the nucleons together. Over a period of time, this energy can cumulate, biasing the quantal statistics of the interactions. This, of course, changes the probabilities of the various quantal states, with the result that the nucleus can be transmuted. Transmutation to an isomer is particularly practicable. Efficient transmutation of elements by scalar means has been accomplished by John Bedini.

107. Kindling: collecting and condensing more subtle energies (anenergy) into virtual photons (charge effects), photons (electromagnetic field effects), or matter (materialization effects). Kindling is a linear integration process, which repeatedly collects or integrates a virtual state pattern until it breaches the observable threshold, becoming physical real.

108. Kirlian photography: field patterns of an object impressed upon a film or other sensitive material by means of spark discharges. The scalar modulations in the spark charge intensity, not the ordinary vector E-field components, are the paranormal components. Thus only the delta—which represents those scalar patterns coupling and kindling into vector EM, which then interacts in photochemical interactions—is indicative of the paranormal aspect of Kirlian photography.

109. Law of physics: a restriction placed upon the physical mechanisms that can occur under certain broad assumptions as to the background situation and environment. Actually, in nature there are no such "laws"; these are only man's synthesis for the behavior of large classes of systems under very general conditions. Any "law of physics" can be violated if the conditions contained in its assumptions are violated. Conservation laws are often touted as "laws of physics." Actually, the conservation laws assume a closed system and a linear spacetime (Lorentz frame). If either or both of these assumptions is violated, any or all of the conservation laws can be violated. In particle physics, broken symmetry already results in violation of one or more of the conservation laws. In leading Soviet physics journals, papers are regularly published containing unrestricted general relativity with concomitant violation of any and all conservation laws.

110. LIDA machine: Soviet device which uses a 40 megahertz carrier and unusual waveforms to induce a catatonic-like state in man or other mammals. For years Western orthodox scientists have argued that EM signals could not directly affect consciousness. With testing of the LIDA device, this has now been totally refuted. One scientist has reported that the LIDA device—known to be decades old—was used by the North Koreans on some U.S. prisoners of war during the Korean War. Reportedly the effects of the machine could not be resisted, and the

machine was a devastatingly effective "brainwashing" tool.

111. Life: a term which resists the best efforts of philosophers and scientists to define it! In the new approach, a living system is modeled as consisting of a physical body "tuner" and a mindworld to which the tuner is preferentially tuned to a small degree. The preferential virtual state crosstalk between the physical tuner and the mindworld constitutes the life channel or consciousness loop. Destruction or loss of the preferential tuning results in "death," or loss of attachment to the tuner. In that case the mindworld functions within itself. Note that the being is always present, unchanging, and simply "is," without any connotation of perceptual stringing together separations into a string of events (causal chains). Being changeless, it consists of all changes, all-at-once, hence none separately. Ultimately this is the true meaning and foundation of life, and mindworlds and physical events represent simply separation waves in unlimited being. Note this is completely consistent with the idea that ultimately only God exists, things are simply separation waves in the unseparated Godness, and God permeates everything.

112. Loch Ness Monster: famous tulpoidal water monster which (occasionally) temporarily materializes in Loch Ness in Scotland. Similar materializations of "water monsters" have been seen and reported in almost every large body of water on earth.

113. Longitudinal wave: a "pressure" type of wave, similar to sound, in which the vibrations are along the direction of travel of the wave. Hence, a wave composed of alternating densifications and rarefactions. Scalar waves are longitudinal waves. In classical EM theory, the Poynting vector predicts no longitudinal wave of energy from a time-varying, electrically charged source. In fact, an exact solution of the problem does allow this longitudinal wave, as shown by Keech and Corun, *International Journal of Theoretical Physics*, Vol. 20, No. 1, 1981, pp. 63-68. The classical electromagnetic wave is modeled as a vector wave, comprised of transverse vibrations. In the new approach, such transverse vector force field waves (Hertz waves) do not exist in vacuum; instead, two coupled longitudinal scalar waves exist in vacuum. The E and B fields are formed, recovered by, and exist as the spinning charged detecting mass particle in motion.

114. Magic window: a naturally tuned frequency of a good hyperchannel between orthogonal frames where scalar wave anenergies crosstalk readily. Magic windows are frequency dependent, and are also referred to as hyperchannels or interdimensional nodal points. Some magic windows are 38-40 kHz, 150-160 kHz, 1.1-1.3 MHz, 1.057 GHz (the Lamb shift), and in the near ultraviolet (the life energy frequency).

115. Many-worlds interpretation of quantum mechanics: refers to the consideration of multiple simultaneous observers and the consequent changes forced upon quantum physics. Essentially all possibilities exist and are real, and an infinite number of orthogonal worlds exist at any instant. Further, each world splits into multiple possibilities after each and every event. Thus in a single second, the world has split in some 10 to the 20th power versions of itself. This is the work primarily of Everett, with strong contributions by Wheeler and

Graham, and was the subject of Everett's thesis at Princeton University in 1956. It was published in 1957.

116. Mass: literally, a special curvature or "kink" in spacetime emptiness, according to relativity theory. In the new approach, the mass and inertia of a particle are considered to be due to one or more standing scalar resonances, trapped by the spin of the particle. When the amplitude of the trapped scalar wave increases or decreases, the mass and inertial of the particle increase or decrease. If the resonance amplitude reduces to zero, the particle dematerializes. Classically, mass is also taken as the measure of a body's resistance to being accelerated by a force. Specifically, a mass occupies space (3-dimensional) and resists change in its linear movement. In a region of mass, a flux of action quanta into and out of the region exists, corresponding to a flow of positive and negative time. The mass is the sum of the absolute values of the time derivative of action in and the time derivative of action out. If these two time derivatives are equal in magnitude, the mass is unaccelerated; if unequal, the mass is accelerated. A mass does not exist in time per se (more rigorously, it exists equally in positive time and in negative time), but only exists spatially. A mass continually interacts with photons (absorption and emission), thus continually connecting and disconnecting to the fourth dimension (time). The mass is thus seen to "jump along" through time in finite, quantized jumps caused by the photon interaction with it.

117. Men-in-black: that part of the UFO contact phenomena which involves contact with rather sinister tulipoidal manforms. Typically these tulipoids are dressed in dark suits, have almond-shaped eyes that do not blink, possess oriental features, and "speak" telepathically to the contactee. Often they drive dark automobiles and follow the contactee. Several researchers in the field have had intense encounters with such tulipoids. The appearance of such phenomena associated with an investigator is in part due to unresolved detrimental material in his or her own unconscious mind, which thus acts as a "witness" and radionics tuner. Continual stimulation of this detrimental unconscious witness by the person's investigative activities results in the appearance of, and contact with, such tulipoids. The more detrimental aspects of such tulipoidal tuning can be prevented by psychic clearance of the investigator, particularly of his unconscious mind. Such psychic clearance at regular intervals is highly recommended for investigators pursuing the more bizarre aspects of the field, such as cattle mutilation, men-in-black, sasquatch, possessions, etc.

118. Metal bending: term applied to the psychokinetic bending and breaking of metal objects such as cutlery, rods, bars, etc. When a metal rod is psychokinetically bent, then cross-sectioned and examined under the electron microscope, microscopic "puddling", as if by localized, point source intense heating, can be seen, with concomitant disruption of the metallic grain structure. In a severe case, the cross section looks like the puddled surface of the moon. The mechanism responsible for the psychokinetic bending is exothermic scalar interferometry by the two cerebral hemispheres, where the intersection zone is the metal object being bent.

119. Metapsychology: literally, "before psychology." The deeper psychology of the group mind, particularly the collective human unconscious mind. Although the Cartesian idea of the separation of mind and matter usu-

ally applies to the individual conscious mind, it does not apply to the group unconscious mind. The collective human unconscious mind is a living being, though unconscious, and is capable of materializing its "dreams" into actual physical forms and beings.

120. Microcrystals: tiny crystals, particularly those used by George Yao in construction of his pulsors. Use of the microcrystal in proprietary manners enables Yao to build devices which react to scalar resonance and human intent, and which can generate negation patterns for potentially harmful "deltas" or changes that occur in the human etheric field (aura).

121. Miller/Fox/Urey effects (experiments): these experiments simulated the primitive conditions believed to have existed in and over the primeval oceans. Water—with its complement of minerals and chemicals—and gases to simulate the primeval atmosphere were placed in a beaker and subjected to ultraviolet radiation and electrical discharges. Thus the experiments simulated the great lightning discharges into the primeval oceans. In the laboratory, amino acids are formed, then proteinoids. If the experiments are performed in the presence of heating (simulating the presence of volcanic activity, for example), then primitive microspheric cells are formed with double cellular walls. These microspheric cells even reproduce by cell division. Thus at least simple lifeforms have been produced in the laboratory. Indeed, in the new model even inert matter is totally alive, but unpreferentially. Also, every possible sort of mind exists. Thus all that is necessary to form a living system with any desired characteristics is to form the appropriate type of physical tuner. A living system is like a television set existing in a flux of radiations from an infinite set of channels/stations. The set tunes preferentially to one channel/station, but any desired channel can be tuned, simply by changing the characteristics of the tuner. One does not "create" life, one simply "tunes it in selectively." In this concept rigorously there is no such thing as "death", but only transition from one state to another.

122. Mind: a quite misunderstood concept! In conventional science, it is considered purely robotic—i.e., it is the sum total of the electromechanical neural processes which receive, code, and interpret sensations, recall and correlate stored information, and act upon it. Also considered to be the understanding, reasoning, and intellectual faculties considered as a whole, that is, as the conscious portion. Also considered as the psyche, including the conscious, subconscious, and unconscious portions, considered as a whole. The new approach is more in accord with the latter definition. Simply put, the mind is a world composed of separation events (waves, operations, processes) in unseparated being. We may model it (to a first crude approximation) as a physical universe, three orthogonal turns away from the ordinary physical universe, and tuned slightly selectively to one physical organism's physical body processes. Mind anergy is considered to be progressively collected, condensed, and kindled into denser substance and objects by rotation toward the ordinary physical world. Thus a piece of inert matter is simply condensed energy, which itself is condensed anergy, which is condensed mind flux (crosstalk) from all minds. One may model the mind physically, or model the physical as mindstuff, eliminating the artificial dichotomy between mind and matter that presently is assumed in orthodox science. Since per-

ception of thought is fragmentation and separation of mind, the mind cannot be perceptually conscious of itself, but only of its separated fragments (thoughts). When the incessant activity of the mind is stilled, however, the stable mind is in its pure state—pure being. In this state there is no separation of the observer and the observed. With attainment of this state, one "realizes" or experiences one's true God-nature. It is theoretically possible to build a scalar wave detector that can directly "see" thoughts. Indeed, the first prototype of this type detector may have already been built by one physicist experimenting with a very sensitive scalar wave detector.

123. Mind linkage: the integrating of two or more minds into a single overall functional mind. A living example is in each human head: the two cerebral hemispheres—each containing its own separate mind—are integrated into one overall brain having a single functional mind. This is accomplished by signals interconnecting the two cerebral hemispheres through the corpus callosum. Note that the "separated beings" of the two minds are also merged/linked into one greater being. The tuned separation of individual humans (caused by the continual photon interactions with each particle of mass in the body tuner) is responsible for all man's inhumanity to his fellow man, for each now perceives others as separate things or "objects." With mind linkage, the human species will emerge as a single great entity, having not only a single "collective unconscious," but also a single "collective conscious" mind. Proof that linkage can be accomplished is already demonstrated by each individual. The problem of resolving all man's inhumanity to his fellow man is thus a technical problem, not just a moral/philosophical problem.

124. Mitogenetic radiation: laser-like, coherent photons emitted by cells, particularly in the near ultraviolet. Of particular importance are the photon emitted by a cell immediately after complete fertilization, and the photon emitted as the cell dies. The first mitogenetic photon signifies the kindled connection of the cell's small mind-world and the establishing of the consciousness or life loop. The second mitogenetic photon signifies the loss of tuning and consequent loss of the consciousness or life loop. The photon at cellular fertilization is a joyous song of birth, and the photon at cellular death is a death song of the cell. In addition, the birth photon carries the full mindworld pattern nested inside it in the virtual (scalar) state, and the death photon carries the full pattern of the cell's experiences and death nested inside it in the virtual (scalar) state.

125. Monocular (change): one at a time. Change as seen by only a single observer at a time. This type change is provided by the photon interaction with matter, and the "memory hold" of a large number of such monocular changes constitutes the "perceived/detected physical reality" we conceive we exist in.

126. Moray amplifier: free energy device developed by T. Henry Moray of Salt Lake City, Utah in the 1920's and 30's. The device was destroyed by a double agent (an F.B.I. agent and also a Soviet agent) in 1939, after the agent had obtained the drawings of the device and worked in Moray's laboratory for several months. The final device had some 29 detector stages and produced an output of 50 kilowatts of power, without input.

127. Moray, T. Henry: early experimenter and pioneer

in radiant energy, who developed one of the most widely demonstrated and best authenticated free energy devices. Moray's device was a collector/amplifier that eventually produced 50 kilowatts of output power.

128. Multicellular (change): more than one at a time. Change as seen by multiple simultaneous observers. Consideration of this type change leads to an infinite dimensional, multiworld or multiverse reality similar to the type described by Everett. If one accepts multiple simultaneous observers, then this expanded and startling view of reality is inescapable. If one accepts only a single observer at a time (as does present physics), then there exists only a single living person, and everyone and everything else is simply a figment of his or her imagination.

129. Mystery light: another name for a nocturnal light, or earthstress light, produced by natural scalar transmission interferometry of the cracked rock structures in the earth's crust

130. Neurophone: an instrument for direct electromagnetic input of signals into the human brain and nervous system. The neurophone was invented by Pat Flanagan when a boy of seventeen. The improved version, invented much later by Flanagan, clips an input signal, differentiates it twice, then feeds the resulting noisy spikes into the human sensory system. The original signal is impressed into the brain and directly into the mind. An adaptation of the neurophone, using more than eleven independent frequencies and built in accord with Soviet work reported by Lisitsyn, could conceivably be utilized to accomplish human mind linkage.

131. Neutrinic wave: a bare neutrino, considered as a wave instead of a particle. It is a special kind of polarization wave to the laboratory observer, and interacts with his electromagnetic field. It is essentially a longitudinal scalar wave, which moves in and on ordinary vector electromagnetic waves. It may also be regarded as a sort of "spin" wave, since one may consider it as moving at the speed c , but circling around a photon in a plane perpendicular to the photon's velocity in 3-space. One may thus say that the neutrinic wave moves at the velocity c -squared, but its carrier moves at the velocity c . Since we detect the speed of the carrier, detected neutrinos always appear to have moved at the speed of light.

132. Neutrino: a neutral particle believed to have zero rest mass and travel at the speed of light. One type of neutrino is associated with the electron and one type with the muon. A third type is now believed to exist. There is some evidence recently of neutrinos possibly having a small mass, and of one type of neutrino turning into another type. In the new approach, the classical neutrino is a flux of much smaller particles—"bare" neutrinos—inside a photon. In the photon, one flux is taken to rotate clockwise and one flux to rotate counterclockwise (adapted from the phasor theory of Ruderfer). Further, a neutrinic flux from one half of the photon to the other is hypothetically possible, and this flux would constitute a third type of neutrino. It would exhibit mass, and would allow one type of neutrino to turn into the other. The bare neutrino (from the new approach) is of magnitude $1/c$ times the magnitude of the photon. Further, it moves at the speed c -squared, but since it circulates at the speed c at right angles to the motion of its photon carrier which is moving at the speed c , its detected velocity is always c , the speed of carrier. To an observer in the hyper-

frame of the electromagnetic field, a laboratory bare neutrino would appear as a photon.

133. Newman, Joseph: Mississippi inventor of a free energy machine tested and authenticated by several dozen scientists. Newman is fighting in court to obtain a patent on the device which has clearly been shown to be legitimate.

134. Newman machine: free energy device developed by Joseph Newman. While the prototype does not produce appreciable output power, it does produce an output and keeps its own small drycell batteries charged. It clearly demonstrates the principle and is a legitimate free energy device.

135. Nocturnal light: any paranormal light phenomenon seen at night. Over 80% of the UFO phenomena are nocturnal lights. Also includes phenomena such as "ghost" lights, spooklights, will 'o the wisps, etc. It specifically does not include ball lightning, St. Elmo's fire, and other such rare but normal phenomena. Most of the nocturnal light phenomena are caused by natural scalar transmission interferometry.

136. Observable (state): that part of physical reality consisting of changes (particles, waves, action changes) that are detectable by single instruments. The field on a charged particle is due to the continual emission and absorption of virtual particles. Forces between observable particles are generated by the exchange of virtual particles. Thus all observable forces, fields and changes are generated by unobservable virtual interactions, and observable and virtual reality states are inseparably enmeshed. In theory, no superluminal effect can be directly detected; however, a two-stage detection can be used to detect a superluminal entity. Usually the first stage is an interference between two superluminal entities, where the interference "downshifts" the waves to produce a wave moving at subluminal velocity. This subluminal wave then interacts with a mass such as an electron, and these interactions are accumulated to provide a macroscopic measurement indicative of the presence of the primary superluminal interferences. A two-slit box for the electron interference experiment is an example. Also, in quantum mechanics time is not an observable, even in theory. All observation is spatial; rigorously, there is no such thing as a clock in the purest sense. Time is always inferred from a spatial detection or measurement

137. Orgone energy: the subtle living or life energy discovered and utilized by Wilhelm Reich. Reich had discovered and utilized a portion of scalar electromagnetics (electrogravitation).

138. Orthoframe: a frame rotated away from the laboratory frame by one or more right angles. A hyperframe or bioframe. Also called an orthoworld.

139. Orthogonal: simply, at right angles. The intersection of two orthogonal geometric constructs, each of dimension one or greater, is of one less dimension than the lowest dimensioned intersector.

140. Orthorotation: rotation in hyperspace of an object, form, or particle at a right angle to its starting frame. The object loses one dimension in its intersection in the original frame and gains one dimension in its intersection in the frame toward which it rotates.

141. Orthoworlds: orthogonal 3-dimensional physical worlds (frames) that share a single time dimension in their 4-spaces (spacetimes).

142. Paradox (logical): a thing that is true, but which

violates one or more of the three Aristotelian laws of logic. All logical paradoxes are simply fourth-law logic cases, and—at least hypothetically—the fourth law can be applied to resolve them.

143. Paranormal phenomena: any phenomena that differ from straightforward, orthodox physical or psychological phenomena. Phenomena beyond understanding in terms of presently known science, causes, and effects. Specifically, phenomena in which mind and matter, or mind and unknown fields, or matter and unknown fields interact observably.

144. Past: reality which has been erased and has ceased to "physically (observably exist)" in immediate detection/perception, and which now exists only as an infolded virtual state trace or vacuum memory. (Because the past still exists as an infolded virtual trace in vacuum, the time-reversed wave emitted from a pumped phase conjugate in four-wave mixing can retrace the past path of the wave that struck the mirror and stimulated the emission.) Fissioning of an action quantum produces a "presented" change described by canonical fragments. Fusion of the canonical fragments back into a quantum of action erases the presented real canonical fragments, reducing the "change" to the "past" However, that "fissioned pattern" or virtual substructure continues to exist, infolded into the vacuum. The vacuum retains a perfect infolded recorded memory, therefore, of every quantum change that has ever occurred. (In ancient mystery schools, the set of all such traces was called the Akashic record.) A virtual projection of the change has occurred in the mind world of the observer, however, since the mindworld is nonlocal. The coherent (causal) time-ordered collection of large numbers of such virtual projections in the mindworld reaches the quantum threshold, resulting in a quantum change in the mindworld. The "conscious mind" thus perceives physical reality as a collection of a large number of quantum changes—in short, a macroscopic reality. In actuality this "perceived macroscopic world" rigorously exists only in the mindworld, and thus it exists only in the past (Note how physicist's discussions of such quantum paradoxes as Schrodinger's Cat are erroneously based on macroscopic considerations.)

145. Phase conjugation: a nonlinear wave process whereby a nonlinear crystal, material, or medium creates a nonlinear polarization for an incoming monochromatic wave is generated at the incident frequency by $w-w-w=-w$. The nonlinear polarization radiates a time-reversed replica of the incoming waveform. The time-reversed waveform has an amplitude proportional to the complex conjugate of the incoming wave amplitude. Though primarily known in nonlinear optics, the time-reversed wave is a solution to the wave equation, and so the phenomenon is universal to all kinds of waves. As can be seen from $(w-w)-w=-w$, the first two waves modulate each other because the nonlinear medium acts as a modulator. These two waves thus "lock together" as a single scalar EM wave. The scalar wave passes through the electron shells of the atoms of the nonlinear medium, penetrating to the positively charged atomic nuclei. In a nucleus, each incident scalar photon is absorbed, increasing the potential of the nucleus to an excited state. The decay of this excited state from the positively-charged nucleus causes the emission of a time-reversed (TR) photon carrying negative energy. The "emitted shower"

of these TR photons constitutes a TR wave. Thus from the nonlinear material there is emitted a time-reversed wave. This TR wave "backtracks" through space along the invisible path taken by the original incoming wave. Since the phase conjugate wave is time-reversed, it concentrates along its backward path, rather than diverging. Consequently all its energy arrives at the distant location of the source of the original stimulus wave. The nonlinear medium producing the TR effect in response to a stimulus wave is referred to as a phase conjugate mirror. If two monochromatic EM waves w_1 and w_2 are fed into the nonlinear medium in antiparallel manner, so that the waves are everywhere out of phase, they modulate each other, forming a much more powerful scalar EM wave. This wave then "pumps" each nuclear potential to a much higher excited state. Thus when this potential decays, a much more powerful TR wave is emitted, containing up to all the energy put into the scalar "pump" wave. Note that the excited nuclei do not decay (the excited potential does not decay) until an incoming stimulus wave—say w_4 —is received. When w_4 is received, then a powerful TR wave—say w_3 —is emitted from the phase conjugate mirror (PCM). This process is referred to as "four wave mixing." Thus a pumped PCM acts as a triode amplifier, and the incoming stimulus wave acts as a signal on the grid. In the oscillation condition (incoming input w_4 at right angles to w_1 and w_2), infinite gain is experienced, so that all the energy in pump waves w_1 and w_2 appear in TR wave w_3 . This was Nikola Tesla's secret of wireless transmission of energy at a distance without losses; the Great Electrician had discovered what we today call phase conjugation and the pumped phase conjugate mirror. He also discovered its general nature, for he understood that it applied to all kinds of waves, including mechanical waves in the earth. It has been shown that, under proper conditions, it is possible to have self-oscillation in the nonlinear crystal or medium. Such a PCM is referred to as a "self-pumped PCM." Indeed, Tesla's original Magnifying Transmitter would have utilized the earth itself as a self-pumped, amplifying PCM—in other words, as a giant triode where the molten core of the earth already furnished the cathode power for free. A relatively small input "grid signal" (from Tesla's resonant transmitter) would thus have set the earth itself into scalar resonance (giant self-pumping), eliciting an enormous time-reversed wave energy resonant response from the core of the earth. Anyone anywhere on earth with an antenna tuned to the stimulated frequency would have received cheap or "free" energy from the earth itself. The Soviets presently use a version of this method to power their enormous scalar EM wave Tesla weapons. All unorthodox resonant free energy devices (built in secret by unorthodox inventors) presently use variations of this same principle.

146. Photon: the basic action quantum. It may be considered as an oscillation in and of time. It may also be considered as a virtual pattern of positron/electron pairs. A piece of electromagnetic radiation when it interacts as a particle. One half the photon exists in and carries positive time (negative charge), and the other half exists in and carries negative time (positive charge); thus one half is "normal" and the other half is "time-reversed" (phase conjugated). The magnetic field of a permanent magnet, for example, thus consists of two types of coincident magnetic field lines: one line of each coincident pair is in

positive time and by convention runs from the north pole to the south pole, while the second line of the pair is in negative time and runs from the south pole to the north pole. The two lines may be considered as two streams of particles, one negative and the other positive (Howard Johnson's two-particle theory of magnetism). The photon may be considered as two contrarotating neutrinos, after the work of Ruderfer. In the new approach, each of these rotating neutrinos is considered to be composed of vast numbers of circulating bare neutrinos. The photon may be considered as one cycle of an electromagnetic wave. The photon is the basic carrier of time and consists of a piece of energy welded to a piece of time, with no seam in the middle. The passage of "time" thus moves at the speed of light, its carrier. All ordinary photons possess the same action magnitude, h , although they do not carry the same energy. If the photon is made subquantal (i.e., less than h in magnitude), it is a virtual photon of the type whose emission and absorption cause charge on an electron. Virtual photons are not individually detectable, even in theory. However, a virtual photon may have positive mass under some circumstances.

147. Photon interaction: the absorption and emission of photons by particles or objects. Usually the photon interacts with an orbital electron, being absorbed by the electron which is raised into an excited state. Then the electron decays from the excited state, emitting another photon. The macroscopic world is created by this interaction, which is the basic quantum change interaction. When we introduce additional photon interactions beyond the ambient background, the nucleus stays basically stable, and the normal first-order world we perceive seems quite stable. This is the first level of physical reality, and it is the reality sensed by our coarse physical senses. However, scalar waves are emitted and absorbed by the nuclei of atoms, passing right through the electron shells without interaction. When we introduce additional scalar interactions beyond the ambient background, the nuclei change appreciably, and this level of physical reality may be far from stable. This is the higher reality, and it is sensed by the scalar electromagnetic functioning of our nervous system. Unfortunately, this system outputs only to the deep unconscious, since it is highly multicellular. Thus our conscious mind, being monocular, does not perceive the most fundamental reality in which we exist. Note that "time" is the special dimension in which multiple objects can exist simultaneously in the same interval, while space is composed of dimensions (length) in which multiple objects cannot exist simultaneously in the same interval. Time is multicellular, and space is monocular. Our conscious mind is fitted to the monocular photon interaction; being monocular, our conscious mind cannot be aware of time directly. For that reason we do not "see" time consciously. We do "see" it, however, unconsciously. The true meaning of being "lost" is to be separated from the consciousness of the All, which is separation of our conscious, gross sensing of first order reality from our finer, more subtle, and infinitely richer—and unconscious—scalar sensing of ultimate reality.

148. Photon quenching: the effect of photon emission carrying away time, constituting a time-differentiation of spacetime and leaving behind a spatial reality. This action is responsible for the destruction of the time dimension.

sion in the detection/measurement processes of our physical instruments and our body sensory systems. Thus all detections and measurements are spatial, and we detect and perceive only a 3-dimensional spatial universe, not a 4-dimensional or higher spacetime. Photon quenching is thus a filter between us (our senses and instruments) and fundamental reality. Physical reality as detected by our senses and instruments is real, but only partial. Specifically it is a time-differentiation of fundamental reality. We thus lose the ability to detect those things which occupy time but not normal 3-dimensional space—such as mind, thought, etc. Almost all our thoughts, concepts, words, and ideas are fitted to this partial reality—and this is the universal human problem and delusion. We see a spatial universe of separated spatial objects, while in actuality we exist in an undifferentiated single wholeness. It is not a matter of loving one's brother or sister, it is a matter of being him or her. Fortunately, with scalar electromagnetics much finer instruments can be built. The quantal limitation of ordinary physics is not a limitation in scalar electromagnetics. Ultimately we will be able to use sophisticated scalar sensors and biofeedback training to awaken and develop consciousness of our scalar sensing of higher reality, and restore man to his proper state.

149. Piezoelectric effect: In a material, the appearance of a voltage when mechanical stress is applied, or of a mechanical stress when a voltage is applied.

150. Poltergeist: allegedly, a spirit or ghost, often mischievous, usually associated with anomalous psychokinetic activity in houses such as slamming doors, levitating and flying objects, displacement of persons or objects, etc. Often the poltergeist phenomena are associated with an emotionally upset or distraught adolescent. The experience of cooling of the surroundings when these phenomena are evidenced is also common.

151. Potential: locked-in work or energy at a point. It is important to realize that, like a runner running in place, the potential represents work continually being done in time, but at a point, not released through a distance. Since the work is never spatially released, to the external observer it remains in the present as energy, and does not pass into the past as work accomplished! Prior to observation (passage from the present into the past), the physical universe exists as action or angular momentum—e.g., as "energy x time," or "momentum x length," etc. The two variables in which angular momentum is expressed are referred to as "canonical variables." They are locked together, since their product is a constant (in a nonlinear frame). Thus if we ask "what exists in time?" we have asked "what is the time derivative of action, which is the same as 'what is existing in time but not in space?'" The answer then is energy, which—before observation (separation) exists undifferentiated as (energy x time). Ironically, in electromagnetics the electric (electrostatic) potential is completely misdefined. Most texts start about to define it in terms of "potential difference," and then only tell how to prescribe the intensity or magnitude. For example: "The work which must be done against electric forces to bring a unit charge from a reference point (often at infinity) to the point in question." Note this "definition" does not at all tell what a potential is, but instead tells how to mathematically determine its intensity. Briefly, electric potential is a locked-in stress in vacuum spacetime. This stress at a point is due to the

intensity of the virtual particle (virtual photon) flux (dynamic, ongoing, trapped virtual work) at that point. The ambient local stress of vacuum is not zero, but is a very high value. Normally we refer to "potentials" as measured from the ambient; that is, we actually specify the "difference from the ambient value of the spatiotemporal stress due to virtual photon flux" at the point in question. Any change in the ambient stress of vacuum is a curvature of spacetime. The electrostatic curvature normally stress-relieves almost immediately as electric force field on matter, or electric virtual force field in vacuum. In Kaluza theory, the electromagnetic force fields are just the 5th dimensional aspect of the 5-d gravitational field. The 4-d gravity field is the other aspect of our 4- \rightarrow world's intersection with the 5-d G-field. Thus the electrostatic and magnetostatic potentials are simply two coupled aspects of the 5-d G-field. A normal electromagnetic force field (E or B) is the "bleed-off" or escape on charged particles, of the 5-d gravitational field potential's infolded stress contents into the fifth dimension. That is, it is the 5th dimensional outfolding of the inner contents of the gravitational potential. If we wish to achieve bleed-off into the 4-d G-field instead of the normal 5th dimensional E and B fields, then we must "shut off" the EM bleed-off/out. This shutoff can easily be done by opposing and reciprocally modulating E-fields and/or B-fields so that they lock-together as one field, and vectorially sum to zero vector resultants. This creates artificial (internally structured) electrostatic and/or magnetostatic scalar potentials. These potentials are actually 5-d G-potential, which is now forced to bleed-off/out into the 4-d gravitational force field at great amplification. This is the outfolding of the inner contents of the 5-d G potential into ordinary 4-space. Such an artificial potential produces a vector zeroed 5th dimensional EM system with a deterministic substructure, which polarizes the vacuum and engineers the virtual state. Maxwell's original 1864 quaternion theory included this theory, though not in these specific terms. Heaviside's mutilation of the theory into vectors threw away the electrogravitational aspects by discarding the scalar component of the quaternion.

152. Prigogine crystal: an amorphous pellet or crystal made by sintering finely divided material at high temperature and pressure, in such fashion that the pellet becomes a highly stressed system far from thermodynamic equilibrium. Specifically, more than one type of material must be used, one ingredient of which must be piezoelectric. One ingredient should also be radioactive, and preferably one of the uranium compounds exhibiting highly anomalous magnetic spin coupling. For best results, a third ingredient should be luminescent when electrically stimulated. The stress on each grain of the piezoelectric material must be just so that the grain is on the very verge of being slightly stress cracked, but not split. Each grain then becomes a scalar interferometer. Such a crystal produces a scalar potential field and can react to minute changes in potential—i.e., it can react to scalar waves. Via scalar interferometry it can change scalar waves into negative (time-reversed) electromagnetic radiation and energy at a slight distance. Under oscillating potential stress, the radioactive ingredient provides a one-way gate valve from the Dirac Sea electrons of vacuum, and the scalar interferometers provide necessary impetus on these negative energy electrons to lift

them out of the Dirac sea, producing negative electricity and currents. These currents can then be collected in multiple stages to provide electrical power (negative power operates devices much better than positive power). In the proper arrangement, such a Prigogine crystal can be made into a system capable of tapping the energy of vacuum directly. T. H. Moray built exactly such systems in the 1920's and 1930's, finally obtaining 50 kilowatts of negative power from a 55-lb device. J. Bedini has produced modern versions of these stress crystals in the 1980's, and a series of negative power devices. Several other inventors have produced successful negative power devices also.

153. Prigogine effect: the exhibition of negative entropy by a properly stressed many-particle system far from thermodynamic equilibrium.

154. Prigogine system: a many-particle system which is deliberately forced to exist far from thermodynamic equilibrium, and which exhibits negative entropy. Note that local curvature of vacuum spacetime places the local virtual state flux in nonequilibrium conditions, with the result that an observable energy "sink" or "source" can be produced.

155. Priore, Antoine: French inventor, who invented a large electromagnetic machine which produced nearly incredible cures of terminal cancers in hundreds and hundreds of laboratory animal tests in the 1960's and early 1970's. Priore's results were presented to the French Academy by the Secretary Perpetuel and Head of the Biology Section, M. Robert Courier. The French Government financed Priore's work for several years, then abandoned it when the regime changed. Priore produced complex phase conjugate (time reversed) EM signals in a giant rotating plasma, then sent these time-reversed signals down a rippling magnetic field into and through every cell of the treated body. By magnetic resonance of the rippling field, the phase conjugated signals were coupled into the atomic nuclei of the body, thus reversing the harmful structuring of the cellular biopotentials, which are centered in and on and from the atomic nuclei. This "backtracked" the circulating substructure components within the biopotential, reverting it back to a previous state where the disease was not present. Kindling this pattern into observable state thus reversed and eliminated the disease. (The sharp reader will immediately note that it is readily possible to reverse the aging process, given the development of this technology. So-called "eternal physical life"—or certainly indefinite physical life with youth and vigor—is achievable.). With the death of Priore, the work has ceased and the machine has been dismantled, since no one in the French Academy knew of phase conjugation or understood how it worked. Priore's last machine was nearly four stories high and was intended to treat terminal human cases as well as larger animals such as monkeys.

156. Priore machine: a device built by Antoine Priore in France, which cured terminal cancers and leukemias in thousands of laboratory animals in the 1960's and 1979's. Complex nested modulations were mixed in a rotating plasma, which modulates the signals (producing nested stages of modulations upon modulations, which is necessary to reach into a sufficient number of hyper-spaces/nested virtual levels of vacuum). The device produced very complex, phase conjugate (time-reversed)

hyperspatial signals of some 17 or more dimensions. These time-reversed signals were imposed upon and intense, rippling magnetic field carrier, and induced into the body of the irradiated animal, eventually causing the remission of the disease after several treatments. The signal was able to "work on" some 17 levels of the biopotential. Hundreds and hundreds of terminal cases were cured in laboratory animals. The nested modulations formed hyperspatial, multidimensional components in their "giant photon" vacuum engines. This constituted scalar electromagnetic and virtual state engineering in 17-d spacetime, and the machine directly affected the life force frequency channel (consciousness loop) and master virtual electromagnetic (scalar wave) control system of the cells. It would appear that Priore had worked out combinations of frequencies, etc, that, when expressed in time-reversed waves, reverse abnormal mammalian cells, but do not affect normal cells. With the change in regimes in France and the death of Priore, the large new machine (which would have been used to treat humans) was dismantled and the discovery passed into disarray.

157. Probability: the probability of a simple event is the ratio of the number of times it occurs to the total number of trials (for a large, essentially infinite number of trials). Note that "trials" constitute things that have occurred (are past). Probability has resisted rigorous logical definition by Aristotelian logic; the reason is that it is an expression of the fourth law, the identity of opposites. Probability is the expression of the future (that which has not occurred) in terms of the past (that which has occurred). Since we have been trained to conceive or think of something as if it had just been perceived to occur, then this is the only way we can conceive the future. But with Aristotelian logic, the future cannot be composed of the past, and probability has no acceptable logical basis. With four-law logic, the future can be modeled in terms of—and even be identical to—the past, and probability has a logical basis. Consider "throwing a die to land with one face up." Thinking of the event (as if it has just occurred, in terms of the most recent past), one can conceive six ways of looking at it. In other words, one can conceive of six "most recent pasts." By the fourth law, the total "most recent past" is identical to the "most immediate future," on the boundary. If one therefore collects all six "most recent pasts," they turn into the most immediate future, by the fourth law of logic. One may attempt to argue that only a single one of the events will actually occur. Here one counters with the observation that, when it occurs, it is the past, not the future, and it has not been collected so as to move to the boundary.

158. Problem of change: as stated by Heraclitus: if a thing changes, it must turn into something else. But how can a thing be something else other than itself? The paradox cannot be resolved by 3-law Aristotelian logic, because the concept of change assumes the fourth law (i.e., that a thing can be identical to something other than itself). The problem is resolved (by the fourth law) merely by accounting the time snapshots in which a thing is perceived, detected, observed, conceived, thought, etc. That is, the original thing was perceived in time snap 1. The next thing was perceived in time snap 2. In yet another time snapshot, snap 3, the two previous snapshots are compared (in memory, which is the only place the past exists). If that comparison finds no distinction or differ-

ence between the first two snaps, then they are declared identical (by a decision algorithm). If the comparison in time snap 3 finds a difference between the previous two snaps, then they are declared nonidentical (by a decision algorithm). Most simple macroscopic things are seen as a multitude of composite attributes. Thus one or more of these attributes may be seen to have changed (not be identical between snaps 1 and 2), yet a host of other attributes may be seen not to have changed. In this case, the two overall objects are seen to be "almost identical but not quite," so that one speaks of "the thing having changed." One implies it changes in some attributes, but remains the same in most others. This is the primitive derivation of "how a thing changes, yet remains itself." On the other hand, if one defines a hypothetical thing which has only a single attribute—*itself*—then that thing cannot change, by Aristotelian logic. Yet even such a thing can change! Consider the single overallness of a caterpillar. Let metamorphosis occur, and it is now a butterfly. Now between snaps 1 and 2 we see a different overallness, yet we declare it the same thing! Here we have a more direct application of the fourth law: one thing (snapshot 1) can be identical to another thing entirely (snapshot 2) if the distinction between things one and two is lost in the decision algorithm applied in snapshot 3. In other words, identity and nonidentity are not absolutes, but are products of the decision criteria invoked in determining them. This resolves the age-old philosophical problem of change by expanding the logic by means of which one examines the problem.

159. Problem of good and evil: the paradox posed by the assumption of a "good only" creator moving forward in time, and the simultaneous existence of evil. I.e., if God is perfect and all powerful, how can imperfection exist? This problem is simply one expression of the "time trap." That is, the unconscious assumption of a creator moving forward in time (and "acting" and "operating," for example) is a limitation—hence an imperfection—unwittingly placed on the concept of a creator. Hence an imperfect creator could well wind up with the existence of evil (imperfection) in the creation. If one makes God unlimited—even by time—then perfection may be restored to the creator concept. One then separates a positive time stream and a negative time stream (these are arbitrary, since in ultimate reality all events exist at once, unseparated, and ordering may be accomplished in any fashion one wishes). In the positive time stream, an act then becomes either good or bad, depending on whether it is beneficial or detrimental to its referent. But in the negative time stream the same act is reversed and becomes the exact opposite with respect to the referent. Thus any act is **ULTIMATELY** both good and evil simultaneously, and to the exact same degree. Hence in the "all-at-once" of the unlimited level, the two aspects zero and cancel, and there is neither good nor evil exclusively. Yet there is all good and all evil nonexclusively. The unlimited God is thus both good and evil simultaneously but nonexclusively, and neither good nor evil exclusively. This is the resolution of the unsolved philosophical (and theological) problem of good and evil.

160. Psychic surgery: paranormally opening and closing the flesh of the body to remove abnormal growths or tissues. In a less drastic case, operating on the etheric or subtle energy body, rather than the physical body. In

legitimate psychic surgery, scalar interferometry from the surgeon can nullify the cohesive charges binding the tissue cells together in a line; the tissues then open without cellular damage. When the surgeon closes the tissues, scalar interferometry again restores the charge and cellular binding, so the wound is "healed" without scarring (or with very little, in the practical case).

161. Psychokinesis: inceptive influence or effect upon a physical object, system, or situation by mental intent. Psychokinesis is accomplished by means of scalar anenergy wave patterns projected from the two cerebral halves in the fashion of a scalar interferometer. The waves interfere at a distance, microscopically in the object to be moved or affected, forming microscopic bursts of vector wave energy in the object itself. Jack Hauck has referred to psychokinetic bending of metal as "warm forming."

162. Psychosis: seriously impaired mental functioning so that gross interference occurs" with an individual's ability to function in a normal mental fashion. Generally characterized by severe mental disturbance, withdrawal from reality, delusions or hallucinations, regression and personality disintegration.

163. Psychotronic generator: a device which produces observable effects by collecting, condensing, amplifying, and/or processing subtle anenergies or scalar waves. Classic examples are the psychotronic generators of the Czech engineer, Robert Pavlita. Psychotronic devices are virtual state engineering devices that process and utilize scalar EM waves of massless charge flux. Most of Pavlita's devices are "charged" by the natural scalar electromagnetic emissions of the human brain and nervous systems.

164. Psychotronics: *psycho-* (mind energy), *-ronics* (electronics or devices). The union of subtle (mind) energy (that is, anenergy or scalar waves) and matter or electromagnetic field. Czechoslovakian term for parapsychology, with emphasis on the energy aspects. The comparable Soviet term was originally psychoenergetics, which was soon shortened to energetics. However, the Soviets have applied scalar electromagnetics (electrogravitation) principles and massively focussed on weaponry, not just parapsychology. "Virtual state engineering. Electrogravitational engineering. Scalar wave engineering.

165. Pulse mode: in a transmitting scalar interferometer, projection of a single sequential pair of Fourier scalar wave patterns or "pulses", so that the second pattern meets the first over the distant target area. Flash coupling of the two scalar patterns in the target zone produces a single intense electromagnetic pulse (EMP) which—if atmospheric—interacts with the plasma expansion of the atmosphere to produce a second pulse immediately after the first. The dual pulsed flash signature of the scalar interferometer weapon's burst in the target area is very similar to the two-pulsed flash from a nuclear explosion, but without nuclear debris and fallout. Two such pulse mode flashes from a Tesla howitzer—possibly the Russian one at Saryshagan Missile Test Range or one from another nation—have been detected off the southwest coast of Africa by U.S. Vela satellites, one in September 1979 and one in December 1980. Other similar tests have been reported. The pulsed flash may produce positive energy (exothermic) or negative energy (endothermic), depending upon the setup.

166. PulsorR: scalar electromagnetic microcrystal device invented by the electrical engineer George Yao. PulsorsR are specifically designed to correct or smooth the patterns of the subtle scalar electromagnetic "bodies" or levels.

167. Quantum: a single "particle" of the quantity action. The quantum is always composed of two fundamental quantities (canonical variables), and it is the "fissioning" of the action quantum into two pieces which results in detection of one of the pieces. An indefinite "smear" of part of the two pieces may be simultaneously detected by a linear detector, but never both exactly (Heisenberg uncertainty principle). More recent work has shown that, in a highly nonlinear situation, both canonical variables can be determined simultaneously to any desired degree of accuracy, in which case the Heisenberg uncertainty principle does not hold. This fundamental change in what has been regarded as one of the "sacred laws" of physics has not yet made it into most physics texts.

168. Quiton: a little piece of vacuum or emptiness. A piece of the medium of a space or spacetime, of any dimensionality. A piece of pure massless charge flux. A piece of pure scalar wave flux. A piece of pure virtual flux. A piece of the vacuum. A particle of electrostatic scalar potential (infinitesimal charge). A "vacuum engine." Quitons are at least 4-dimensional (spatiotemporal), not just spatial and have a dynamic structure, which may be either random or deterministic. Note that the paper handed to Los Angeles Times reporter Bob Toth by Petukov in Moscow, resulting in their seizure and charging with possession of high Soviet state secrets, contained a theory based on "little pieces of the medium" ("little pieces of vacuum.") In other words, it was a quiton theory, regardless of the specific terminology utilized.

169. Radiant energy: term used by T. Henry Moray to describe the subtle anenergy his amplifier tapped from the unlimited vacuum energy of the cosmos, furnishing usable electrical power of an unusual (negative power) nature. By 1939 Moray was obtaining 50 kilowatts of power from the output of a 55-pound amplifier of some 29 stages, and an additional 50 kilowatts could be tapped off from any other stage. Moray's amplifier was essentially holographic, and could produce exponential amplification to any degree, merely by adding stages. The term was first used by Nikola Tesla, who patented "radiant energy" signaling systems shortly after 1900.

170. Radionics: the use of electrical apparatus (such as ganged precision resistors and potentiometers) to accurately attune the innate psychic and psychokinetic abilities of a human operator. Specifically, the operator may be attuned to some person or object at a distance, through the use of a "witness" (something containing the subtle anenergy pattern of the person or object). In actuality, the pattern contained by the witness consists of the previously impressed virtual (subtle) (scalar) energy patterns riding in and upon the object's internal electromagnetic interactions. The infolded vacuum retains an exact pattern and path of all photon interactions, be they observable or virtual. This guarantees a vacuum path exists between the witness and the original object, no matter where it is located. These impressed scalar EM patterns constitute a sort of complex "tuning fork" attuned to the impressing object or person through hyperspace (via the infolded past "backtrack" virtual memory

of vacuum). Production of phase conjugation waves (time-reversed waves) in the witness thus will result in travel of these waves back through the infolded "backtrack paths" to the distant object itself. Resonating the "witness" pattern with amplified anenergy from the operator produces sympathetic anenergy resonance into the witnessed object at a distance, through the hyperspace backtrack path. Since the operator's will and intent modulate and pattern his input into the amplifier, the anenergy resonance of the distant person or object is correspondingly modified. This causes the kindling of an actual microscopic energy pattern in the distant object. The use of amplification constitutes the modern phase of radionics, essentially introduced by T.G. Hieronymus. In the Soviet Union, the incredibly powerful Moray hyperspatial amplifier is believed to be in use in a variety of energetics or psychotronics weapons. Such a holographic amplifier yields exponential power amplification to almost any degree desired. In the destruction of the U.S.S. Thresher in April 1963, a photograph of the submarine was probably utilized as a witness, and sufficient negative energy was kindled into the distant underwater submarine to seriously interfere with its controls. The sub then sank to crush depth and was imploded. Negative energy spatter in the surrounding area so interfered with the electromagnetic systems of the companion ship, U.S.S. Skylark, that over an hour and a half was required to transmit the emergency message that the sub was probably lost. In the U.S., holographic amplifiers have not formerly been developed, and radionics power is limited essentially to the linear amplification abilities of ordinary amplifiers. Thus their gains may reach 10^4 , when indeed 10^{20} or so is needed for direct mechanical results immediately. For this reason the West has not developed dependable detectors of subtle energies, has not recognized the Soviet superweapon developments, and has not developed counters to them. However, Bedini, Dea, Beck, Golden, Dayney, Bielek, Bise, and other inventors have built scalar detectors of one form or another. Golden has also produced a highly specialized "booster amplifier"—the Golden booster—for Kelly radionics devices that is a step in the right direction. Both the Kelly machine and the Golden Booster have been verified as scalar wave radiators by actual measurement. With the development of detectors, the technology should begin to develop much faster in the West. The science of such devices and effects.

171. Reality: that which is actual or objective, as opposed to merely possible or ideal. One's idea of what constitutes actual and objective, however, strongly biases what is regarded as real and what isn't. In physics, for example, virtual actions are essential infinitesimals—little pieces of "nothingness" which yet produce effects. Physics thus has extended the meaning of "objective" beyond the idea of "observable." In addition, time—which is never observable or detectable, even in theory—it nonetheless assumed to be real and objective. In a sense, by "reality" one attempts to imply "ultimate." Indeed, the concept is confused, vague, and incapable of definition except in accord with what one pre-assumes it to be! The major problem is that most persons assume (1) reality is limited, and (2) reality is singular. In the new approach, reality is both unlimited and multiple. Everything is real; there are just differing degrees of reality or solidity as compared to the ordinary physical detection

(threshold selection) process. Reality becomes a matter of intersections of physical universes and objects with other physical universes and objects, with the density of the intersection specifying the density or degree of physicality. (Note the similarity to the Aharonov-Bohm effect).

172. Reincarnation: refers to some element of the mind and/or personality surviving the physical death of a body/tuner, and being reborn in the body of another infant. In the new approach, a type of reincarnation is scientifically derived as a consequence of the theory. However, since the past can be changed, by deep developmental work one can actually change one's so-called past incarnations. Also, more than one living person's scalar pattern can be attuned to a similar "past" scalar personal pattern—and so more than one person can be the "reincarnation" of a past person.

173. Remote viewing: the ability of human subjects to receive visual impressions and information from distant actions and scenes. The information is usually "noisy". May involve combinations of clairvoyance, clairaudience, precognition, postcognition, and telepathy. In the new theory, one recognizes that all detection is internal to the detector. Hence the entire detected physical universe may rigorously be said to exist inside each physical particle of the physical body of the observer. Thus hypothetically one has subtle access to any portion of the universe directly within oneself. The same result occurs when one assumes the use of a signal—longitudinal scalar waves of electrostatic potential—with infinite velocity. The two cerebral hemispheres act as a scalar interferometer, producing microscopic E-field by coupling incoming or rising microscopic scalar phi-field waves. This allows modification of the patterning of the avalanche discharges underway in the brain, and thus perception of the distant event. Since scalar waves are hyperspatial and can be superluminal, they can move through time. This permits perception of the future and the past. Unfortunately the outputs of this detection system in humans is buried deep within the unconscious mind, so it is difficult to obtain "clear signals." With the future development of sensitive scalar wave detectors, biofeedback training can probably be used to more fully develop this scalar sensing ability. Also, on several occasions Nikola Tesla announced the invention of a "big eye" that could see at a distance; such an instrument is perfectly possible by scanned scalar interferometry reception. This would include the ability to see into or through the ocean or earth—and time as well, under the proper circumstances. It should be possible to take distant pictures, or even pictures through time. One researcher, George Delawarr, reported the accomplishment of both these effects with his special camera.

174. Resonance: in physics, an oscillation phenomenon exhibited by a physical system driven by a periodic force; when the frequency of the driving force approaches a natural "free response frequency" of the system, the oscillation of the system becomes large. The "resonance (or resonant) frequency" of a system is a frequency at which some response of the system becomes maximum. Three types may be defined: (1) Phase or velocity resonance, where the response of the system is 90 degrees out of phase with the driving force, (2) amplitude resonance, where the amplitude of response of the system is maximum, and (3) natural resonance,

which is the frequency of oscillation of the system to a sharp input such as a hammer blow. Electrical resonance exhibited by an alternating current reactive circuit results in relatively large currents near certain frequencies, together with the nearly unimpeded oscillation of energy back and forth between potential and kinetic form. There are two kinds, series and parallel resonance. In series resonance, the inductance and capacitance are in series, and in parallel resonance they are connected in parallel. In the series resonant circuit, the currents can become large if the resistance is small. Further, the voltages across the coil and capacitor are essentially 180 degrees out of phase, and so they essentially "cancel," leaving very little voltage across the overall circuit, even when the individual voltages across the coil and across the capacitor are very large. (Note that the E-fields across the inductance and the coil are also 180 degrees out of phase, and so the series resonant circuit to a distant observer produces an artificial potential wave—indeed, an electrogravitational wave. This is one reason why Tesla so favored the series circuit. He also favored it with one end loose—the so-called "single-wire" circuit, without a return.) If the driving voltage to such a single-wire series resonant circuit is applied to the coil with the open-ended capacitor beyond, and the voltage is applied for only the first 90 degrees as a sine wave then instantly removed, the coil will be charged without current flow, accumulating a 5-d gravitational potential. When the coil discharges, it will discharge in two directions, producing real current, at a certain frequency (which may be drastically different from the "normal electrical current" resonant frequency. However, actual current will be induced out of both ends of the coil at this frequency. The capacitor will charge a little bit from this effect. The overshoot of the coil discharge back toward the disconnected driver is also usable energy if connected to a proper load. If the load is removed and the driving voltage is reapplied just as the overshoot reduces back to zero, the cycle is repeated, charging the distant capacitor more and more, and producing pulses of usable power through the overshoot discharge on the driver side. By adapting this mechanism, a free energy motor can be readily produced, as demonstrated by Bedini, Watson, and others with a battery-driven, series-wound DC motor unit. Note that use of the localized gravitational potential produces local general relativity, a locally bent spacetime, and the conservation of energy, charge, and momentum laws need not rigorously apply. An adaptation of this mechanism was also utilized by Tesla in his magnifying transmitter. In that transmitter with its huge elevated capacitance, the artificial potential wave produced would have been introduced into the earth, producing scalar resonance of the earth. The molten core of the earth, being under pressure in all directions, is self-pumped (in the language of nonlinear optical phase conjugation). The resonant atomic nuclei of the earth's molten core would then act as a pumped phase conjugate mirror (PCM), producing a highly amplified (near infinity gain!) time-reversed wave in response to the input signal. Thus the earth PCM is a giant amplifier, and the TR wave returned is highly amplified, possessing enormous energy. Thus the amount of energy resonant in the earth becomes enormous. In fact, the transmitter was designed to produce more than one such scalar earth resonance. At any distant point on the earth, a transmitter/receive station could have input a

small "tickler wave" at this frequency into the earth, and its proper antenna tuned to the frequency" of the scalar resonance would have produced enormous electrical power. A very similar system employing two frequencies 12 kilohertz apart and tapping the beat frequency, is used by the Soviet Union today to power its large strategic Tesla weapons. Golden has detected and shown these Soviet "two-frequency earth resonances" on the oscilloscope, utilizing the output of his specialized detector system.

175. Sasquatch: Indian name for a large, well-defined tulipoidal apeman form. Bigfoot (slang or common name). Generally refers to the Pacific Northwest area, where the tulipoidal form has been well-tuned for centuries by the Indians. In the Far East, the Yeti.

176. Scalar: in ordinary vector analysis, a quantity completely characterized by magnitude only. (Actually, it contains magnitude and time.) In the new approach, one must account for observable and virtual states. In addition, multiple vectors acting on one point and summing or multiplying to zero are physically still present, even though their vector resultant is a zero vector (more precisely, a zero-vector system). Thus physically a zero vector can be a system having a very real, distinct substructure of nonzero vector components. These infolded vector components may be highly dynamic. The energy of each infolded dynamic vector component is thus "trapped" inside the local vector zero system. Rigorously, trapped energy constitutes a scalar potential in spacetime, to the external observer. An observable scalar (potential) thus may have a nested, multiple-level virtual substructure as well as any conglomerate "observable vector" substructure. Enormous energy may be infolded and trapped, in which case local spacetime is appreciably curved. Note that the infolded energy of the substructure components contributes to the stress of the object or medium, and organizes it, even though to the external observer its envelope constitutes a zero vector. Each level of this substructure contains an infinite number of tiny virtual vectors. There may be finite alignment of these virtual vectors along the structure of the observable vectors infolded. This constitutes vacuum polarization. The zero-vector system is thus a vacuum engine and a virtual state engine as well. Two scalars (or vectors) that are observably equal need not be equal at all in their substructures. Further, combining the two scalars by superposition may not yield the normal observable value, if both substructures are different, highly patterned and interact to spill over into the observable level. Vector mathematics itself must be changed and extended in the new approach. Note that the spillover from interaction of the two substructures may form an observable scalar value or an observable vector value. Such vacuum engines can be constructed to do specific operations on atomic nuclei etc. Nested levels of such engines can be formed, to form highly complex "super" hyperspatial vacuum engines called giant photons. Continual radiation of matter with a signal composed of vacuum engine photons of a specific deterministic substructure will "charge up" the atomic nuclei of the radiated material with that pattern, so that it emerges into the gross, observable physical state, drastically altering the radiated matter itself mechanically, chemically and physically. This process is called kindling.

177. Scalar energy tap: refers to a Soviet method of ob-

taining tremendous electromagnetic energy from the molten core of the earth, with which to power gigantic strategic scalar Tesla howitzers. As measured by Golden, two signals are continually transmitted into the earth some 12 kilohertz apart, and the earth itself is placed in scalar resonance to the two frequencies. The core of the earth, being a pumped phase conjugate mirror, responds by generating highly amplified phase conjugate replicas, which return and concentrate all their energy at the transmitter/receivers. The receivers receive the enormous beat frequency (12 kHz) energy, using it for power. One then has a kind of scalar interferometer channel in the earth's core in the endothermic mode. Depending upon the biasing, either ordinary EM energy or negative EM energy is captured in the 12 kilohertz band by the interferometer receivers. Varying the negative biasing also provides a throttle to control the amount of energy extracted. Just before the May 1, 1988 celebration, the Soviets activated some 27 such giant energy taps in the earth, and also activated a large number of command and control scalar transmission frequencies. If each tap can power 6 to 8 giant Tesla howitzers, then for their important 40th anniversary of WWII, the Soviet Union activated well over 100 large howitzers. In other words, a massive exercise of the Soviet Union's entire strategic scalar howitzer weapon complex was held on the 40th anniversary of 1945 for Gorbachev, and to signify meeting the schedule (laid down by Brezhnev in 1972) to "be ready" to use them. At the conclusion of the exercise (which lasted several days), the Soviets left two scalar energy taps in place, instead of the single one present before the exercise. In other words, additional strategic weapons were brought up on "ready alert"

178. Scalar field: in vector analysis, each point in space is assigned a magnitude; the set of spatial points and their assigned magnitudes is called a scalar field. In the new approach, an observable scalar value is assigned to every point in n-dimensional space, where n is 4 or greater, and the set of n-dimensional points and their assigned observable magnitudes is called a scalar field. Also, in the new approach each scalar magnitude is considered to contain an n-dimensional virtual-state substructure, where each succeeding higher dimension is a succeeding lower level of virtual state. Vacuum itself is such a scalar field. Such a scalar field is also the rigorous identity of a massless charge field, of—for example—the electrostatic scalar potential, 0. Also, the scalar field is considered to be composed of two time fields: one in positive time and one in negative time that is the phase conjugate replica of the first. Thus the timeless, lengthless vacuum exists both in positive and negative time, and its potentials are scalar potentials. When the vacuum is uncurved, equal amounts and components of positive and negative time exist. When it is curved at a point, the positive and negative time components are unbalanced at that point

179. Scalar interferometry: the interference of two scalar Tesla waves (a Tesla wave consists of a normal wave coupled to its phase conjugate replica). In the interference, coupling can occur and produce (or extract) electromagnetic waves—energy—at a distance. The phase conjugation aspect is the secret of Tesla's revolutionary discovery of wireless transmission without loss. It is also the secret of producing death rays; the invulnerable Tesla shield; antigravity; superluminal communication; con-

trolled materialization, dematerialization, and transmutation; psychokinesis; and free energy. The ubiquitous photon interaction presently is the basis for first-order physical reality, and the photon's speed results in a speed-of-light-limited reality being detected. Scalar EM waves contain vacuum engine substructures and do not necessarily have this speed limitation. Detection by scalar waves yields a higher order physical reality and a vastly expanded quantum mechanics and relativity theory. Present Einstein relativity theory is only a highly special case, as are present electromagnetics and quantum mechanics. Soviet use of scalar interferometers in a large, strategic mode is responsible for much of the advanced Soviet ABM defense and strategic super-weaponry.

180. Scalar resonance: inertial or mass resonance of a body, originally discovered by Tesla, repeated (probably) by Hooper, and rediscovered by Golden, Bedim, and others. In the simplest case, scalar resonance can be imagined as two ordinary single-frequency EM standing waves (a wave and its phase conjugate replica or PCR) in a resonant cavity, with the two waves coupled exactly 180 degrees out of phase so that—externally—their E fields sum to zero and their B fields sum to zero. This is a standing scalar wave, and the cavity is said to be in scalar resonance. Note that the cavity walls must act as phase conjugate mirrors (PCMs). Mass itself is simply such a standing scalar resonance, with the standing wave trapped by particle spin. The atomic nucleus, continually bombarded by virtual photon flux from the vacuum, is a pumped PCM. Since the nucleus is positively charged, it produces PCRs having negative energy and negative time. It thus produces negentropy, which prevents the entropic decay of the atom. Essentially all frequencies can be and are present at once, but certain nuclear resonance frequencies are thought to predominate. By increasing the amplitude of the standing scalar wave that is the nuclear pseudopotential, inertia and mass of the nucleus are increased. By decreasing the amplitude, the mass and inertia are decreased. Zeroing the amplitude dematerializes the nucleus. Scalar resonance is not presently contained in the orthodox physics literature.

181. Scalar wave: a longitudinal "pressure" wave in the actual stress of spacetime itself. A wave of potential, where no EM bleedout of the infolded contents occurs. A normal wave and its phase conjugate replica, co-modulating each other and "locked or zipped together" as a zero-vector system wave. A Tesla wave. A gravitational wave. A time wave. Electromagnetically, a scalar potential wave which, in the absence of spinning charged mass particles, does not form a vector electromagnetic wave, in contradistinction to present electromagnetic theory. A "shadow vector" wave, where the ordinary "observable force vector" of the field is broken into virtual vector components which are not integrated. A wave in the nested levels of virtual state, that does not breach the quantum threshold, and hence is not observable to normal detectors. A wave in the magnitude of the virtual particle flux density of vacuum. A longitudinal wave in pure massless charge flux (vacuum) (spacetime). A wave in the magnitude of the infolded "energy density of the vacuum. The scalar wave is free to move in four or more dimensions. It transports deterministic vacuum energy engines. In Minkowski 4-space, it can: (1) move only in time, and not spatially, in which case it "sits in one

place" and fluctuates the flow of time, the inertia of an object, the strength of the gravitational field, the mind, the fundamental constants of nature, etc.; (2) move only spatially, with the rate of flow of time oscillating about a linear mean; (3) move in a mixture of modes (1) and (2); (4) oscillate back and forth between modes (1) and (2) in a regular fashion, spatially stationary; and (5) oscillate back and forth between modes (1) and (2), translating spatially in travelling wave fashion. (5) move and oscillate between many vacuum levels (hyperspaces), in addition to characteristics (1) through (4). An ordinary Hertzian wave exists in vacuum as two coupled Tesla longitudinal waves. Rigorously, the E and B fields do not exist in vacuum, but on and of the detecting spinning charged particle. The spin of the detecting particle causes precession, yielding the familiar "transverse Hertzian wave," complete with E and B fields. The broken but ordered virtual state bits of what will be the detected E and B, however—shadow vectors E and B—exist in vacuum, on the virtual components of the vacuum charge flux. Tesla was correct when he stated that transverse Hertz waves (as such) could not move through the vacuum or exist in it

182. Shadow vector: an otherwise observable vector, broken into consecutive bits such that each bit is virtual. The resulting "disintegrated vector" becomes unobservable as a vector, but remains as an ordered series of virtual vectors. Thus it is a special sort of scalar wave. Observably, it is a scalar wave since no observable vector exists, but virtually it is a vector wave. It may be regarded as a localized, changing scalar field with a particular patterned virtual substructure which yields the shadow vector. On an appropriate integrating detector, the virtual components of the shadow vector will be reintegrated into an observable force vector, such as E or B. Dr. Robert Beck, for example, has reported the development of a successful integrating detector for such shadow vector scalar waves. His detector is capable of detecting signals that cannot be seen by the finest Superconducting Quantum Interference Device (SQUID), and it has been demonstrated for comparison against the SQUID. Dea, Bedini, Dayney, Golden, Beck, Bielek and Bise have independently built scalar wave detectors of various kinds. Farnsworth has particularly good and comprehensive shadow vector/scalar wave detecting systems.

183. Space: literally, the absence of observable mass, hence emptiness or void observably. Space per se has no definite length interval and no definite time interval. Rigorously, space is the absence of distinction and separation. Space has no dimensionality—i.e., it is not 3-dimensional, 4-dimensional, etc., for it has no "specific" separations. But in common usage, it is often thought of in a general sense as having some particular dimensionality but no definite intervals. The point is subtle but important: the absence of a 3-dimensional mass need not be 3-dimensional (e.g., considering a 10-dimensional frame). But one usually thinks of the "hole" where the mass was as having the same dimensionality as did the absented mass. This is only a 3-dimensional intersection of the actual hole, however, though this point is usually ignored. Ignoring the full dimensionality of a hole is responsible for the confusion regarding the two-slit experiment in quantum physics, for example. That is, the slits are (at least) 4-dimensional, since they exist in time also. In the slits, spatial mass is absent, so the slits are

three dimensional "holes." However, their fourth dimensional aspect, time, is present, not absent. Thus four dimensionally the three-dimensional slit "holes" are not "holes", but are "things." They are not 4-d absences, but presences—since one dimension (time) is still present. They can thus interact in the fourth dimension, time. The experiment has no mystery when the time aspects are considered, as pointed out by Charles Muses in 1957. In Kaluza-Klein 5-d mathematics, these 3-d holes also exist as things in the fourth spatial dimension. Also, in spacetime—rigorously—all 3-dimensional material objects, holes, gaps, etc. are simple facets or intersections of a single object. For if time is considered as a continuum, then everything exists at once; hence spatial things are simply the features of a single 4-dimensional object. The problem is that "space" is also commonly taken to be a "spatial frame," where time has been stripped off and "stopped," and a measurement to each and every point in the universe frame has been simultaneously established. This corrupt usage of "space" implies "spatial frame," and is entirely different from space as such.

184. Spacetime: three or more dimensions of space and a dimension of time, multiplied together. In the 4-dimensional case, it is often referred to as a "4-space." Spacetime can actually contain any number of dimensions; in our theory we consider an infinite number of spatial dimensions and at least one time dimension. One could just as easily take an infinite number of time dimensions alone. Scalar electromagnetics (unified EM and G fields) is most easily expressed in Kaluza-Klein geometry, in at least five dimensions—four of space and one of time.

185. Spherical model of the cosmos: a model of the universe in which the universe is a four-dimensional spherical surface in five dimensions. This results in a "closed" universe, and also one which is entirely within each point of itself. To produce such a model instead of an expanding universe, Einstein originally introduced entirely ad hoc factors into general relativity to cancel and eliminate the expansion terms.

186. Spin: the intrinsic angular momentum of a particle, as if it were a top spinning about an axis. Spin is quantized. Spinning charged particles—such as an electron—thus demonstrate a magnetic moment, due to the circulation of charge in the spinning. In the nucleus of an atom, the spin of the nucleus is the resultant of the spins of the nucleons (particles comprising the nucleus). Actually spin of particles is more like an "implosion" to "explosion" circulation; in other words, it circulates in time as well. Spin of a particle is the basic feature that integrates the anenergy (disintegrated energy) of vacuum flux into observable charge. All observable fields, matter, effects, etc. depend upon this basic mechanism to zip together virtual entities and form observable phenomena.

187. Spooklight: another slang name for a nocturnal light. Legend and folklore usually associate it with a violent death or macabre occurrence. Earth stress lights. Over 1,200 known sites produce such earth stress lights in the U.S. alone.

188. Strobe effect: striated patterns seen in UFO and other paranormal phenomena due to the higher dimensional phenomena skipping in and out of normal 3-space. Alternatively, two or more higher dimensional phenomena may dynamically interfere so as to form repetitive intersections with our normal 3-space, produc-

ing striations. Hyperspatial (scalar) EM interference often produces striation effects.

189. Substructure: in the new approach, a scalar has an infinite-dimensioned (infinite number of sublevels) virtual state substructure, filled with waves, particles, etc. Vacuum has precisely the same sort of substructure. The substructure is rigorously CHARGE FLUX, where observable mass is not present. Any vector, since it contains a set of scalars, also contains a set of virtual state charge flux substructures. One can engineer, pattern, arrange, and utilize these substructures to give various "paranormal" effects. These effects include materialization and dematerialization, psychokinesis, clairvoyance, superluminal communication, antigravity, teleportation, apportionment, remote viewing, production of energy at a distance, extraction of energy at a distance, electron dissolution, etc.

190. Superposition: the simple linear addition and subtraction of two or more values. In the new approach, superposition need not linearly hold valid if sufficient substructure interaction is obtained and the substructures are nonlinear. In that case, superposition turns into nonlinear interference.

191. Teleportation: the transmission of an object from "here" to "there" with no travel in between as an object in ordinary space. Hyperspatial transmission of an object from one point in the ordinary space to another.

192. Telluric currents: earth currents; electrical currents in the rocks of the earth, believed to be due to aurora effects and the earth's magnetic field. In the new approach, these currents are also pumped by longitudinal scalar wave bombardment from the sun, the cosmos, and the fiery core of the earth itself. Quartz is a common crystalline component in rocks, and thus the rocks are piezoelectric. This means that stresses in the rocks, such as from shifting tectonic plates, causes electrical activity, and electrical activity causes mechanical stresses. Further, the quartz is essentially randomly oriented, resulting in most of the tiny piezoelectric vectors summing to a vector zero, which in turn constitutes a scalar potential and pumping the atomic nuclei as pumped phase conjugate mirrors, producing PCR waves. These do the same thing in return, producing negative energy potentials and potential waves, etc. As the piezo-vector components vary, the values of the potentials fluctuate. The zero-sum portion of such a stressed randomized crystal constitutes a Prigogine detector for kindling and collection of anenergies via nonlinear thermodynamics. The molten core of the earth is also a dynamic Prigogine system, since it is a pumped PCM. Thus the earth is a collector, processor, sometimes amplifier, and retransmitter of mind energies and anenergies, and truly the earth may be considered to be "alive" in a strange way (the Gaia hypothesis). This process, along with scalar EM in living systems, also produces Sheldrake's morphogenetic field and its effects. Specifically, the earth receives and processes anenergies from the species unconscious of all the species of ordinary life upon it. The earth itself does respond to geometric kindling alignments of other planets, and particularly to the moon. In addition, it does respond to the state of man's collective species unconscious mind. Fault zones result in structures similar to diodes, triodes, and scalar interferometers. Amplification and rectification of kindled anenergies occur readily, including at a distance, at fault zones, particularly when

seismic stresses in the rocks are increased, increasing the piezoelectric activity, telluric currents, scalar interferometry, etc. Thus fault zones constitute natural kindling window areas for paranormal anenergy forms, for tulpoids etc—precisely as found by Persinger. Fault zones are also scalar interferometers, which enhances the formation of ordinary EM forms at a distance.

193. Tesla fireball: interference of two scalar Fourier expansion patterns to form a glowing, fiery globe or spherical shell of radiant electromagnetic energy and electron plasma.

194. Tesla howitzer: a large Tesla scalar interferometer such as the fourth generation Soviet hyperspatial howitzer at Saryshagan. Repeated Soviet testing of Tesla howitzers is documented in the open literature (see Bearden, *Fer-de-Lance*, Tesla Book Co., 1986). The howitzer is capable of utilization in multiple modes, both as a strategic offensive weapon and as a multiple-mode strategic ABM defense weapon. Scalar EM interferometer. Hyperspatial howitzer.

195. Tesla shield: a gigantic, hemispherical, glowing, thin shell of intense electromagnetic energy and electron plasma, placed over a defended area or installation. The EM shell is formed by interference (and coupling) of two scalar shells of anenergy, formed by truncated Fourier expansion methods from multiple frequency scalar transmitters. To form the shell at a distance, phase conjugate replica waves must be utilized, so that the energy and energy pattern does not diverge as a function of distance. Note that such real-time holography, independent of distance, already appears in the nonlinear optics phase conjugation literature. In the Tesla Shield, the energy density in the interference shell causes local curvature of spacetime, and lifts electrons from the Dirac sea, producing the plasma in the shell. With sufficient energy density in the interference shell, a material object seeking to penetrate this dome of energy and plasma is instantly electromagnetically "dudged," and physically damaged and/or vaporized. In addition, the potential pulse delivered inside the nuclei of nuclear materials that meet the shell instantly fission all fissionable materials. Thus nuclear weapons are instantly detonated when entering the shell. Electromagnetic energy (such as gamma radiation from the EMP of a high altitude penetration burst) impinging on the shell plasma is absorbed and re-radiated inside the shell at lower frequency and temperature. Several shells may be interested so that multiple, serial absorption and scattering reduces the original gamma radiation to harmless radio frequency noise. Numerous incidents of tests of the Tesla Shield weapon are documented in the open literature.

196. Tesla wave: a longitudinal scalar potential wave in massless charge, in the vacuum charge flux itself, and in pure spacetime. An electrogravitational wave. A gravitational wave. A scalar EM wave. A wave of pure potential. A wave in the magnitude of the flux energy density of vacuum. A wave in the magnitude of the curvature of vacuum.

197. Tesla weapon: any weapon utilizing longitudinal scalar EM waves or phase conjugate replica waves to accomplish its results. Also applies to a weapon using scalar interferometry or PCR interferometry and holography from multiple projectors or transmitters.

198. Thought: separations and forms in pure mind or being. To think is to form (separate, perceive) thought

forms and process them. In a developmental sense, thinking is the activity of mind that screens the true continuous mind nature by fragmenting it. The true mind is like the ocean, and thoughts are like waves or disturbances in the ocean. In the new scalar electromagnetics, the mind itself produces scalar waves, on the third and lower virtual levels of the scalar substructure, and these are what we call "thoughts." A thought is a real, virtual-state object capable of being directly detected, interacted with, and engineered by scalar EM means.

199. Thought photography: psychokinetic impression of images or light effects upon photographic film or other sensitive media, due to the presence or intent of a human initiator. PCR distant interferometry and holography is the basic mechanism involved.

200. Three-space (3-space): a space dimensionally composed of length cubed. It is the normal space taken to be occupied by gross matter. Per se, vacuum does not occupy this same 3-space, even though erroneously assumed to do so in present physics.

201. Time: in relativity, an extra dimension (variable) which allows the ordering of spatial snapshots or events. In quantum mechanics, time is only a parameter; it is not an observable and is not detectable, even in theory. Time is always inferred, even though precisely. Rigorously, time exists only through the stream and persistence of human consciousness. We only experience that persistence as "something changing", by continual comparison of our memory of perceptions of spatial position and pattern. In the abstract sense, time is being, which has no differentiation whatsoever—it simply is (a tautology). Perceptual separations in being constitute thoughts or mind changes, much like waves in water. Those waves common to all minds constitute physical (spatial) changes in the so-called "real" world. Because "time" in its undifferentiated sense is simply a synonym for being, then multiple things (separations) may inclusively exist in time simultaneously. (How many final objects exist in a stone before it is carved into any one of them?) The basic separator of being/time is the photon interaction, which is the basic generator of monocular quantum change and thus the progression of spatial particles "through time" in little jumps. The endpoints of the quantum jumps through time represent time differentiations of spacetime/masstime. To properly understand physical phenomena, both positive and negative time flow must be incorporated in the theory or model used.

202. Time oscillation: ordinary time advances and retards in small discrete jumps, much as a sewing machine stitches forward—except that each time stitch is pulled out before the next one is made. Thus time consists of two time flows interleaved: the positive flow of time (stitching) and the negative flow of time (unstitching). This "time stitching/unstitching" or oscillation can be viewed as a wave. It is "action" that is waving (being changed or created and destroyed in quantum chunks), since time is actually a subcomponent of action. One may therefore view time waves as carrying or creating surges of energy back and forth (in time). The photon may be considered as this oscillation of time, for it is actually an oscillation of action. The positive half of a photon exhibits positive time (the stitch is made) and a virtual electron, and the negative half exhibits negative time (the stitch is removed) and a virtual positron. Charge is a function intimately related to, and comprised

of, time stitching. Positive time is associated with negative charge, and negative time with positive charge. The photon can be considered as a coupled virtual electron-positron pair. The invisible stitching/unstitching trace of a photon through spacetime is "enfolded" (in time) and remains. A phase conjugate replica photon, created at some later time and some distant place, thus has a sort of "invisible wire" connecting its own generation and the distant source that generated the stimulus photon. Note that spacetime occupies time, but space does not. Mass-time occupies time, but mass does not. Mind, thought, and being occupy time, but not space.

203. Time trap: refers to the erroneous assumption that God is a limited being, traveling along through time much as humans perceive themselves to. An unlimited creator must permeate all aspects of creation, including time. In the unlimited view, God permeates time from beginning to end, all at once. To such a creator, nothing is happening, since all happenings are simultaneously present. What we call "positive" or forward time and "negative" or backward time co-exist and are inseparably identified, to such a level. Good and bad are only relative to a single time stream and to a single referent. At the unlimited level, there is no separate good or separate evil. Yet there is all unseparated good and all unseparated evil. All "events" or acts that one might separate, simultaneously exist in both forward and backward time streams. Hence any event is ultimately both good and evil simultaneously, and to an identical degree. Again, this is the void that is devoid even of void.

204. Transverse wave: a wave which vibrates laterally to its motion in a medium, exactly like the vibration of a stretched string. Vector electromagnetic (Hertz) waves are transverse waves, in the present theory. In the new approach, transverse waves cannot exist as such in vacuum, but only in a longitudinally restrained medium. (The electron gas in a solid conductor, for example, is such a medium, and Maxwell's equations rigorously apply to the transmitting electron gas and to the detecting/receiving electron gas, but not to the vacuum in between). Longitudinal (alternately densifying and rarefying) scalar waves exist in vacuum, in the charge (virtual particle) flux that vacuum identically is. Hertzian waves in vacuum exist as shadow vector waves, that is, as two or more coupled Tesla scalar waves spinning around each other.

205. Tulpa, tulipoid: condensed, materialized or semi-materialized thought form, either living or inert. May be a visible or an invisible electromagnetic form, a partially materialized form, or a completely materialized form. Ultimately all matter and fields are tulipoidal in nature, consisting of condensed thought/mind energy.

206. Two-slit experiment: a form of Young's experiment where a particle is generated and directed toward a plate having two tiny slits (holes) in it, with a collection screen or device on the far side of the plate to collect and add the impacts of the particles that pass the plate. The idea is that a classic corpuscle can only go through one hole at a time, like a baseball through a hole in a fence. For particles, classically the strikes on the collector screen should be grouped in two clusters, each representing a straight-line passage through one of the slits. In the experiment, however, the particle strikes form a wave diffraction pattern when collected on the screen, unless the emitted particle is struck by a photon before it

strikes the screen. In the latter case, the two clusters for classic corpuscles are observed. The experiment—fundamental to all quantum mechanics—is simply understood if one considers the time aspects of the problem, as pointed out by Charles Muses in 1957. The two slit apparatus with electrons may be also used as an electron interferometer for sensitive detection of scalar EM (electrogravitational) waves.

207. UFO: unidentified flying object. Any object or light in the sky that cannot be identified as an ordinary physical phenomenon. After normal objects and phenomena are eliminated, the remaining paranormal residue is of interest. Many of these are kindred tulipoidal forms, and may consist of lights, invisible electromagnetic energy, physical objects such as discs or spaceships, robots, humanoids, etc. (A few of these forms may be real anti-gravity spaceships, created here on earth by sensitive groups of several earth governments, but controlled by some mysterious group outside these governments. Such craft, I believe, have been developed and flown all over the solar system since the early 1950's. These I do not consider part of the true UFO phenomena, which in one form or another are centuries old.) Highly materialized ship forms may also contain highly materialized living forms such as space-suited astronauts etc. The "UFO" has been separated from other tulipoids (bigfoot, fairies, spooklights, water monsters, etc.) because its appearance in the sky was immediately associated with aircraft or spaceships, leading to the initial expectation that extraterrestrials in advanced spacecraft were visiting the earth. Most of the UFO phenomena actually consists of lights at night (well over 80%), and only about 6% or so resemble well-materialized ships with astronauts. A substantial portion of the "lights at night" phenomena are also due to Soviet scalar EM interference weapons. The Soviets create a great deal of light phenomena worldwide, to spark UFO reports, which are discounted by conventional science and most of the military and government agencies. This provides the Soviets a giant and effective "deception plan" so that the weapons can be tested and readied worldwide, and sightings and reports will be discredited and not cause undue alarm.

208. Unconscious: unaware, not conscious. Refers to that part of the individual's mind which is not normally in conscious awareness, but which may contain a great deal of material from the conscious mind. In the new approach, the unconscious mind is considered to be "multiply conscious," while the conscious mind is considered "singly conscious." In other words, the unconscious is a "parallel processor," while the conscious is a "serial processor." Unconscious should be thought of as not singly conscious, but multiply conscious. Further, this allows a totally new idea: Multiple singly conscious, different minds coexist simultaneously in time, though not in the same "3-dimensional mindspace." Suppose we consider a set of n such singly conscious minds. All the minds exist in a spacetime of dimensionality $3n + 1$ (n is the number of different conscious minds in the set, and an additional dimension, time, is common to all minds in the set). Thus the considered set of singly conscious minds constitutes one multiply conscious—or "unconscious"—mind. In this way one may speak of "levels of unconsciousness" in relation to groups of persons, with the deepest level being and containing every human mind. Of course the analogy can be continued to yield

the higher minds or consciousness projected by Teilhard de Chardin. In the collective human unconscious, those forms which are in each and every mind are the archetypes discovered by Jung. In a shallower level, other forms may be common to that level, constituting "weak archetypes" or "fragmentary archetypes." There is considered to be no limit to levels of unconsciousness—the ultimate depth being "all consciousness" (and all unconsciousness!) of Godness. God must be able to both be and not be at the same time; if God cannot do that little trick, then God has a limitation and is not unlimited.

209. Vacuum: pure virtual particle, massless charge flux. The virtual state, or ether (nonmaterial, Lorentzian). Lengthless, timeless spacetime itself. That state where everything is disintegrated, but highly dynamic. Note that vacuum is not an emptiness FILLED with massless charge, rather, it IS identically massless charge (disintegrated dynamism). It is a plenum, not an emptiness. It is also pure action, undifferentiated. Einstein once suggested that the vacuum, complete with its electromagnetic and gravitational fields, should be taken as the ether. In the modern view, the term ether is again accepted in the literature, but now it refers to a "virtual particle flux" ether, not a thin material ether. One can model the vacuum analogous to a special kind of virtual-particle gas: one in which the particles "appear" and "disappear from and into nothing, nearly instantly, so fast that they cannot be individually detected. Thus the modern idea of the vacuum is a seething inferno of fiercely bubbling, fleeting particles. The other limitation is that the dimensionality of the vacuum is not fixed until operations are invoked, and neither is the rate of passage of time. Thus the vacuum has no fixed lengths nor fixed rates of time flow per se. One can visualize the stress of vacuum as a sort of conglomerate potential "pressure," where the individual stresses of various types of particles, if integrated by some external means, would sum into the overall stress (pressure). Variation of the "stress of vacuum" between two points in a frame represents a "curved spacetime" or "accelerated frame." Note that overall stress can be held constant, while two or more different components are canonically varied. The electrostatic potential, the magnetostatic potential, and the velocity of a charged particle are three such "canonical" variables. If the overall "pressure" is not varied, the three variables are canonical and energy, momentum, and charge are conserved and one cannot build a perpetual motion mobile (perpetual motion machine). If the overall "pressure" is varied between local points in the frame, then the conservation of energy, momentum, and/or charge need not rigorously apply between those local points. At any one point, one may have a "free source" or a "free sink," depending on the vacuum curvature and the EM standing wave relationship. In that case, one can build a local "perpetuum mobile," since one can tap a "free source." Einstein created a severely restricted general relativity (GR), where he assumed away any local curvature of vacuum. In the West such a severely restricted GR is still dogmatically enforced, because it "saves" the conservation laws, which are regarded as sacrosanct. In Soviet physics journals, learned papers by leading scientists are regularly published in which unrestricted GR—including local curvature—is developed and explored. In a local curvature region, the Soviets have already pointed out that any and all conservation laws may be violated. The

Soviets have long since developed and weaponized unrestricted GR, while our scientists are still dogmatically insisting that one cannot deterministically engineer local curvature of spacetime. Thus we maintain our obsession with conservation, and the Soviets maintain the weapons.

210. Vector: in mathematics, an entity completely characterized by a magnitude and a direction. Abstractly, vectors are considered to be formed by a difference in potential between two spatial points. In the new approach, vectors are characteristics of particle motion, and do not observably exist in the absence of a particle. Since all detectors have mass, and this mass contains spinning charged particles, then force vectors are constituted on and of the spinning charged particles. In the vacuum, only an unzipped (disintegrated) vector pattern exists—or, as Feynman put it, only the potential for a force vector exists there. Maxwell's original theory was written in quaternions. In 3-space, a vector has the familiar three components, say, $ai + bj + ck$, where i, j , and k are the usual x, y , and z unit vectors, and a, b , and c are the magnitudes of the x, y , and z components of a vector. A quaternion, however, has an additional scalar component—say, w —so that it looks like $w + ai + bj + ck$. Maxwell's original theory actually unified gravitation and electromagnetics! When vector zeroing operations occur, the quaternion may not zero out the scalar component. As an example, consider the cross product of a vector A with itself, $A \times A$. In vector analysis, the resulting vector is the zero vector. In quaternions, however, w remains, and $w = a^2 + b^2 + c^2$. With the correct proportionality constants, w therefore represents the energy density of vacuum due to the two zero-multiplying vectors $A1$ and $A2$, where $A1 = A2$. To recover my scalar wave or gravitational wave: Now let the vectors $A1 - A2$ where each is the E-field vector of an identical EM sine wave. (That is, we perform a device which accepts two identical input EM sine waves and performs a cross multiplication. That device, e.g., may simply be a special kind of nonlinear modulator/mixer). In ordinary Heaviside/Maxwell theory, the EM output of this operation is a continuous zero vector, and that's all. However, by Maxwell's actual theory, the output of the operation is a scalar EM wave, whose amplitude varies as the energy of A . That is, the operation produces a scalar EM wave which is varying the energy density of vacuum. By definition, that is a gravitational wave. Since it was produced electromagnetically, I refer to it as an electrogravitational wave. It was included in Maxwell's original 1864 theory. After Maxwell's death, Heaviside and Gibbs completed the modern form of vector analysis. Heaviside—a single man—then "translated" (mutilated) Maxwell's theory into his new "vector" theory. He simply sawed off and discarded the troublesome scalar component of the quaternion! That made calculation a whole lot easier, and easier to understand. In discarding the scalar component, he discarded electrogravitation, writing an EM theory that specifically excludes local curved spacetime and gravity. Before the turn of the century, a short debate involving only about 30 scientists resulting in the complete adoption of Heaviside's mutilated version of Maxwell's theory. Quaternions and quaternion theory—and electrogravitation—vanished from the literature and the textbooks—and from the minds of the students. Maxwell's theory has not been taught or utilized in the Western

world in the 20th century! Only Heavside's mutilated version of it is taught as "Maxwell's theory." We should have been applying Maxwell's unified theory and working on antigravity spaceships, shortly after the U.S. Civil War!

211. Vector field: in ordinary theory, the assigning of a magnitude and a direction (that is, a vector) to each point in space. The entire set of vectors and their spatial points is called a vector field. In the new approach, such a vector field cannot observably exist in a vacuum, since only disintegrated things exist there; there each potential vector pattern exists in broken virtual bits, ordered in line to form the bits of the observable vector but not joined. In the presence of a detecting/integrating mass, such as a spinning charged electron, the virtual bits and the spinning charged mass couple into a system that identically comprises the observable vector. In other words, the spin of an observable particle simply "integrates" the ordered virtual bit pattern, just as an old spinning wheel twists and integrates individual fibers into a stranded rope or thread.

212. Virtual (state): that part of physical reality consisting of changes (particles, waves, and other entities) smaller than the least detectable (quantum) change. Disintegrated changes. A thought or thoughtform is also virtual. May be visualized as consisting of real, dynamic "pieces of vacuum" or "pieces of nothing"—that is, quillons. Every ordinary observable particle (photon, neutron, electron, proton, etc.) contains or consists of a dynamically changing cloud of virtual objects. Exchange of virtual objects is thought to generate almost all forces of nature. Conservation of energy need not be conserved in virtual interactions, and generally is not. In the new approach, the mind may be considered a special virtual universe, and a thought a virtual object. Virtual state consists of multiply nested levels, each level progressively finer and more subtle. These sublevels also correspond mathematically to higher geometrical dimensions. Charge on a mass is also due to its continual emission and absorption of virtual particles. Waves in the virtual state massless charge flux, which do not breach the quantum level to become observable, are vectorially nonobservable yet real—these are scalar waves, or shadow vector waves, and are longitudinal—that is, they are oscillations of the stress energy tensor of vacuum. In addition, the virtual particles in the vacuum flux arise out of nothing spontaneously (creation) and disappear into nothing spontaneously (annihilation). Since this is random, at any instant any sort of pattern imaginable is "just appearing" and "just disappearing" in the vacuum. Anything and everything at all! Thus a ghost-pattern of everything exists in the vacuum at any point or region, at any time. The vacuum is thus a giant virtual-state hologram. Integrating (kindling) one of these forms will result in it becoming first a neutrinic pattern, then a photonic (light) pattern, then a materializing pattern, and finally a material pattern. Discharge of the "potential" of this pattern then reverses the process. These two processes—charge-up and discharge—constitute materialization and dematerialization. Anything at all—living or dead—can be materialized or dematerialized.

213. Virtual state engineering: the direct cohering, tailoring, collecting, resonating, and directing virtual state energy (anenergy) and entities into and onto normal observable objects and ordinary fields. It includes the

direct engineering of mind and life energies. Synonymous with psychotronics (Czech term) or energetics (Soviet term). Use of scalar electromagnetics (electrogravitation). Use of scalar wave/Tesla technology. Use of electrogravitation techniques.

214. Water structuring: the arrangement and relations of the molecular and ionic parts of water. Essentially water molecules bond together by means of hydrogen bonds. The structure of these bondings is extremely rich and dynamic in water. Essentially a glass of water is a single complex molecule, one which is continually changing its bonding structure to adapt to the slightest change in its total surroundings. Water also interacts intimately with virtual crosstalk (scalar wave) anenergy. Water can thus be "charged" with anenergy, appreciably changing its structuring. Its surface tension, for example, will change as its structuring changes, as shown by Miller and Flanagan. Thus water is possibly the most complex substance in the universe, and not just a simple chemical. With most of our body composed of intercellular water, we are all linked to every subtle change of the cosmos, by the interaction of the structuring of this water with even the most subtle cosmological changes. Large bodies of water are particularly susceptible for temporary kindling of deeper archetypal thought forms (tulipoids) such as Loch Ness Monster etc. The study of the structuring of water is still in its infancy.

215. Watson, James: young inventor who has produced several types of free energy and scalar electromagnetic devices, including battery-driven, battery-less, and tube systems.

216. Weather engineering (scalar): use of scalar electromagnetics (electrogravitation) to change and influence the weather and the producers of weather such as jetstreams and large ocean currents. By imposing scalar signals upon ordinary powerful over the horizon (OTH) radar carriers in the communications band (3 to 30 MHz), interference patterns (grids) may be established over distant and vast areas, far beyond the horizon, or even on the other side of the earth. The giant Soviet Woodpecker OTH radars continually establish such a grid over the U.S. Phase conjugate energy can be transmitted and will travel along these beams, just as electricity travels along a wire. By scanning narrow phase conjugate wave beams in these wider carrier beams, PCR realtime interference holography can be established in one or more of the distant OTH EM carrier interference grid squares. Either positive or negative energy and energy forms may be transmitted to emerge, producing a high or low pressure spot or zone as desired. By adding positive energy to a zone, the air is heated and expands. Thus the air is less dense, producing a low pressure zone, or a low. By adding negative energy to a zone, an equal amount of positive energy in the zone is canceled. Thus the air in the zone contracts and is denser, producing a high pressure zone, or a high. Thus one can create distant highs and lows at will. By slowly moving (scanning) the PCR beams, these distant highs and lows can be moved, thus deviating and directing the jetstreams, storm systems, etc. By outputting positive energy and warming the top of a thunderstorm anvil, while outputting negative energy to the side of the anvil and cooling it, drastic "downbursts" under the anvil can be created. U.S. satellites have photographed such anomalous holes appearing in thunderhead anvils over the U.S., and their association

with downbursts has been documented in the literature. Whether these are natural or engineered have yet to be established. Another signature of weather engineering—a "wheel and spoke" type of cloud, called a giant radial—has been seen widely throughout the U.S. and correlated with anomalous weather changes shortly thereafter. Sometimes a system of two such radials facing each other is seen, and on one occasion four were seen locked together (just before and during the highly anomalous zig-zag travel of a 1985 hurricane in the Gulf.) Another geometrical form associated with severe weather has been photographed by U.S. weather satellites, and is referred to in the weather literature as an "enhanced V". This signature is closely associated with the production of tornadoes, and it may be a natural phenomenon. However, if the mechanism for the enhanced V were artificially produced in a thunderstorm, then the probability of follow-on tornadoes would be materially increased. The Soviets have openly engineered the weather over North America since 1976, and made previous R&D engineering tests over the U.S. in 1967.

217. Woodpecker signals: powerful, complex electromagnetic signals originating in the Soviet Union (apparently from the vicinity of Riga and Gomel, for example) that have widely disturbed and interfered with the communications band (3-30 MHz) since the mid-70's. Bioactive modulations of 10 Hz and under have been observed repeatedly. Western observers have not deciphered the purpose or specific coding of the signals, and prefer to think of them as some sort of over-the-horizon radar tests, thus neatly disposing of the problem. Similar signals have been observed to entrain the human brainwaves and force them into in-phase oscillation. Beck has reported the phaselocked synchronization of the 10 Hz modulations on as many as 16 carrier frequencies at once. From the Lisitsyn work, this constitutes a "phased lock-in" of 16 carrier channels into any entrained brain. According to Lisitsyn and earlier Soviet "biological radio" experiments, this situation should allow the Soviets to transmit emotion, feeling, thought, and even pictures into the entrained brain, where it is processed as if the brain itself had originated it. (For example, in a Cable News Network special in November 1985, Rauscher and Bise actually demonstrated the induction of visual form images in the brain of the CNN investigator using weak signals much weaker than those naturally produced by oscillation of the earth's magnetic field.) According to the Kazhnacheyev work, any sort of cellular death and disease pattern can be electromagnetically induced. (The work was duplicated in the infrared by University of Marburg researchers in West Germany, by researchers at the University of Sydney, and by one U.S. scientist.) Popp discovered the virtual photon communication system of the cells of the body. This is scalar, and scalar patterns for charge distributions of the chemistry of cellular diseases and damage could also be placed on the phase-locked Woodpecker carriers, entering the human body's master control system through the entrained brain and "kindling" throughout the cells of the body. The stress and suppression of the immune system would be involved in almost all disease patterns, and a "partial AIDS" type of syndrome would result, making the entrained body vulnerable to whatever diseases were around, including being induced on the Woodpecker carriers themselves. Also, by targeting the DNA of specific

organisms, mutations of deadlier and tougher strains of disease induction agents such as bacteria and viruses could be produced. The "antithesis" pattern—a sort of scalar EM antidote—could be induced in the Soviet population. (The present lethal AIDS is a manmade disease, and it was unleashed from a research laboratory either accidentally or by a Soviet agent on purpose.) Indeed, World War III may already have begun, and the Soviets may be waging a quite different kind of creepingly escalating viral war against the United States. If so, our Defense Department and our government have not yet grasped what is happening, and so far we are simply a sitting, passive target. If our populace is slowly debilitated and storm, weather, and earthquake damage slowly increases year by year, at some point our system will simply start to come unglued, with increasing loss of control. In that manner we could "subside" as a world power without the kind of great over war we are familiar with. Note that steady escalation of international terrorism, insurrection, and guerrilla warfare being promoted by the Soviets around the world will keep us preoccupied and busy while our debilitation and morale steadily are increased. We may already be in an every new kind of war that we could lose without firing a shot if our leaders do not wake up to the frightening implications of the new physics! Thus the Woodpecker transmitters represent a potential anti-population and strategic weapon of enormous strategic significance. The transmitters, because of their sheer power, also appear to be able to pump and resonate earth scalar EM energies, producing earthquakes and plasma discharge effects at remote locations. (Since Golden has directly shown that the entire earth is in fruitful, forced scalar resonance at multiple frequencies and enormous power due to powerful Soviet scalar transmissions, then one should not be too skeptical of the Soviet ability to produce earthquakes on demand and to order.) At least one U.S. researcher or group seems to have been partially nullifying Soviet efforts in this respect by occasionally pulsing the earth scalar energies in a countering mode, to include actual destruction of a Soviet transmitter in one or more instances. Note especially that unorthodox researchers have directly confirmed that the Woodpecker signals contain powerful scalar components which orthodox scientists—lacking scalar detection equipment—do not see. The Woodpecker carrier interference grid over the U.S. is also a scalar EM interference grid, and used by the Soviets to engineer the weather over North America. It is also used as an anti-Bomber and anti-missile launch phase defense system, and the Soviets have tested it in this mode by destroying several U.S. aircraft and missiles.

218. Work: conventionally, the line integral of force on a body over the path taken by the body. In the new approach, the force consists of the mass and its motional change, unseparated. Thus work is the line integral of the force over the path taken by the force. Work (past) is equal to the energy (present) expended, and energy (present, gravitational potential) is equal to the work (past, release of a gravitational potential) that can be expended. Note that only vectors produce work; scalar waves do not perform work on their observable environment, and they do not contain standard EM force field energy per se.

219. Yao, George: engineer and inventor of the PulsorR, which affects the subtle scalar levels of the human body's aura or scalar radiation pattern.

220. Veti: the Eastern—particularly Tibet, Nepal, etc.—Himalayan version of the apeman tulpid, corresponding to the U.S. Sasquatch or Bigfoot.

221. Zarg: the collective human unconscious, considered as a mind and a living entity. It is at least 4-billion dimensional, since it has as many dimensions as human stages. Each human is regarded as a single cellular stage in this entity. The psychokinetic power of such a linked mind is proportional to an exponential of the number of individual stages. Thus Zarg's psychokinetic power is so great that it has essential control over space and time, and largely prescribes, maintains, and stabilizes the laws of nature (laws of physics) and the reality in which we live. Conflict between large groups of humans constitutes unresolved conflict in this great unconsciousness, and this generates symbolic dreams, much as a human dreams strange, emotional, symbolic dreams due to the unresolved conflict in his or her personal unconscious mind. However, because of its vast psychokinetic power, Zarg materializes or partially materializes its symbolic dreams, resulting in tulpoids. Waves of these tulpoidal materializations thus represent strong human conflict or threats on the large scale. Such waves can be dream analyzed to discover the correlate that is generating the symbology, by straightforward dream analysis techniques. In olden times, part of this was known, and wise men were employed to analyze and interpret the strange, induced dreams of the king (who was the center of power of a nation) and the paranormal phenomena appearing near him. The ancients knew the import of "signs and wonders" and what they portended, but this metapsychological knowledge has been largely ridiculed and lost by present materialistic Western science.

222. Zero: naught or nothing; the absence of thing. A naive definition is the absence of number. However, if all the nonzero numbers are considered to represent the presence of number, then to declare zero a number—that is, the presence of a number—is a self-contradiction since it has just been declared the absence of number. In the numerical sense, one may do a little better by calling zero "the absence of any and all numbers except itself." Yet in this case, difficulties arise as to how one is to justify the addition of any other number to zero: how can a number be present with the absencing operator, so as to be added? The absence of any type of thing observable. Formally, the additive identity element of an algebraic system. That is, formally, the basic idea of zero is that, added to a number, the result is still identical to that number. Implicit in this formal definition is a "single level" of perceived objects; that is, there are no "hidden objects" in a separate level of sets. If multiple levels of perception are allowed, then the zero becomes much more complex. That is, it represents the absence of all other numbers at that particular level, and of that level's kind. In that case, it may contain any combination of objects from another level, yet be perceived as containing "nothing of its own assigned level." In that case, there exists an infinity of different "kinds" of zeroes, if the hidden associated structure (the substructure) if taken into account. Unfortunately physics has created such multiple levels, but has not required its mathematics to clearly specify the changed nature of the zero. As an example, at the observable level, an infinite number of kinds of zeroes exist, when the virtual level and pattern

associated with the zero are taken into account. This characteristic of physics actually violates the following zero axiom: an observable v plus an observable zero is considered to be equal to an observable zero plus v . In fact, the sum of v and a particular zero may not be equal at all to the sum of another zero and v , if the virtual patterns of the two zeroes differ, v has a virtual substructure, and in the addition of a zero and v , their virtual levels nonlinearly interact instead of linearly superimpose.

223. Zero point energy: the kinetic energy that remains in a substance when its temperature is absolute zero. Quantum mechanics requires a simple harmonic oscillator to still possess kinetic energy at its lowest state: that is, it possesses half a quantum of energy. In solid materials it is distributed throughout the lattice vibrations, contributing to the binding energy. Vacuum also has zero point energy. Actually a similar and much expanded concept applies to any potential: a potential is just a bunch of trapped dynamic vectors, hence "trapped vector (translational) energy." It is translational energy that is locally trapped and not translating. The potential is thus like an accumulator or capacitor. It can be "charged up" and "discharged." It thus contains its own analog or trapped or "zero summed" or "zero point" energy.

224. Zero-point energy of vacuum: the vacuum is increasingly being regarded as composed of an incredibly dense structure of virtual electromagnetic energy, even at zero degrees absolute. From quantum geometrodynamics, as one approaches the Planck length—say, 10 to the minus 35th meters—these oscillations become so energetic that the fabric of spacetime itself is torn, resulting in sporadic, continual connection and disconnection of widely separated portions of spacetime. This "quantum foam" was dubbed "superspace" by J.A. Wheeler. Actually, if space and time are torn, then energy itself—and vector waves—are also torn. That is, the superspace consists of pure massless charge flux, pure scalar waves. If compacted, this anenergy density of vacuum may be approximated as 10 to the 100th grams per cubic centimeter, were it compacted into mass. The actual electrical charge of the vacuum appears to be enormous, if it were possible to measure a voltage drop from it to an uncharged region. Thus it is space (actually spacetime) that is incredibly dense, and matter that is ethereally thin. Spacetime goes through matter, rather than matter through spacetime. This anenergy of vacuum does interact with electromagnetic fields and matter to give observable effects, as evidenced by the Lamb shift, for example. The Lamb shift proves that the vacuum charge or anenergy can be "tapped." Tapping the "vacuum energy" would immediately end the energy crisis forever. Further, it can be done with practical devices, as T. Henry Moray showed in the 20's and 30's, and as several present inventors have shown today.

225. Zero vector: a vector having no length (no magnitude) or specific direction. Absence of any or all finite vectors. Resultant of a system of multiple, finite vectors whose vector sum has no specific direction. Note that the second definition differs drastically from the first. That if, we cannot say that a vector resultant zero has no unfolded magnitude, if we consider the components, all of whom have magnitude. See the discussion under "zero." In vector analysis, the zero vector axiom states that any vector v plus a zero vector is equal to a zero vector plus v . (Note that this axiom is not proven, just assumed).

However, there are an infinite number of different zero vector resultant systems, and so zero vectors may differ, if their infolded component "substructure" is considered. Indeed, a zero vector system must be identified as a special form of potential, if its substructure is considered. The common practice in electrical physics of replacing a zero-summed system of vectors with a vector zero is incomplete, and such did not exist in Maxwell's original quaternion theory. This present practice should be changed; the vector zero should be replaced with a special organized vector zero system and a scalar potential. By failing to do this, physics excludes the ability to engineer electrogravitation, spacetime, the virtual state, local general relativity, free energy, effects at a distance, and the probabilities of the states propagated by the Schroedinger equation. It also excludes scalar electromagnetics (electrogravitation), and unification of all forces in an engineering electromagnetics fashion. In the new view, a zero vector may be a system of vectors that vectorially sum or multiply to zero, but the components

may still exist "inside" and dynamically function inside the zero-resultant envelope. This substructure can act on nonlinear or resonant systems. Any or all components may be time varying, or none of them may be. The zero vector system may thus be a dynamic vacuum engine. In addition, such a vector zero system is considered to be also a scalar stress potential, whose magnitude is equal to the sum of the absolute values of the perpendicular components. In addition, a separate type of stress potential may be included for the magnitude of the absolute values of the swirl components (torques). Other associated potentials may be included for the system, particularly if the system is in multiple dimensions, if it consists of more than one type of virtual particle flux, if several fluxes intercommute, etc. Such a system can also be designed and created to deterministically interact with and on the life force itself, the mind, thought, and personality.

BIBLIOGRAPHY

"Analysis of a Phenomenon Occurring at Bell Island, Newfoundland, **Canada on April 2, 1978**," P.A.C.E., Ottawa, Canada, 1978.

Thomas E. Bearden *Quiton/Perceptron Physics: A Theory of Existence, Perception, and Physical Phenomena*, Defense Documentation **Center (DDC)**, **March 1973**.

Thomas E. Bearden, *Field, Formon, Superspace, and Inceptive Cyborg: A Paraphysical Theory of Noncausal Phenomena*, DDC, 1974.

Thomas E. Bearden, *A Conceptual Derivation of Einstein's Postulates of Special Relativity*, DDC, October 1975.

Thomas E. Bearden, *Restatement of the Heisenberg Uncertainty Principle For the Condition of Superposition*, DDC, October 1975.

Thomas E. Bearden, *A Postulated Mechanism That Leads to Materialization and Dematerialization of Matter and to Antigravity*, DDC, October 1975.

Thomas E. Bearden, *The Boundary Identity of Exact Opposites: A Simple Solution to the Age-Old Philosophical Problem of Change*, DDC, October 1975.

Thomas E. Bearden, *An Approach to Understanding Psychotronics*, privately published, 1976. Defense Documentation Center, AD-A027 866.

Thomas E. Bearden, "The One Human Problem, Its Solution, and Its Relation to UFO Phenomena," *Pursuit* (Journal of the Society for the Investigation of the Unexplained) January 1976.

Thomas E. Bearden, "Writing the Observer Back Into the Equation," address given to Princeton Center for Alternative Futures, Princeton, N.J., March 5, 1976.

Robert C. Beck, *Extreme Low Frequency Magnetic Fields and EEG Entrainment, A Psychotronic Warfare Capability?*, Bio-Medical Research Associates, Los Angeles, March 1978.

Robert C. Beck, *Instrumentation for Detecting, Recording, and Analyzing Natural and Man-Made ELF Signals and Human Brainwaves*, Bio-Medical Research Associates, Los Angeles, May 1978.

William Bise, "The Soviet 10 Hz Pulses—A Brainwave Programming Mechanism?" *Specula* (Journal of the American Association of Meta-Science), Huntsville, Alabama, Vol. 1, No. 3, 1978.

T. Townsend Brown, "Electrical Self-Potential in Rocks," *The Psychic Observer and Chimes*, Vol. 37, No. 1, January-March 1976.

Trevor James Constable, *The Cosmic Pulse of Life*, Merlin Press, Santa Ana, CA, 1976.

Trevor James **Constable**, "You, Too, Can Photograph UFO's **from Airlines**," *Psychic Observer and Chimes*, Vol. 37, No. 3, May-June 1977.

George D. Curtis, "An Electromagnetic Radiation Pattern Over The Ocean," *Undersea Technology*, Vol. 5, No. 8, August 1964.

Lars-Erik DeGeer, Swedish National Defense Research Institute, "Airborne Short-Lived Radionuclides of Unknown Origin in Sweden in 1976," *Science*, Vol. 198, No. 4320, December 1977.

B.V. Deryagin and I.I. Abrikosava, *Soviet Physics, JETP* 3, 819 (1957); 4, 2 (1957).

P.A.M. Dirac, "Development of the Physicist's Conception of Nature," *Symposium on the Development of the Physicist's Conception of Nature*, ed. Jagdish Merha, D. Reidel Publishing Company, Boston, 1973, pp. 12-14.

P.A.M. Dirac, "Quantized Singularities in the Electromagnetic Field," *Proceedings of the Royal Society of London, Series A*, Vol. 133, 1931, p. 6.

William W. Edison, David L. Faust, Harry J. Kyler and John O. Pehek, "Kirlian Photography: Myth, Fact and Applications," presented at the session on *New Electronic Methods for Medical Diagnosis and Treatment Using the Human Energy Field: A New Beach-Head for Scientific Discovery*, Electro 78, May 23-25, 1978, IEEE, New York.

Robert Eisberg and Robert Resnick, *Quantum Physics of Atoms, Molecules, Solids, Nuclei, and Particles*, John Wiley & Sons, 1974, pp. 63-68, 146-150.

Hugh Everett, III, *The Many-Worlds Interpretation of Quantum Mechanics, A Fundamental Exposition*, with papers by J.A. Wheeler, B.S. DeWitt, L.N. Cooper and D. Van Vechten, and N. Graham; eds. Bryce S. Dewitt and Neill Graham, Princeton Series in Physics, Princeton University Press, 1973.

Richard Feynman, *The Character of Physical Law*, M.I.T. Press, 1967, pp. 31-33.

Richard P. Feynman, Robert B. Leighton, and Matthew Sands, *The Feynman Lectures On Physics*, Addison-Wesley, 1963, Vols. 1, 2, and 3.

Marjorie E. Fish, "Journey Into the Hill Star Map," *Proceedings of the 1974 MUFON Symposium*, Mutual UFO Network, 1974.

Richard Garvin, *The Crystal Skull*, Pocket Book, 1974.

Burkhard Heim, *Unified Quantum Field Theory of Matter and Gravitation*, Mutual UFO Network, Seguin, Texas, 1972.

Louise and Galen Hieronymus, *Tracking the Astronauts in Apollo 11, With Data From Apollo 8 Included*, Advanced Sciences Research and Development Corporation, Inc., Fort Lauderdale, Florida, 1969.

J. Allen Hynek, *The UFO Experience: A Scientific Enquiry*, Ballentine, 1974.

J. Allen Hynek and Jacques Vallee, *The Edge of Reality*, Regnery, Chicago, 1975.

H.E. Ives, "Derivation of the Lorentz Transformations," *Phil. Mag.*, Vol. 36, June 1945.

- H.E. Ives, "The Behavior of an Interferometer in a Gravitational Field," *J. OPT. Soc. Am.*, Vol. 29, May 1939; and "The Behavior of an Interferometer in a Gravitational Field: II. Application to a Planetary Orbit," *Ibid.*, Vol. 38, April 1948.
- David Michael Jacobs, *The UFO Controversy in America*, Indiana University Press, 1975. [Foo-fighters]
- Brian D. Josephson, "Possible Connections Between Psychic Phenomena and Quantum Mechanics," *New Horizons*, Vol. 1, No. 5.
- V.P. Kaznacheyev et al, "Apparent Information Transfer Between Two Groups of Cells," *Psychoenergetic Systems*, Vol. 1, No. 1, December 1974.
- V.P. Kaznacheyev et al, "Distant Intercellular Interactions in a System of Two Tissue Cultures," *Psychoenergetic Systems*, Vol. 1, No. 3, March 1976.
- Louis Kervran, *Biological Transmutations*, Swan Publishing Company, Binghamton, N.Y., 1972.
- "Kindling, Once Epilepsy Model, May Relate to Kundalini," *Brain/Mind Bulletin*, Vol. 2, No. 7, February 21, 1977.
- N.A. Kozyrev, "Possibility of Experimental Study of the Properties of Time," *Pulkovo, O vozmozhnosti eksperimental'nogo issledovaniya svoystv vremeni*, September 1967, pp. 1-49, JPRS 45238, May 1968.
- Michael Ledeen, "A Mole in Our Midst?", *New York*, October 2, 1978, pp. 55-57.
- E.M. Lifschitz, *Soviet Physics JETP* 2, 73 (1956).
- James M. McCampbell, *Ufology: New Insights from Science and Common Sense*, Jaymac Company, Belmont, CA, 1973.
- George Meek, *Healers and the Healing Process*, Theosophical Publishing House, 1977.
- T. Henry Moray, *The Sea of Energy in Which the Earth Floats*, Cosray, Salt Lake City, Utah, 1960.
- Captain John D. LaMothe, Ph.D., *Controlled Offensive Behavior—U.S.S.R.*, ST-CS-01-169-72, Defense Intelligence Agency, Washington, D.C. (Released under the Freedom of Information Act.)
- Captain John D. LaMothe and Mr. Louis Maire, *Soviet and Czechoslovakian Parapsychology Research*, DST-1810S-387-75, Defense Intelligence Agency, Washington, D.C. (Released under the Freedom of Information Act.) [Pavlita]
- Charles Muses, "Applied Hypernumbers: Computational Concepts," *Applied Mathematics and Computation*, Vol. 3, 1976.
- Charles Muses's foreword to Jerome Rothstein, *Communication, Organization and Science*, The Falcon's Wing Press, Indian Hills, Colorado, 1958.
- Charles Muses and Arthur M. Young, eds, *Consciousness and Reality*, Outerbridge & Lazard, 1972.

E.I. Parnov, *At the Crossroads of Infinity*, translated from the Russian by Vladimir Talmy, MIR Publishers, Moscow, 1971.

Harold Puthoff and Russell Targ, *Mindreach*, Delacorte, 1977.

Harold Puthoff and Russell Targ, "A Perceptual Channel for Information Transfer Over Kilometer Distances: Historical Perspective and Recent Research," *Proceedings of the IEEE*, Vol. 64, No. 3, March 1976.

The Pyramid Guide, ed. Bill Cox, El Cariso Publications, Lake Elsinore, CA. (Bimonthly: subscriptions are \$6.00 a year.)

Edward W. Russell, *Report on Radionics*, Neville Spearman, London, 1973.

R.M. Santilli, "Partons and Gravitation: Some Puzzling Questions," *Annals of Physics*, Vol. 83, No. 1, March, 1974, pp. 108-157.

Berthold E. Schwarz, "Stella Lansing's Movies: Four Entities and a Possible UFO," *Flying Saucer Review*, Special Issue No. 5, November 1973.

Berthold E. Schwarz, "UFO Contactee Stella Lansing: Possible Medical Implications of Her Motion Picture Experiments," *Journal of the American Society of Psychosomatic Dentistry and Medicine*, Vol. 23, No. 2, 1976.

Bob Shiarella, "The Mysterious 'Skull of Doom'," *Argosy*, Vol. 376, No. 4, April 1973.

Brad Steiger, *Mysteries of Time and Space*, Prentice-Hall, 1974.

Edwin F. Taylor and John Archibald Wheeler, *Spacetime Physics*, W.H. Freeman and Company, 1966.

Yakov P. Terletsii, *Paradoxes in the Theory of Relativity*, Plenum, 1968.

John White and Stanley Krippner, eds., *Future Science*, Anchor, 1977.

C. Louis Wiedemann, "Results of the N.J. 'Spook Light' Study," *Vestigia Newsletter*, Stanhope, N.J., May 1977.

Robert Anton Wilson, *Cosmic Trigger*, And/Or Press, Berkeley, CA, 1977.

V. Ye Savkin, *The Basic Principles of Operational Art and Tactics*, Moscow, 1972, U.S. Air Force translation, U.S. Government Printing Office, Washington, D.C.

Arthur M. Young, *The Reflexive Universe*, Delacorte Press, 1976.

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CANCER AND THE UNRESOLVED HEALTH ISSUES IN THE BIOLOGICAL EFFECTS OF EM FIELDS AND RADIATION

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CANCER AND THE UNRESOLVED HEALTH ISSUES IN THE BIOLOGICAL EFFECTS OF EM FIELDS AND RADIATION

Largely taken from the author's presentation, "Mechanism for Long-Term Cumulative Biological Effects of EM Radiation," 70th Annual Meeting of the Alabama Academy of Science, University of Alabama at Huntsville, 25 March 1993.

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Abstract

Both postulates in the conventional EM bioeffects model are in error, as is the classical electromagnetics model (CEM) itself. Major errors in CEM are presented. The QM view is taken that all EM phenomena are caused by the potentials, not the force fields. Using the Whittaker/Ziolkowski (WZ) internal structure of the scalar potential, Bohm's quantum potential and an engineerable variant of his hidden variable theory emerge. A strong candidate emerges for the internal mechanisms used for mind, thought, long term memory, and deep cellular control by Popp's master cellular control system. An environmental negative feedback mechanism is stated for long-term, cumulative causative mutation, yielding Sheldrake's morphogenetic field, which is a species quantum potential. Utilizing the new EM bioeffects model, Kaznatcheyev's demonstration that any cellular death or disease can be caused electromagnetically is explained. A new definition for cancer is advanced, as is a long-term cumulative mechanism that causes it. The mechanism for [Priore's demonstrated cures of terminal tumors](#) in laboratory animals under rigorous scientific protocols is explained. A solution for the major cumulative mechanism for biological effects of EM fields and

radiation is presented. A self-targeting mechanism is presented whereby complex WZ EM biwave pumping of the "cell as a nonlinear phase conjugate mirror material" produces an exact EM antidote signal for the specific cellular disease. It is argued that inexpensive, quick, nondebilitating, cures can be developed for most major dread diseases, including cancer, arteriosclerosis, and AIDS. Priore's remarkable and previously unexplained cures of terminal tumors in lab animals are cited as examples of applying the new model, albeit unwittingly.

The Basic EM Bioeffects Model Is In Error

As is well-known, the field of EM fields and radiation effects on biological systems is actually in something of a shambles. In over 40 years of studies and experiments by careful researchers, the results are inconsistent, contradictory, and usually difficult or sometimes impossible to replicate. Attempted replications often give contradictory results, erratically. Researchers cannot rigorously answer even the simplest question, such as "Does power line radiation contribute to the incidence of cancer and leukemia, and if so, how and under what circumstances?" Causative mechanisms have so far eluded research. Powerful vested interests fund many of the studies. Consequently a great deal of controversy exists in the field. Opinions and positions range from the "microwave oven" position that "if it doesn't appreciably heat tissue, it doesn't harm biological organisms," to the "total fear" position that "any and all non-ionizing radiation is harmful; we just don't know by what mechanism." Legal actions to limit human EM radiation exposure are increasingly being initiated by concerned citizens' groups.

What has actually been "proven" by the nearly fruitless EM bioeffects effort to date is that the fundamental EM bioeffects model being utilized by the researchers is totally inadequate for the *task intended*. If that is true, then 40 more years of continuing to apply the same inadequate model isn't going to make very much additional progress. Further, if the fundamental model is faulted, then what is needed is a detailed examination of *the* model to discover and correct those foundation faults.

In tackling this model foundations problem, I have performed a systems engineering layout of the fundamental EM bioeffects model, and stated its two major postulates. Both postulates turn out to be in

error! Immediately one can easily see *why* the field is in such a state of confusion. However, no true systems engineer would stop there. I have also performed a systems engineering layout of precise corrections for the two postulates, thereby correcting and extending the model so that it can yield consistent, replicable results and causative mechanisms. All of this is a rigorous procedure, and straightforward systems engineering methodology.

However, the results point to profound changes, which I have been immersed in deeply studying for quite some time. Out of this approach has emerged something quite fundamental: *a strong candidate for the internal mechanisms used for mind, thought, long term memory, and the deep cellular control system for all cells of the body*. A mechanism for species adaptation also emerges that is quite capable of explaining (and yielding) long-term directed mutation, including the "species jump," where a species such as a bird emerges in short order (not gradually) from a species such as a reptile. The known "species jump" has been a deep mystery to evolution theory, which simply could not explain it. Another thing that has emerged is a startling new *electromagnetic* causative mechanism for cancer, leukemia, etc. At the June 1993 Brain-Mind Symposium in Los Angeles, I will present that exact mechanism. The mechanism is capable of laboratory test, and validation or falsification. We will also present an entirely new approach to EM effects on biological organisms, and present the major new mechanism involved. The new mechanism has fundamental application to the theory of diseases, and offers potential curative mechanisms for dread diseases such as cancer, arteriosclerosis, and AIDS. I explain some of the necessary background in the following paragraphs.

Classical Electromagnetics is Seriously Flawed

As is well-known, there exist severe contradictions between classical electromagnetics (CEM), general relativity (GR), and quantum mechanics (QM). As presently constructed the three disciplines cannot be unified, even by Herculean efforts. Particularly with respect to the primary causative agents for electromagnetic phenomena, the foundations of QM and of CEM are in profound disagreement. CEM assumes *the forcefields* as primary causes, paying only lip service to the potentials and treating them as primarily mathematical conveniences. QM, on *the* other hand, has long since [since 1959] shown that the force fields are simply *effects*

in and on the charged particle system, and are not causes. Instead, QM has shown that the *potentials* are the primary causes of all EM phenomena. In charged particle systems, potentials can interfere and cause observable EM phenomena such as the Aharonov-Bohm effect in the complete absence of the force fields. Herein lies *the* reason for the present dire straits of EM bioeffects research. We explain further:

CEM theory was originally formulated by James Clerk Maxwell in terms of quaternions. Note that quaternion algebra has a much higher topology than either vectors or tensors, the mathematics in which CEM is presently expressed. None of the present "Maxwell's equations" _ universally taught as due to Maxwell _ ever appeared in anything by Maxwell himself. Depending upon what you wish to call a fundamental equation, Maxwell's true equations are the numerous *quaternion* equations included in one almost incomprehensible chapter of his 1873 book. The present four "Maxwell's Equations" are in fact due mostly to Oliver Heaviside, and to a lesser extent to Gibbs and Hertz. The major player was Heaviside, a very brilliant but self-educated man who never attended University.

At the time Maxwell's book was published, Heaviside was just teaching himself calculus and differential equations. Seeing the book, he was electrified by it, and Maxwell became his undying hero. Maxwell died not long after, of stomach cancer.

Heaviside believed _ as did almost every scientist at the time _ in the older medieval tradition that *forces* were the causes of all physical effects. He had great difficulty with the potentials, stating that they were "*mystical and should be murdered from the theory.*" We know today in modern quantum field theory that forces are effects, not primary causes of anything. In fact, it is the exchange of virtual particles with a mass that generates all forces upon it. As is well-known to foundations physicists today, "force" does not exist without the mass present to be acted upon, and without the action of a potential gradient upon the mass. We know that there are no force fields in the vacuum, and hence potential gradients in the vacuum are not forces, even though they are commonly assumed to be. CEM has not been corrected for these glaring defects: it prescribes force fields in the vacuum, and it prescribes that potential gradients are forces, even in the absence of any mass for the gradients to act upon.

Heaviside also abhorred the quaternion theory. The coupling of a scalar component with three directional components was, in his

view, "mixing apples and oranges." He knew that engineers would never master Maxwell's use of quaternion mathematics because of its difficulty. Consequently, Heaviside simply chopped off the scalar component of the quaternion and discarded it, then formulated this new "truncated to a vector" version as a much simpler mathematics, albeit of decreased topology. What he unknowingly threw away was the ability of the quaternion theory to capture an *internal* deterministic, vectorial EM structure of the scalar potential. *[It turns out that he also discarded the unification of EM and gravitation by throwing out the scalar component, but that is outside the scope of my presentation.]* Years later as a lonely recluse in a small upstairs apartment, Heaviside turned back to quaternions to work on a theory of gravitation, according to papers found hidden beneath the floor of his study many years after his death.

Learned journals of the day would not accept Heaviside's papers for publication, because of the assumed "brutality" of his mathematical methods. So Heaviside began publishing very practical papers in a technical magazine, for the time roughly equivalent to *Scientific American* today. These practical papers gave transmission line theory, transformer theory, etc. _ things very useful to the early would-be "engineers" who were struggling with installing telegraph lines, undersea telegraph cables, etc. The vector mathematics utilized by Heaviside was much easier to understand and apply, and his work was eminently practical. Consequently it was eagerly seized upon and applied. The result was that Heaviside's EM model became the ipso facto CEM standard. Note that, at the time, only about 30 or so scientists in the world were truly "learned" in EM _ either from the vector standpoint or from the quaternion standpoint. Further, not much *practical* work was being done by the few quaternion practitioners.

A short "debate" over whether EM should use Maxwell's quaternion model or the Heaviside/Gibbs vector model occurred prior to the turn of the century, mostly in the journal *Nature*. It never involved over a handful of scientists, and it wasn't much of a debate. The vectorists simply threw out the quaternion EM theory and adopted the vector theory of Heaviside and Gibbs. Note that this represented a substantial curtailment of Maxwell's actual theory. *In other words, you can actually do a lot more in and with EM fields and circuits than what now appears in "modern" EM theory, and "modern" EM analysis won't even show it.* Barrett's Oscillator-Shuttle-Circuit analysis of Tesla's actual patented circuits shows this clearly and resoundingly. Also, *living systems utilize the discarded subset of EM for their most vital control functions, and the present theory and*

methodology will not detect or "see " this. Thus this curtailment alone has resulted in the profound crippling of the conventional EM bioeffects model and efforts to apply it.

The Present CEM is a Flawed Subset of Nature's Electromagnetics

So we have several serious things that are quite wrong with current CEM theory. First, the theory (and its practice) are *artificially* limited to only a subset of the real EM that can be achieved and utilized. The present CEM unwittingly excludes the very type of EM utilized by living systems for their deepest control functions. It also excludes electrogravitation. Second, Maxwell's theory was actually based upon the assumption of a *mechanical (material) ether*, which meant that he could logically assign material forces to the "vacuum" or "ether fluid." Heaviside's translation (and curtailment) to vectors did not change this "material ether" and "force field in vacuum" assumption.

However, in 1887 the Michelson-Morley experiment resoundingly destroyed the notion that the ether is material. If the ether were truly a thin material fluid, then forces and EM force fields would indeed exist in it. Since the ether is not material and forces exist only in, on, and of matter, no E-field or B-field exists in the nonmaterial vacuum; none ever has, and none ever will. In his three volumes of physics, Feynman pointed out that only the *potential* for the EM force fields exists in the vacuum; the only thing that exists in vacuum is *potentials*, after all! The vacuum is just a fantastic collection of interfering potentials and potential gradients.

Rigorously, the E- and B-fields we detect with our instruments *exist only in the electron gas in the probes we utilize*. This is well-known to a few foundations physicists, but the CEM model has never been corrected for these foundations errors.

Note that the loss of the material ether also falsifies one of the three key assumptions in modern potential theory: the notion that the gradient of the potential comprises a force field. We know today that the CEM equation $E = -\nabla\phi$, is actually incorrect *for the vacuum*. It is correctly *measured*; since that is exactly what is detected when the vacuum $\nabla\phi$ potential gradient couples to the free electrons in our detecting/measuring instruments. What we detect as E, however, is actually $[(\nabla\phi \bullet (e^-))]$, or the potential gradient coupled to the

electrons, including their masses. Specifically, we do not detect the nonmaterial (VO that actually exists in the vacuum. We detect electron wiggles in the free electron gas in the conductors of our instruments; we do not detect "vacuum wiggles" per se.

Neither Maxwell's quaternion EM equations nor Heaviside's vector EM equations include electron spin effects, but actually model electricity as a "thin fluid." Hence the EM equations of either model are *fluid dynamic* equations. Specifically, the measured transverse EM waves exist in the electron gas of our detectors; any detector detects only its own internal change, *not* the external agent that interacted and caused that internal change. While the "signal" races down the conductors in our probes and sensors at essentially the speed of light, the "free" electrons in the electron gas in those conductors are *longitudinally* restrained. The electrons must essentially move laterally from their initial distribution inside the conductor to its skin, then "slip" slightly down the wire on the skin at only the electron drift velocity, which is a fraction of a centimeter per second. The spinning electrons in the electron gas, being longitudinally restrained, act as *gyroscopes*. When disturbed by an interacting force, they precess. It follows that the lateral motion of the electrons inside the conductors of our detectors is just this "electron precession." It also follows that the direction of the disturbing force must be at right angles to the electrons' measured transverse precession movement. Rigorously, EM waves in the vacuum thus are *longitudinal*, not transverse. We *measure* transverse waves in our detectors and instruments because we are detecting and measuring the *electron precession waves in the free electron gas in the conductors of those instruments*. But as Tesla pointed out, there are no Hertz waves in the vacuum; instead, EM waves in the vacuum are longitudinal "sound" waves, or *waves of rarefaction and compression of the medium*. From modern QM we also know what the medium is: it is a flux of virtual particles. Again, as can be seen, the CEM model is seriously in error in its representation of EM waves in the vacuum.

We will not pursue this further; it is well-known to a few physicists in foundations work (but not to most electrical engineers and electrical physicists!) that classical EM theory is seriously flawed, and that it should be upgraded to correct those flaws. As is well-known in QM since 1959, it is the potentials that are the actual causes of all EM phenomena, and the potentials can interfere to cause real EM effects in charged particle systems, even in the absence of the force fields. The Aharonov-Bohm effect is an

example, as are several other derivative effects well-established in the literature. What has been ignored even in QM, however, is the *organized internal structure* of the potential, even though the original (vector) discovery by Stoney occurred in 1897 and was extended by Whittaker in 1903.

This internal structure of the scalar potential had been implicitly present in Maxwell's 1873 quaternion theory, as an integral part of the scalar component of the quaternion resultant of the interaction between two or more quaternions. In quaternions, a scalar entity may be regarded as a special quaternion entity whose translation has been reduced to zero. A vector entity may be regarded as a special quaternion entity all aspects of which are translating, and no nontranslating aspect is present. Thus the scalar quaternion entity may be totally composed of vector components, so long as they sum or multiply to a zero translation resultant but possess a finite nontranslating magnitude.

The Scalar Potential Has an Internal Bidirectional Wave-Pair Structure

In a profound but ignored 1903 paper of enormous consequences, E. T. Whittaker decomposed the scalar EM potential into a harmonic set of bidirectional wave pairs, extending the original 1897 work of Stoney. Each wave pair consists of a wave and its phase conjugate replica (its "anti-wave" or "time-reversed twin"). Thus the scalar potential has a rich internal biwave structure. [Further, one can *make* a scalar potential by simply assembling the necessary multiple waves, and one can alter the internal structure of the potential at will by altering the waves utilized in the assembly process.] In 1904 Whittaker published a formidable second paper, showing that all of CEM could readily be replaced by scalar potential (*hidden multi-wave*) interferometry. In other words, scalar EM is far more basic and extensive than is the present CEM with its emphasis upon the force fields.

E.g., you can alter the internal structure of the Schroedinger potential, and place deterministic biwave "hidden variables" inside. You can then "engineer" these hidden variables _ and consequently the Schroedinger potential _ by external means. In other words, you can even accomplish *at least limited engineering of quantum change itself*. This of course reduces the Gibbs statistics (which assumes a

totally random quantum change) to a special case, and provides a more general case of chaotic quantum change, which is still statistical but may contain hidden order. Note that this statement is experimentally testable. It also resolves the greatest problem in quantum mechanics today: the problem of the missing chaos (hidden order).

In 1989 Ignatovich placed a paper in the *American Journal of Physics* pointing out a similar internal biwave structure of the Schroedinger potential, but none of our scientists seems to have realized the profound implications. *If we apply these proven mathematical extensions of electromagnetics, we are now dealing with a higher topology hidden variable theory, along the lines shown by Bohm, but one that is engineerable on the lab bench.*

Ziolkowski's Extension Allows Hyperspatial Communication

In 1985, a brilliant EM scientist named Ziolkowski independently rediscovered Whittaker's internal biwave harmonic decomposition of the scalar potential. He also extended the "internal structure" theory, to encompass not only the sum set but also the product set. Since the product of waves represents modulation, Ziolkowski's brilliant work provides the setting for *direct information communication capability* in the internal structuring of the scalar EM potential.

Further, this internal channel is in the virtual state, so one is accomplishing virtual state engineering, in the sense of the vacuum engineering posed by Nobelian Lee. If one uses a 4-space Minkowski model, the Whittaker/Ziolkowski channel information may be viewed as *subspace* communications. If one utilizes an n-space Kaluza-Klein model, where n is greater than 4, then the Whittaker/Ziolkowski channel information may be viewed as *hyperspace* communications. *Living systems already use this inner EM channel.*

Living Systems Use the Internal Channel Communication

It turns out that living systems utilize precisely the Whittaker/Ziolkowski (W/Z) mechanism for their deepest functions and control systems _ including mind, thought, long-term memory, and the master cellular control system (MCCS) discovered by Dr. Popp of Germany. What we are stating is that, for the very first time, *we now*

know where and how the mind's "deepest software" is, its fundamental mechanism, and how to go about programming it directly. However, we first must develop new measurement instruments.

Unfortunately, present EM instruments are almost all only "electron-wiggle" detectors; they detect only the *translation of electrons*. A *gradient* in the potential will couple to electrons and translate them. The *gradient-free* potential does not translate electrons, and it is the internal biwave W/Z structure of that gradient-free potential that we need to measure. Presently no known instrumentation will do that.

However, if two different scalar potentials are interfered [Whittaker 1904], their interference reproduces potential gradients [normal "force field" EM], which *do couple to electrons and translate them*. In fact, potential gradients (which in CEM are erroneously called "force fields") were already shown by Whittaker to be entirely due to the interferometry of two scalar potentials. So new "scalar interferometry" instruments must be developed to "unfold" the internal contents of the scalar potential as gradients, and then utilize normal instrumentation to measure those interference gradients and calculate the potential's internal structuring. One form for the detector is the use of a standard potential (with a known internal biwave structure) inside a Faraday-shielded chamber, so that the test gradient-free potential (which penetrates such a cage) interferes with the standard potential inside the cage to produce gradients therein. A probe in the interference zone detects the gradients as electron translations, which are conducted externally to amplifiers, meters, spectrum analyzers, computer programs, etc. The end result is the determination of the internal WZ structure of the test potential. Other detector types are possible; this is just a "straightforward" type.

Thoughts, Mind, Memory, and Cellular Control Are Measurable

What we are saying is that, by developing the proper instrumentation, it is possible to directly detect and examine thoughts, memory, and deep control system functioning of the biological organism, including the deep internalistics of its personal quantum potential. We are speaking of the pending emergence of an experimental science, not just a speculation.

However, we are dealing now with a form of "hidden variable" theory, but one that is engineerable and testable. So we will become directly involved with Bohm's *quantum potential*, both experimentally and theoretically. A quantum potential can connect widely separated systems by instantaneous effects, as if the systems were not separated but were located together as a single system. Further, the quantum potential does not have a single localized source. Suffice it to say that in 1991 I published the discovery of how a quantum potential is actually created. If one utilizes the proven "self-targeting" or iterative phase conjugate shooting mechanism from the Strategic Defense Initiative, and applies it to the WZ waves internal to the scalar EM potentials from two separated charges, then in a dense signal environment the self-targeting interaction may be initiated, so that the separate potentials merge into a single nonlocalized or "spread-out" potential consisting of laser-like beams between the charged particles comprising the separated systems involved. In that case, part or all of any EM change in one system is immediately experienced in the other systems participating in the effect. The communication is superluminal. The limitation to luminal velocity applies only to the "surface gradient" of a potential, not necessarily to the bidirectional waves in its WZ internal structure. Those internal waves are in either hyperspace or subspace, depending upon whether one models the situation in more than four dimensions or in only four.

The point is, *the quantum potential also has a W/Z internal structure*. And that structure can be deliberately created and engineered by external means. Action at a distance is not only possible but engineerable.

Living Systems and Quantum Potentials

It turns out that the living organism utilizes a quantum potential _ a *special scalar potential connecting all its internal atomic nuclei* _ for its volition, deep control, and mind and thought processes and operations. This can even be taken as a flat definition of a living system. A living system utilizes internal WZ structuring of this scalar potential connecting all the atoms (nuclei) of its body mass, for its deepest control processes. Any system not having or doing this is not a living system. This also resolves the age-old philosophical question of how mental *intent* can cause physical response, but that is beyond the scope of my presentation. It also

explains why viruses can be precipitated out of solution as a crystal, and the crystal stored for decades. Then when the crystal is redissolved, the individual viruses separate and resume their "living" state. Suspended animation of the viruses results when their physical matter and its quantum potential remain intact, and the stored WZ structures in the quantum potentials on the atomic nuclei of that matter remain the same.

It further turns out that the species itself has a much weaker (at a deeper level topologically) quantum potential connecting all its members (all the atomic nuclei in their bodies). This corresponds to Sheldrake's morphogenetic field _ that field is just a *species quantum potential*. Jung's collective unconscious, e.g., can be directly expressed in this model scientifically and testably _ but again that is beyond the scope of this presentation.

Newton's Third Law Requires Forces to Occur in Oppositive Pairs

Newton's third law is a sleeping tiger, with surprising implications when awakened and explored. For example, it rigorously requires that forces (including EM forces) must occur in oppositive pairs, This alone falsifies the CEM notion that *oscillating "singular-force"* electric and magnetic waves appear in either a material ether or physical matter. At least two waves must exist, the wave and its oppositive or *antiwave*. Further, the wave and antiwave must be intimately coupled. Heretofore the antiwave has simply been ignored, or when anyone pointed out that it was present in our detectors, it was just considered to be "Newton's third law reaction wave." "Newton's third law" was just mysteriously invoked, as if it had no causative mechanism. Yet in quantum field theory the cause of all forces is the absorption or emission of *virtual particles*. The cause of all mechanical and electromagnetic forces is the absorption or emission of virtual *photons*. So Newton's third law for mechanical and electromagnetic reactions must also be due to the exchange of virtual photons. In other words, there was an extra half of the "something" in the vacuum that interacted with our detectors and gave us the "free electron gas's transverse precession waves. That "extra half" was exactly equal and opposite, and interacted in the atomic nuclei of the conductors and the mass of the instrument to give a set of physical Newtonian recoils. That half is equal and opposite to the half we actually recognized. The point is, equal and

opposite forces actually interacted with our instrument. Thus a stress wave interacted with it, not a unitary oscillating wave.

What occurs in vacuum must be a stress wave, not a unitary force field wave. In short, as stated (but not elaborated) by Feynman, it is a *potential* wave, or an oscillation in the potential gradients and magnitudes, not the force fields. Since in modern theory force is an *effect* and not a cause, we interpret and extend Newton's third law to state that the *causes* of all forces must occur in oppositive pairs also. Thus the cause of an EM force field must be the interaction of two scalar potentials _ just as Whittaker's 1904 paper proves.

In quantum field theory any mechanical or EM force is caused on a mass by absorption and emission of virtual photons. Accordingly, let us examine the smallest possible EM or mechanical "force" _ that one caused by the absorption of a single virtual photon. Newton's third law requires that two photons (the causes) must occur, not one. Further, in all cases, the one must be the exact antiparallel to the other. The only thing always meeting that condition for a photon is its exact antiphoton _ its *time-reversed, phase conjugate replica twin*. But a phase conjugate *replica* photon must also superpose spatially with its parent photon _ that's what phase conjugate replicas normally *do*, according to the distortion correction theorem of nonlinear phase conjugate optics. Thus instead of the conventional "single photon" interaction, the actual vacuum entity engaged in the interaction with an atom is a *coupled photon/antiphoton pair*. A coupled photon/antiphoton pair has spin-2, hence is a *graviton*.

Gravitons and Graviton Interaction

So arguably "photon interaction" has been *graviton* interaction all along. In the interaction with an atom, the graviton splits into a photon and an antiphoton. The photon usually interacts with the electron shells, being absorbed by an electron to raise its energy level, then re-emitted and scattered outward from the atom. This absorption and scattering of photons _ *containing their components of energy and time* _ from the electron shells of the atom creates movement of the atom through external observer time. The photon interaction between a mass and its environment creates the forward flow of time for that atom and its seemingly entropic external (photon interaction created) universe.

The antiphoton half of the graviton is time-reversed, which we see as *spatially* reversed. Consequently we see it move in the opposite direction to its externally-directed photon twin. So the antiphoton focuses inward and interacts with the atomic nucleus, providing the Newtonian third law recoil of the atom. The blithe assumption of an "automatic" third law reaction force has always concealed the fact that the so-called *photon* interaction is actually a *graviton* interaction. Further, the positive charge of the atomic nucleus is due to the time reversal interactions of antiphotons with the nucleons, which reverses the charge from that of the negatively charged electrons in the atom's electron shells.

Proof: Excising the Antiphoton Violates Newton's Third Law

This graviton interaction hypothesis is testable. Note that, if the hypothesis is correct, then when an atom or mass emits antiphotons or antiwaves (phase conjugate photons or phase conjugate replica waves), it means that the inward-burrowing antiphotons have been "tricked" into coming out of the atom instead, so they can comprise the time-reversed wave. If they come outward instead of going inward when they split from the parent gravitons, they do not interact with the nuclei to cause their recoil. In that case, there would be no recoil. And indeed, so it is. *In a phase conjugate mirror material, the mirror does not recoil when it emits a phase conjugate replica wave, even a powerful one due to powerful pumping.* This is not true when the mirror material emits a pseudo-conjugate wave. A pseudo-conjugate mirror, e.g., emits an ordinary "time-forward" wave with a distorted wave front, so that it will "retroreflect" in a manner similar to the phase conjugate replica wave. However, the pseudo-conjugate wave is not a true time-reversed wave. Consequently, the mirror will recoil when it emits the pseudo-conjugate wave, because the antiphotons from the graviton interaction still penetrate to the nucleus and interact there, while the time-forward photons constitute the pseudo-conjugate wave actually emitted. This is experimentally verifiable. Among other things, it establishes that there exist differences between the photon and the antiphoton.

Looking at the photon aspects of this, one realizes that one must be very careful in applying the conventional assumption that the photon and the antiphoton are identically the same. Actually they are not the same "internally." The photon can be thought of as carrying or

consisting of $(+\hbar E)(+\hbar t)$, while the antiphoton can be thought of as carrying or consisting of $(-\hbar E)(-\hbar t)$. Thus both have positive spin, but differ in their internal components. The lack of recoil in a phase conjugate mirror that emits a true time-reversed replica wave is already in the literature, though derived by statistical quantum mechanical arguments. It has also been pointed out by other physicists that all measurement/detection is actually binary, but that the "internal energy" half is almost always ignored [it's just considered to be "Newton's law", automatically revoked, and swept away in that euphemism.].

Graviton Lattice Structure of the Scalar Potential

When we examine the WZ structure of a scalar potential, in each biwave the wave and antiwave are phase conjugates. It follows that the photons in the wave and the antiphotons in the antiwave are phase conjugates also. This means that, as the two waves flow through each other spatially, photon/antiphoton pairs continually couple and uncouple. Hence gravitons continually couple and uncouple. Further, since the wave pair frequencies are phaselocked between pairs, *the scalar potential is a phaselocked lattice of statistical (continually forming and unforming) gravitons.*

Let us now consider the interactions of an organism with environmental photons as the interactions of the organism with environmental *gravitons*, and specifically with graviton lattices.

Cumulative Buildup in the Quantum Potential of the Antisignal

If the *photon half (of the graviton interactions)* in the electron shells of the living body are considered as environment signals/interactions, then precise *antisignals* or anti-interactions, constituting perfect negative feedback from all of an organism's physical environmental experiences, are experienced in the organism's atomic nuclei. Note that there they have partially affected the internal structuring of the quantum potentials _ both the personal quantum potential and the species quantum potential. The point is, *cumulative negative feedbacks (exact phase conjugates) for all the environmental experiences and stresses an organism experiences, build in both the personal QP and the species QP of*

that organism. A part of the entire species' cumulation of species-common antisignals also exists deep in the quantum potential of the living biological system.

So for any protracted stress experienced by the organism, in its personal QP a coherent cumulative negative countermeasure feedback _ one which by its time-reversed nature would reduce that stress _ continually builds. The phase conjugates of the "well-rounded" or highly varying stresses of multiple types will tend to mostly balance or "zero out." However, a sustained stress of one kind will result in coherent cumulation and increase in the "signal-to-noise ratio" of the amplitude of the antisignal for that particular stress, compared to the amplitude of the average of all the antisignals experienced. This is similar to the case where, in a sea of radar noise, a coherent radar signal were continually present and integrating coherently. Continual coherent integration, of course, results in continual increase of the signal-to-noise ratio for the coherent signal, and eventually it emerges from the "sea of noise" as a discernible [in this case, observable and physical] antisignal.

This "cumulative kindling of antisignals" occurs in both the personal QP and the species QP; however, the species QP is many, many orders of magnitude less than the personal QP. Hence much greater time is required for "kindling" of species changes (evolution) than for kindling individual countering adaptations.

Exercising to get in shape is a simple example of physically stressing the body cells so that the high-level feedback mechanism in the MCCS will kindle appropriate antisignals and order the cells to adjust their functioning in a fashion such that the level of performance being called for can be accomplished more easily, thus reducing the stress level. The adaptive mechanism ordering the adjustment of the body cells is the coherent negative feedback in the personal QP, created from the stress signals from the sustained "workout" exercises. This is a fairly rapid, "high-level" mechanism; many other much slower (and some much faster) feedback reaction mechanisms also exist.

Hypoxia As a Result of Interference With Hydrogen Bonding to Hemoglobin

We now point out the recently discovered water H-bonding effect on

the hemoglobin in the blood, where the H-bonding activity increases the ability of the hemoglobin to carry oxygen. Some 60 or 70 water molecules surround the hemoglobin molecule, engaging in extensive H-bonding interactions with it, which substantially increases the hemoglobin's purely chemical ability to bind and transport oxygen. Importantly, contamination of this water in the blood fluid drastically affects this H-bonding benefit, and reduces the hemoglobin's ability to carry the extra oxygen. Thus contamination of the internal blood fluid by chemicals, agricultural pesticides, smoke, etc. directly and dramatically lower the oxygen availability to the body's cells, resulting in a continuing "oxygen hungry" state (hypoxia) in most of the body's cells.

It also is now known that H-bond structuring of water is highly dynamic and constantly adaptable, and it possesses a high degree of internal order. A conglomerate of H-bond structures in an area or a volume can be considered an *H-bond potential*, since the gradient oppositions sum to produce stress potentials. Thus in the H-bonding fluid surrounding the hemoglobin molecule, there exists an H-bond scalar potential, and by Whittaker/Ziolkowski (W/Z) decomposition it has a multi-wave structure. Any and all contamination of the fluid _ including by electromagnetic fields and signals, chemicals, etc. _ alters the H-bonding structuring and hence the internal W/Z structure of the H-bond potential. *The end result of adulteration of the H-bonding structure of the blood fluid is a condition of hypoxia induced in the cells of the body due to reduced oxygen transport by the hemoglobin of the red blood cells.*

Any single EM signal is the result of the interference of two scalar EM potentials, as shown by Whittaker. It is the result of the interference of the *internal EM wave structures* of those scalar EM potentials. Multi-signal EM radiation must be regarded as interference of multiple pairs of scalar potentials. These interfering potentials penetrate to the atomic nucleus in the body, and thus interact with the internal personal quantum potential utilized by the body in its deep cellular control. Also this multi-signal EM radiation, *no matter how weak*, directly interacts with the H-bonding structure of the H-bonding blood fluid. Even single-signal EM radiation still forms opposite pairings with the weak fields already existing in the body, thus also forming W/Z structured potentials. From the interferences in the body of multiple such potentials and their internal structures, there also are created gradient (force field) interactions upon the blood cells and the hemoglobin. In short, low-level background EM radiation can also interact with the H-bonding

of the hemoglobin to seriously lower its oxygen transport capability, just as any other contaminant. The denser the external environment, the greater is the interferometry and the interference with the hydrogen-bonding augmentation of oxygen transport. It follows that, when thrust into a truly dense signal environment, some exposed individuals may receive a "cumulative H-bonding interference dosage" that, when added to their existing prior dosage, is sufficient to result in physical symptoms "ordered" into the cells by the antisignals kindled in their quantum potentials. In the recent Gulf War, many Americans were suddenly thrust into one of the densest EM signals environment in history. Shortly after returning from that ultrashort conflict, many of these exposed veterans have experienced delayed health changes presently known as "Gulf War Syndrome." While the military has attempted to portray this syndrome as "stress-induced" emotional trauma, most of these veterans when tested are found to be emotionally stable. Further, there was much less combat stress on our troops in the Gulf war than in WWII, the Korean War, or the Viet Nam War, as shown by less than 200 combat deaths! Essentially the war was almost a "shooting gallery," and so combat stress is simply not viable as a proposed causative agent for the Gulf War Syndrome.

Chemical, Mechanical, and Electrical Interactions are Electromagnetic Anyway

Indeed, chemistry is largely due to electric charge and charge distribution anyway. So if we view the physical contaminants in the blood view *chemically*, they are caused by electromagnetic means at root basis. Thus even the "chemical" contaminants interact electrically and via potential (multiwave) interferometry with the H-bonding potential. Further, in quantum field theory, all mechanical forces are due to the exchange of virtual photons, and hence also are *electromagnetic at their very basis*. The bottom line is that all chemical, mechanical, and electrical interactions are in fact electromagnetically caused. Further, since both the internal and external structures of the potential are engineerable, the mechanical and electrical forces on the mass particles _ and the virtual photon exchanges causing these forces _ are directly engineerable. *All of these chemical, mechanical, and electrical interactions in the cells can be affected and even engineered electrically. This is true from the atomic nucleus, to molecules, to material lattices, to human cells, to tissues, and even to the mind and long-term storage templates (internal WZ structured forms in the QP) in the biological organism.*

As can be seen there are many other weaker, direct interactions of "force-field" radiation; however, here we are interested in the interaction of that radiation with the inner structure of the H-bond potential', to reduce the oxygen transport capability of the hemoglobin. *In any case, the total sustained interaction of chemical and physical contaminants and EM fields and radiation can result in a sustained oxygen-deprivation (hypoxia) condition for the body cells, even to a dramatic degree.* Further, by graviton interaction, a *sustained, cumulated set of antisignals is also automatically generated in the personal quantum potential as a set of negative feedback signals to take corrective actions to alleviate the oxygen depletion condition.* Note that the cumulating antesignal condition is general and affects the immune system and its cells as well.

The Example of Smoking

Obviously the tars, particles, and nicotine of the smoke inhaled by the smoker dramatically contaminate the fluid in the smoker's lungs, in the very place where the hemoglobin of the red cells is taking on oxygen. Drastic interference with the H-bond stimulus of the hemoglobin occurs. The result is an immediate and dramatic reduction of the oxygen-transport capability of all the hemoglobin in the red cells as they pass through the contaminated lungs and are exposed to fluid contamination. An immediate oxygen-deprivation condition thus is created in the body. Due to the magnitude of the stressing signal, the major portion of the antesignal is also of substantial magnitude _ hence immediate counteraction orders accumulate in the personal QP, specifically in Popp's master cellular control system. So very rapidly the body has negative feedback countersignals from the central cellular control system, ordering the body to take actions to reduce the cellular need for oxygen. The metabolism is lowered, the body relaxes, and the appetite is suppressed; all counters to the cells' hypoxia condition by lowering the cellular requirement for oxygen.

In spite of heroic "high level antesignal" physical cellular compensations to reduce the use of oxygen, however, the condition of cellular oxygen shortage may still continue, in the case of the smoker or substantial environmental contaminants such as secondary smoke. So in addition to the prompt countersignals, additional much-

weaker countersignals are also slowly accumulating in the personal quantum potential's central cellular control system.

Cumulative, Deep, Long-Term Countering Signals

We now need one additional bit of information. In addition to its personal quantum potential, a biological organism also is connected to a species quantum potential joining all the members of its species. This is a much weaker quantum potential; nonetheless, potentials superpose, so one small "part" of the personal quantum potential is actually the species quantum potential _ in other words, Sheldrake's morphogenetic field. Deep within its own personal quantum potential the living system also possesses all the cumulatively ordered steps (species antisignals that were implemented) of its species evolution. With very *long coherent cumulation*, *countersignals can be stimulated in the individual bio-organism's quantum potential _ and in its deep cellular control _ that are counters to the original signals that ordered directed mutation and the primeval evolution of the constituent cells themselves.*

In a sustained cellular hypoxia stress environment, the "do whatever is necessary to reduce oxygen usage" countersignals will continue to cumulate from successively deeper levels in the QP over an appreciable time. These continue to slowly "kindle" after the "first high-level antesignal actions" that cumulated past the "noise" (quantum) threshold reached their limits of physical reactions and are still insufficient to resolve the problem. As the hypoxia stress in the cells continues, then much weaker but coherent countersignals that trigger deeper cellular adaptation actions eventually have time to cumulate past the quantum threshold to the observable state. These long-term cumulated antisignals come from much deeper, even from the species quantum potential itself.

These cumulating deep countersignals are phase conjugates _ *reversals, or dedifferentiation commands* _ of the previous directed mutation signals that ordered evolutionary changes in their predecessor cells in the far distant past. *These long-term antisignals thus contain a signal to reverse the original cumulative countersignals in the cellular species potential that caused the cells early ancestral anaerobic cells on earth to change (differentiate) into largely aerobic cells, after the earth's atmosphere acquired significant amounts of oxygen. In short, a deep signal is slowly*

cumulating that, when it emerges, will order the dedifferentiation of the affected cell back down the evolutionary road toward the anaerobe. The first steps are reductions of centralized cellular control, including growth control.

In other words, under sustained cellular hypoxia a countermeasures signal to the cells, ordering them to dedifferentiate back toward the anaerobic state, is slowly building in the personal quantum potential from a much weaker, lower level "under the common countersignals noise level" all the while. If significant oxygen-deprivation continues for a sufficiently long time, this deep countersignal eventually emerges in Popp's MCCS system in the personal QP, *ordering the affected cells to dedifferentiate back toward their anaerobic state.* The first step back is to break away from centralized control by the higher organism _ which results in individual "tumorous" or "uncontrolled" cells. *From sustained cellular hypoxia there exists a slowly increasing precancerous state, even years before the outbreak of physical cancer.* This precancerous state has great influence upon the "single cells" of the organism, which includes the cells of the immune system. Thus the precancerous state is characterized by increasing errors in, and slow weakening of, the immune system. Arthritis and similar debilitating immune system disorders appear to be largely the result of this "precancerous" long-term cumulation.

Note that the most stressed cells in the body automatically provided the greatest magnitude of "negative feedback input." Notice also that the feedback is a phase conjugate replica; it therefore "backtracks" its initiating stress input signal. In short, the degree of feedback antisignal received by a cell or group of cells varies according to the degree of stress they experienced. Thus those cells sustaining the longest and greatest stress get this drastic dedifferentiation countersignal first. E.g., this accounts for the (usual) localization of the resultant tumor in the lungs of a smoker, at least initially. It also accounts for the stress-damage mechanism for such disorders as arthritis.

A New Definition of Cancer

In the new model being advanced, *cancer and leukemia are centrally-commanded. final, desperate. "first-step dedifferentiation" adaptive attempts by the stressed. affected cells experiencing sustained oxygen shortage (hypoxia) to reverse their cellular*

evolution and return to the anaerobic stage of their distant ancestry.

The cause of cancer and leukemia _ and indeed of all diseases _ is *electromagnetic* in nature, and it can be straightforwardly treated and cured *electromagnetically*, if one utilizes the extended W/Z aspects of the higher topology EM actually written by James Clerk Maxwell. This statement is based on experimental proof; it is not conjecture. We discuss that proof below.

As we saw, in general the strength of the cumulating countersignal inversely depends on the distance in the body of the affected cells from the source of greatest contaminant stimulation. As the deeper "dedifferentiation" countersignal reaches the quantum threshold in the most affected area, a small group of localized cells located there take the first step back along the "single-anaerobe to single aerobe to multiple aerobe" evolutionary chain. That first dedifferentiation step breaks the cells away from centralized control of the MCCS in the personal quantum potential. Those dedifferentiated cells become independent cells or a small independent cell-groupings. They constitute a *tumor*, or *leukemia* if occurring in the blood cells. They simply are no longer under the control of the body's MCCS in the personal quantum potential, even though the body's logistical services (nutrients, oxygen, etc.) continue to be furnished to them.

At this point the tumor becomes an independent cellular organism, living in an environment where its body host continues to furnish its food and oxygen, and its host's immune system cells do not recognize the altered cells as foreigners to be attacked and destroyed.

Consequently there is no "large organism" central control of the tumor's growth, and the tumor cells divide and multiply apace. This loss of centralized growth control and the resulting unchecked cellular division and replication is in fact recognized by scientists as the major distinguishing characteristic of cancer and leukemia. With central control lost, groups of cancer cells or individual cancer cells may break away and travel to other locations in the body via body circulation systems. This results in metastasis, the spread of the cancer to other sites in the body, where they continue to be recognized as "self" by the immune system cells and continue to be supplied with oxygen and nutrients for continued growth.

The Tumor Has Become a Parasite Organization

Think of it this way: In a living body, each cell is already a single, independent, living creature all its own. It even has its own small "personal quantum potential" _ we have argued that that is an *a priori* condition of being alive. However, each cell in a multicellular organism normally is under a centralized electromagnetic control system (which functions in the organism's higher-level personal quantum potential), so that the organism lives and functions as an overall higher-level unit. If a cell (or group of cells) has separated from this centralized EM control, but is still living and functioning, then obviously the cell is no longer under the whole organism's MCCA and personal quantum potential. However, it still possesses its own control system, and its own personal QP. If the breakaway is by a small group of cells, then they are loosely under a "small group" quantum potential and MCCA as well. That is, they have gone from "large-scale central control" to a "much lower" level of centralized cellular control, accounting for the "tumor as an individual multicellular entity." Nourished by the host body, the new parasitic organism _ the tumor _ grows at an unchecked rate. Again, we argue that *the problem is electromagnetic in nature, and it can be "fixed" electromagnetically.*

The Cumulative Pre-Cancer State

With this picture of the long-term cumulative causative mechanism for cancer and leukemia, a far better picture of the pre-cancer state has emerged. The pre-cancer state is a hidden EM change of state comprised of a *cellular dedifferentiation order*, back down the species' cellular evolution trail, and the magnitude of that change of state is slowly increasing inside the organism's quantum potential. The eventual observable cancer is an actual cellular dedifferentiation due to the localized breaching of the quantum threshold by this cumulating hidden EM dedifferentiation order to move away from centralized control and back toward the anaerobic cellular state.

Becker's Profound Experiments

It has already been experimentally shown that very minute amounts of direct electrical currents, e.g., can cause cellular dedifferentiation and redifferentiation. In breathtaking work of Nobelian quality, Becker has proven that even picoamperes of localized electrical

current are sufficient to cause cellular dedifferentiation and redifferentiation, even repetitively. Incredibly, he proved that this was true for red blood cells, which first dedifferentiated to more primitive cells, the redifferentiated to precursors of cartilage cells, then redifferentiated to bone cells in a "bone fracture" area and healed the bone fracture. Since picoamperes can be generated by the cumulative countersignal mechanism (via Whittaker scalar interferometry), directly affecting the MCCS and the cells as well, then the connection between scalar potentials/potential interferometry and *dedifferentiation* mechanisms assumed to be involved in cancer and leukemia essentially follows from interpretation of Becker's pioneering work. To further strengthen the assumption, Hsue has recently (1993) shown that a DC voltage is in fact equivalent to two bidirectional EM traveling waves _ which directly indicates a WZ type implication in Becker's profound work itself. Thus Becker actually utilized a hidden, bidirectional WZ wave structure inside the voltage gradient between his electrodes in his DC current dedifferentiation and redifferentiation of blood cells. He conclusively demonstrated that cellular dedifferentiation and redifferentiation _ both of them *genetic* changes _ can in fact be caused by such an internal biwave EM structure of a steady, persistent scalar potential gradient. Further, he demonstrated that *these El~-induced cellular genetic changes can be self-targeted toward reversal of the specific damage condition, even though several successive genetic changes may be necessary to reach the ultimate cellular genetic form required for healing.*

Pre-Cancer State and Prognosis For Treatment Effectiveness

To summarize, whenever a cancer or leukemia detectably exists, regardless of the cancer site, a pre-cancer state also exists in the remainder of the body, and the immune system is affected generally. Further, this pre-cancer state pre-existed the actual emergence of the tumor itself. The new EM bioeffects model also sheds light on the probable effectiveness of conventional treatment, and probability for a "cure" that lasts for the rest of the patient's life.

If the cumulative countersignal slowly kindling in the remaining pre-cancer state is sufficiently below the quantum threshold, then conventional treatment of the cancer _ such as excision _ can eliminate the tumor, and no other tumors may then develop before the normal physical death of the body, even though slow increase of

the pre-cancer state continues. In other words, in that case the cumulative antisignals in the pre-cancer state locations other than the original cancer site never reach the quantum threshold prior to the natural death of the patient. On the other hand, if the cumulating antisignals in the pre-cancer state generally are very close to the quantum threshold, then recurrence of the tumor is highly likely. In the first case the curative prognosis is excellent; in the second case it is poor.

Also, we point out that many present treatments (such as nuclear radiation) themselves cause significant stress on the body and its cells and further deterioration of the immune system. They also generate an additional "antisignals" level in the personal quantum potential, resulting in an actual *increase* in the level of the pre-cancer state in the organism. If the combination of the pre-cancer state at time of treatment, plus the increase in the pre-cancer state due to treatment, is sufficient to breach the quantum level, then that treatment will prove to be of little or no avail to the patient. The tumorous condition will recur, and sometimes massively (the tumor metastasizes), regardless of whether further treatment is given or not. In that case the patient will die, unless somehow the pre-cancer state is lowered, the tumor cells are reverted back to centralized cellular control, and the immune system is restored to effective functioning so that excess cells are eliminated. Presently there is no conventional treatment that is capable of accomplishing the three requirements for a desperately ill patient's recovery from the "terminal" cancer condition.

Seeking the Complete Cancer Cure

From the new EM definition of cancer and leukemia and the new cumulative causative mechanism, one can see just how severely limited are the present medical weapons against this dread disease. It follows that, *if the cause is totally electromagnetic, then a totally effective treatment can only be sought as an electromagnetic therapy. Since the EM cause is in an extended EM domain, then axiomatically a totally effective treatment can only be sought in the same extended EM domain.*

The complete cure for cancer and leukemia, of course, would be to completely neutralize or "zero-out" the patient's cumulative Whittaker/Ziolkowski countersignal buildup in the MCCS/personal

QP. This can be done *prior to* the cumulation reaching the overt physical disease stage, or *after* it has already reached that stage. It can readily be done electromagnetically, using the multi-biwave tailored EM and self-targeting to provide an exact counter-countersignal (or antidote signal) to the cumulation signal itself. *This is a scientific fact and it has been rigorously proven, although the methodology could not heretofore be technically explained and understood.*

Priore's Cure of Terminal Tumors and Other Diseases

Such a total cancer-curative procedure was repeatedly demonstrated in live animal experiments in the late 1960s and early 1970s by Antoine Priore in France, under rigorous scientific protocols and supervision by eminent French scientists [such as Robert Courier, head of the Biology Section of the French Academy of Science, and *Secrétaire Perpetuel* of the Academy at the time]. The advantage of the Priore type approach was that it rapidly reversed the dedifferentiation away from centralized control of the affected (tumor) cells. The tumorous cells simply redifferentiated back to normal cells under centralized control of the MCCS/personal QP. (If too numerous because of the tumor's growth prior to its redifferentiation, normal body mechanisms absorb and dispose of the excess cells). Further, such treatment removed *all the pre-cancerous state from the rest of the body, preventing recurrence or spread of the tumor*. It is the only "total cure" for cancer, including the cumulated pre-cancer state, that has ever been scientifically demonstrated. And lastly, it accomplished these results without severe trauma to the body or further trauma to the immune system. Indeed, the exact opposite was the case.

Working with Priore, the eminent French scientist Pautrizel showed that the Priore treatment restored and stimulated the immune system back to its robust normal functioning, as would be predicted by the present model we are proposing.

Scientists at the Time Did Not Have the Necessary Knowledge for Understanding

It is a great tragedy that the active mechanism of the [Priore device](#)

was not understood _ even by Priore himself and even by very knowledgeable physicists assigned to the program to try to ascertain the machine's mechanism. The phase conjugate or "time-reversed" EM wave was unknown until it was discovered in the open Soviet literature in 1972. Almost all of our knowledge of such waves dates from that time. In the same year, two Soviet scientists briefed American scientists at Lawrence Livermore National Laboratory on *optical* phase conjugation. Thereafter, some American scientists began intense work on optical phase conjugation.

However, the time-reversed wave is a solution to the wave equation and applies to all kinds of waves, not just EM. Phase conjugation of sound waves, e.g., is readily accomplished. The time-reversed wave solution actually appeared in the scientific literature in 1898 in a paper by Barus, who pointed out that this strange solution "made the wave run backward." But at the time the Priore program's funding was withdrawn by the French government about 1974-75, little or no understanding of the time-reversed EM wave existed as yet in the West, and of course the Whittaker work had always been ignored and was unknown also. *Literally, with the technical tools available to them at the time, the French physicists, biologists, and oncologists had no chance at all of fathoming the causative mechanism in the Priore experiments.*

Nature of the Priore Treatment

Briefly, Priore mixed some 17 frequencies in a rotating plasma in a giant tube. We know today that one function of the kind of plasma he used is to produce a phase conjugate replica wave, for an input wave. Thus Priore unknowingly achieved coupled wave/antiwave pairs in his device. The output of the plasma tube was then coupled to (modulated upon) a "rippling magnetic field" of appreciable strength. The magnetic field guaranteed penetration of the entire body and every cell in it, carrying its modulated Whittaker/Ziolkowski internal potential structure with it. The "ripple" in the magnetic field guaranteed penetration to the atomic nuclei, and interaction with them, via nuclear magnetic resonance. In turn, unknown to Priore or the scientific team, this guaranteed the interaction of the plasma-produced W/Z structure with the internal W/Z structure of the personal QP joining those atomic nuclei. Thus the Priore approach (1) formed a deliberate counter-counter signal W/Z structure; i.e., Priore constructed a *specific electromagnetic*

antidote, (2) carried that antidote into all the atomic nuclei of the treated body by nuclear magnetic resonance, and (3) caused interaction with and neutralization of the internal W/Z dedifferentiation countersignal structure already present in the personal QP joining all the atomic nuclei of the treated body, *zeroing out or canceling the tumorous and pre-tumorous states existing throughout the body*.

The end results were that (1) the cumulated counter-signal to the tumor cells to dedifferentiate back toward anaerobic cells was removed, (2) the body's own centralized cellular control over the tumor cells was restored, and (3) the entire cumulated pre-cancer counter-signal pattern in the personal quantum potential was removed. In short, the individual organism started over again with a "clean slate" insofar as long-term cumulation of cancer-inducing signals in the personal quantum potential was concerned.

Furious Reaction by Orthodox French Oncologists

The Priore material, device, procedures, and results are all properly documented and presented in the peer-reviewed French medical literature. Priore obtained both French and U.S. patents on the device and on his treatment process. Robert Courier, head of the Biology Section of the French Academy of Science, personally introduced the astounding Priore team results to the Academy. It caused a furor, and a vicious reaction of most of the orthodox French oncology establishment. Because no one could understand how the mechanism worked, there was loud and raucous insistence that "science must not be done with black boxes!" This overly pious attitude is strange, since the Priore results were multiply replicated and scientifically impeccable, and such things as aspirin were utilized for decades before their active mechanisms were understood. Indeed, in epidemiology the use of vaccines and such is directly based on statistically showing that the results are real, even if the active mechanism is not understood.

When the French Government changed to a leftist government in the mid 1970s, the implacable foes of the Priore work prevailed, and the new leftist government withdrew all further funding. Priore later died, and that was the end of that.

Of all areas and treatments known to this researcher, the Priore

approach is the only one that has been rigorously and scientifically proven in laboratory animals, was essentially 100% effective, and was performed under proper rigorous scientific protocols. That it has continued to be ignored by the medical and biological communities is a profound tragedy, but one due more to ignorance of the active mechanisms for the treatment than of deliberate intent.

There Is Also Deliberate Suppression

Nevertheless, there is also an element of deliberate suppression involved. Some years ago I was personally involved with a special group in an effort to restore the Priore device, when Priore was still alive. Our group obtained a tentative agreement with both the French Government and with the Priore group. The Priore machines were to be rebuilt in Bordeaux, France under the personal supervision of Priore himself. Some of the scientists who had worked with him were still alive, and would have been involved in the project. Our group had some \$16 million support pledged by some wealthy backers to fund the project.

Almost immediately after our group's successful conclusion of the tentative agreements, the lives of all our backers and the lives of their families were threatened. All backing was withdrawn. The leader of our group, a Nashville businessman, came under sustained personal and business attack. He eventually lost almost everything he had, and fled this country for his life. He is still in hiding to this day. Antoine Priore then died and that was that.

The only part of the project that remained was my own grim determination to eventually provide the detailed mechanism by means of which the remarkable Priore therapeutic cures were accomplished. Success has finally been achieved after a decade of unrelenting struggle to completely explain the cause of cancer and the active mechanism by means of which the Priore group obtained such astounding scientific results.

I strongly urge medical science to take a new, hard look_ both theoretically and experimentally _ at the proven anti-cancer results obtained by Antoine Priore and the noted scientists who worked with him. I also strongly point out that new thinking, new theoretical tools, and new experimental instrumentation are needed for that re-examination. In addition I have pointed out the precise nature of the

new thinking, tools, and instrumentation required.

What About Other Diseases Such As AIDS?

The question now arises about other diseases, particularly AIDS. Can the expanded Priore methodology provide equally dramatic cures of dread diseases other than cancer and leukemia? Can it conceivably cure AIDS? The answer is a resounding "Yes!"

Almost all disease conditions are electromagnetic in nature, in the sense of the extended EM bioeffects model we have outlined. The basic methodology of forming a counter-countersignal to a specific disease state can be extended to many other diseases, and to AIDS as well. The "self-targeting" effect in the cellular dedifferentiation induced by the extended EM methods results in a countersignal being produced to the *last major genetic change undergone by the diseased cell*. In the case of an HIV-infected cell, its genetics have been changed (differentiated) from normal to infected. In its internal WZ structure, the strongest resultant signal complex is thus the HIV infection differentiation command. *When pumped by the internal bidirectional WZ wave structure of the applied scalar potential, the "cell-as-a-nonlinear-phase-conjugate-mirror-material" generates a precisely tailored anti-AIDS cellular genetic dedifferentiation signal. The cell thus dedifferentiates back to a normal cell with normal genetics.*

In addition to Priore's work and Becker's results, the remaining experimental foundation for our startling statement on extended-EM reversal of AIDS was established decades ago _ as early as the late 1950s _ by the Soviet researcher Vlail Kaznachev.

Implications of Kaznachev's Experiments

In some 17,000 experiments Kaznachev showed that *any* cellular disease or disorder can be transmitted between cell cultures "electromagnetically" in an unknown fashion. The model we have briefly advanced here, if slightly extended to include the concept of the W/Z structure being a *graviton lattice structure*, is fully capable of explaining Kaznachev's results, the mechanisms, etc. This EM-transmission of disease effect shown by Kaznachev is known as

the *cytopathogenic mirror effect*, and it has been replicated by researchers at the University of Sydney in Australia, at the University of Marburg in Germany, and by at least one researcher in the United States.

In short, what Kaznachev's research showed is that there exists a specific EM signal pattern of some mysterious, not-understood nature that can induce a specific cellular disease in a group of cells absorbing that signal pattern. If we regard the healthy state of the cell as "condition A" and the specific diseased state as "condition B," then specific EM signal pattern C causes the cell to move from condition A to condition B. It immediately follows that an antisignal to C — that is, the phase conjugate of C, which is a time-reversed replica of C — will move the diseased cell from condition B back to condition A, curing the disease. Time reversal of "sickening" is "healing." It follows from Kaznachev's work that (1) a specific signal pattern exists as the causative inductive factor for each specific cellular disease, and (2) a specific "antidote" signal pattern exists as the causative curative factor for that specific disease, the antidote signal being merely the time reversal or phase conjugate replica of the cytopathogenic signal. While Kaznachev never publicly produced the cytopathogenic mechanism, such a mechanism follows from the WZ extension of EM, and the long-term causative disease-induction mechanism I have advanced.

Creating a Specific "EM Antidote" to a Specific Disease

Consider the cumulative EM causes of changes to a cell, including to its genetics, as a serial chain of signals. Indeed, consider them as the layers of an onion, where the outer layer is the most recent. Additional layers may be added to the onion by "time forward" actions, or "differentiation" actions. If we now wish to "peel" the onion, that too is a successive, serial action, accomplished by "phase conjugate" or "time reversal" operations. These result in serial cellular dedifferentiation actions. By treating the cell and its genetics and internal parts as "highly nonlinear material structures and therefore phase conjugate mirror materials," we can "pump" the cell and its parts by bidirectional EM waves to convert the cell to a pumped phase conjugate mirror (PPCM). By orthodox nonlinear phase conjugate optics theory, with a signal wave present, the PPCM cell will emit a precise phase conjugate replica (PCR) wave. If we pump the cell with a complex of pump biwaves, the cell can and will

emit a precise phase conjugate wave complex in response to a complicated signal wave complex input that is present.

For a diseased cell, we regard the disease as a differentiation of the cell, and the primary cause of the differentiation (the EM cytopathogen) as a complex WZ waveset infolded inside the personal quantum potential (in which all the body's cells exist and in whose internal signal dynamics they participate). With the pumped cell as a PPCM, and the EM cytopathogen present as an input signal wave complex to the PPCM, a precise, amplified, "EM antidote" PCR wave-complex is emitted by the parts of the PPCM cell. Each part gets a PCR complex signal order, dedifferentiating that part back the first step. A diseased part steps back to a normal part. A normal part steps back to a normal part. The diseased cell is thus dedifferentiated back to a normal cell with its parts all normal. Because the PCR wave complex is amplified, the dedifferentiation is must faster than was the original dedifferentiation. Thus an HIV-infected cell that has been "dormant" for an extended period can still be dedifferentiated back to a normal cell that is HIV-free.

So a self-targeting counter-countersignal can be automatically "developed" and generated in the body's diseased cells, for each specific cellular disease or disorder condition, or even for a mix of diseases and disorders. This is accomplished by the automatic phase conjugating action of the "cell-as-a-PPCM", when pumped by the hidden EM bidirectional structure of a scalar potential. In practice, Priore did find it necessary to adjust the particular frequency mixes he used for different disease conditions. We hypothesize that this adjustment was necessary to arrive at the proper pump wave complex that would in fact allow the proper PCR wave complex to be emitted for a particular disease type or class. Although photobiologists regularly report mitogenetic radiation emitted by a cell in the optical region, the effects desired in the cells can be produced by a different frequency regime, because of the known phenomena of nonlinear harmonic and subharmonic resonance. Since in a W/Z structure it is the *harmonic intervals and their relative relationships* that are of fundamental importance, the frequency regime of a detected W/Z structure can be shifted either harmonically or subharmonically. Priore, e.g., worked at radar frequencies in the low gigahertz range. For simplicity we may think of the frequency complex as a sort of "musical chord" composed of multiple tones. We may play the same "chord" either on the high scale or a lower scale, and still recognize the tune if the relative frequency interrelationships of the tones are retained.

A Possible Simplification of Priore's Methodology

If we turn away from the classical vector/tensor EM model presently in vogue to a higher topology EM model such as quaternions or Clifford algebra, the extended EM bioeffects model can be mathematized and refined by experiment. For example, Barrett has shown that the nonlinear phase conjugate optics effects can be obtained in ordinary circuits without the use of optical materials, when those circuits are designed and function in accord with a higher topology EM such as quaternions. Thus the circuitry of the EM emission devices themselves can be constructed to perform time-reversal of EM waves, phase conjugate replicas, 4-wave mixing, and pumped phase conjugate mirror effects, without use of normal optical materials or procedures. Priore utilized a plasma in a giant gas-filled tube, in which to mix his 17 frequencies and accomplish (unknown to scientists at the time) phase conjugation. Barrett's work implies that the necessary phase conjugation, and amplification, can be accomplished by purely electromagnetic circuitry, once the functioning of the circuitry is designed and understood in a higher topology algebra such as quaternions or Clifford algebra.

Priore demonstrated cures for diseases other than cancer. Different settings produced cures for sleeping sickness, e.g. Clogging of the arteries was also completely reversed by a variation in the Priore treatment. In addition, Pautrizel working with Priore positively demonstrated the restoration of vigorous, natural functioning to the immune system of the treated animal.

Kaznacheyev's Viral Disease Experiments: Implications for an AIDS Cure

Kaznacheyev has already demonstrated that viral-caused diseases can be induced by purely EM means in cell cultures. What this means is that cellular genetic changes also are electromagnetically induced at root basis. We regard this as a cellular differentiation. But both Becker and Priore have shown that cellular dedifferentiation can also be induced electromagnetically, by the extended scalar EM. It follows that viral-caused diseases _ including AIDS _ can be cured by purely EM means, simply by creating the proper dedifferentiation signal complex in the diseased (differentiated) cell. To determine the

proper disease induction (dedifferentiation) signal pattern for the disease, the disease-inducing signal complex must be phase conjugated, and the phase conjugate replica must be amplified. The phase conjugate replica may be stimulated at the proper frequency regime by a signal complex at a much lower frequency regime. Hence the detectable photobiological optical cytopathogenic signal complexes may have their PCR counterparts stimulated by irradiation with a proper signal complex at a lower frequency regime (e.g., millimeter wave band) for use in treatment

In Conclusion

Again we strongly accent that one must take the "musical" approach: A disease pattern or a curative pattern is a complex of special frequencies and their antiwaves, similar to a musical chord. That same chord can be played in a higher or lower key, and the body will still determine the correct relationships by harmonic or subharmonic oscillation. It will still recognize the "melody" and its background chordal accompaniment; although the *individual* frequencies have changed, their *relative* relationships have not changed.

All biochemistry, genetics, and cellular effects are subject to affectation and control by proper manipulation of the W/Z structures inside scalar EM potentials. We have stated that the living organism already utilizes the internal EM structuring for mind, thought, and long-term memory, as well as the master level cellular control system we have accented. For the first time, the "software" and "firmware" of the mind appears to be directly available, something which has never before existed in science. The model advanced in my work is intended to point the way toward such use in medical science on a substantial scale, to achieve healthier, more effective, and far cheaper treatments for many of our desperate diseases that presently require costly, protracted treatments, often harsh and debilitating in and of themselves. We strongly believe that, given the direct attention of the scientific community and proper funding support, near-total, quick, and very economical cures can be developed for such dread diseases as cancer, leukemia, and AIDS. We point out also that the Priore team demonstrated cure of sleeping sickness in lab animals, as well as the direct unclogging of arteries and other blood vessels.

We also strongly accent the "self-targeting" feature when the

diseased cell is "pumped" as a phase conjugate mirror material by the internal WZ biwave structure of an artificially-structured scalar EM potential. The cytopathogenic disease-induction signal complex is present in the cell and all its parts. By varying the frequencies in the internal biwave structure of the pumping potential, and hence in the pumping of the cell-as-a-PPCM, the cell is enabled to produce from and into all its parts the proper phase conjugate replica wave complex for its specific cellular disease. *Hence it produces a specific electromagnetic antidote for its own specific disease condition.* We need only adjust the frequency content of the artificial potential until the proper PCR signal complex is produced. Further, that PCR wave complex is amplified because of the pumping. Therefore the "treatment time" can be very short, and need not be anywhere near as long as the time originally required for the cytopathogenic EM signal complex to cumulate.

Today a variety of dread diseases continue to plague humankind. Untold millions of persons are suffering and dying, when the beginning of an effective, quick, inexpensive therapeutic approach capable of essentially 100% cures of cancer, leukemia, and other diseases has been demonstrated more than two decades ago.

With the exposition of the fundamental mechanism for this new therapeutic approach, perhaps the scientific community will return with renewed vigor to develop this promising area and alleviate the death and suffering so widespread today.

LIST OF KEY REFERENCES

Aharonov, Y. and D. Bohm. (1959) "Significance of Electromagnetic Potentials in the Quantum Theory," Physical Review. Second Series, Vol. 115, No. 3, p. 458-491.

Aitchison, I.J.R. (1985) "Nothing's plenty: the vacuum in modern field theory." Contemporary Physics, 26(4), p. 333-391.

Amato, Ivan. (1992) "A New Blueprint for Water's Architecture," Science, Vol. 256, Jun. 26, p. 1764.

Barrett, Terrence W. (1990a) "Maxwell's Theory Extended (Part 1)," Annales de la Fondation Louis de Broglie, Vol. 15, No. 2, p. 143-183.

Barrett, Terrence W. (1990b) "Maxwell's Theory Extended (Part 2," Annales de la Fondation Louis de Broglie, Vol. 15, No. 3, p. 253-283.

Barrett, T.W. (1991) "Tesla's Nonlinear Oscillator-Shuttle-Circuit (OSC) Theory," Annales de la Fondation Louis de Broglie, Vol. 16, No. 1, p. 2341.

Barrett, Terrence W. (1992) "Electromagnetic Phenomena Not Explained by Maxwell's Equations," Annales de la Fondation Louis de Broglie [in publication].

Barus, Carl. (1898) "A Curious Inversion in the Wave Mechanism of the Electromagnetic Theory of Light," American Journal of Science, Vol. 5, Fourth Series, p. 343-348.

Bearden, T. E. (1988) "Maxwell's Original Quaternion Theory Was a Unified Field Theory of Electromagnetics and Gravitation," Proceedings of the International Tesla Symposium, Colorado Springs, Colorado.

Bearden, T.E. (1990) A Proposed Mechanism for Noyes' Power Technology, Assoc. Dist. Am. Sci., Huntsville, Alabama.

Bearden, T. E. and Walter Rosenthal. (1991a) "On a Testable Unification of Electromagnetics, General Relativity, and Quantum Mechanics," Proceedings of the 26th Intersociety Energy Conversion Engineering Conference (IECEC '91), Boston, Massachusetts, p. 487492. Also distributed over Internet.

Bearden, T. E. (1991b) Gravitobiology, Tesla Book Co., 1417 Second St, Suite H-102, Coronado, California 92118.

Bearden, T. E. (1992a) "A Redefinition of the Energy Ansatz, Leading to a Fundamentally New Class of Nuclear Interactions," Proceedings of the 27th Intersociety Energy Conversion Engineering Conference (IECEC '92), Town & Country Hotel Convention Center, San Diego, California, p. 4.3034.310.

Bearden, T.E. (1992b) An Interpretation of Whittaker's Harmonic Biwave Decomposition of the Scalar Potential. and His Replacement of Orthodox EM Forcefield Waves by Scalar Potential Interferometry, Assoc. Dist. Am. Sci., Huntsville,

Alabama. [In publication].

Bearden, T.E. (1992c) EM Cytopathogenic and EM Healing Transmissions, Assoc. Dist. Am. Sci., POB 1472, Huntsville, Alabama 35807.

Bearden, T.E. (1992d) Background for Pursuing Scalar Electromagnetics, Assoc. Dist. Am. Sci., POB 1472, Huntsville, Alabama 35807. Distributed over Internet.

Bearden, T.E. (1992e) On the Unresolved Health Issues in Power Line Radiation and EM Fields and Radiation: A Fundamental New Approach, Assoc. Dist. Am. Sci., POB 1472, Huntsville, Alabama 35807.

Bearden, T.E. (1993a) "The Final Secret of Free Energy," Assoc. Dist. Am. Sci., POB 1472, Huntsville, Alabama 35807. Distributed over Internet.

Bearden, T.E. (1993b) "Mechanism for Long-Term Cumulative Biological Effects of EM Radiation," Presented to the 70th Annual Meeting of the Alabama Academy of Science, University of Alabama at Huntsville, March 25, 1993.

Becker, Robert and Gary Selden. (1985) The Body Electric, William Morrow and Company, New York.

Belyaev, B.N. (1980) "On Random Fluctuations of the Velocity of Light in Vacuum." Izvestiya Vysshikh Uchebnykh Zavendin. Fiyska (11). Nov. 1980. p. 3742. [In Russian]

Besancon, Robert M., Ed. (1974). The Encyclopedia of Physics, 2nd Edn., Van Nostrand and Reinhold, New York, p. 729-731.

Bird, Christopher. (1988) "The Case of Antoine Priore and His Therapeutic Machine: A Scandal in the Politics of Science," Appendix I in T.E. Bearden, AIDS: Biological Warfare, Tesla Book Co., Chula Vista, California.

Bohm, David. (1952) Physical Review, Vol. 85, p. 166, 180.

Bohm, David. (1980) Wholeness and the Implicate Order,

Routledge & Kegan Paul, Ltd., London.

Boyer, Timothy H. (1975) "Random electrodynamics: the theory of classical electrodynamics with classical electromagnetic zero-point radiation." Physical Review D. Particles and Fields. Series 32. 11(4). February 15, 1975. p. 790-808.

Boyer, Timothy H. (1985) "The Classical Vacuum." Scientific American. Aug. 1985.

Casimir, H.B.G. (1953) "Introductory results in quantum electrodynamics." Physics (19). p. 846-849.

Davies, Paul C.W. (1982) "Something for Nothing." New Scientist. 94(1307). May 27, 1982. p. 580-582.

Dirac, P.A.M. (1930) "A theory of electrons and protons." Proceedings of the Royal Society of London. Series A. 126(801). Jan. 1, 1930. p. 360-365.

Elyntin, P.V. (1988) "The Quantum Chaos Problem," Sov. Phys. Usp., Vol. 31, No. 7, p. 597-622

Feynman, Richard P., Robert B. Leighton and Matthew Sands. (1963) The Feynman Lectures on Physics, Addison-Wesley, New York, Vol. I.

Fulcher, Lewis P., Johann Rafelske, and Abraham Klein. (1979). "The decay of the vacuum." Scientific American. 241(6). December, 1979. p. 150-159.

Graham, G.M. and d.G. OLahoz. (1980) "Observation of static electromagnetic momentum in vacuo." Nature. 285(5761). May 1980. p. 154-5.

Greenberg, Jack S. and Walter Grenier. (1982) "Search for the sparking of the vacuum." Physics Today. August, 1982. p. 24-32.

Hiley, B.J. and F. David Peat. (1987) "General Introduction: The Development of David Bohm's Ideas From the Plasma to the Implicate Order," B.J. Hitey and F. David Peat, Eds. Quantum Implications: Essays in Honour of David Bohm, Routledge & Kegan Paul, London.

Hsue, C.W. (1993) "A DC Voltage is Equivalent to Two Traveling Waves on a Lossless Nonuniform Transmission Line," IEEE Microwave and Guided Wave Letters, Vol. 3, p. 82-84.

Ignatovich, V.K. (1989) "The Remarkable Capabilities of Recursive Relations," American Journal of Physics, Vol. 57, No. 10, p. 873-878.

Jackiw, R. and J.R. Schrieffer. (1981) "The decay of the vacuum." Nuclear Physics B. Vol. 190. p. 944.

Jackson, J.D. (1975) Classical Electrodynamics, 2nd Edn., John Wiley & Sons, New York.

Kaznachev, V.I. and L.P. Mikhailova. (1981) Ultraweak Radiation in Intercellular Interactions, [in Russian], Novosibirsk.

Kaznachev, V.I. (1982) "Electromagnetic Bioinformation in Intercellular Interactions," Psi Research, p. 47-76.

Kervran, Louis. (1982) Transmutations a Faible Energie (Naturelles et Biologiques), Maloine S.A., Paris.

Kidd, Richard et al. (1989) "Evolution of the Modern Photon," American Journal of Physics Vol. 57, No. 1, p. 27-35.

Lee, T.D. (1981) Particle Physics and Introduction to Field Theory, Harwood, New York Chapter 25: Outlook, "Possibility of Vacuum Engineering," p. 824-828.

Lindsay, Robert Bruce and Henry Margenau. (1963) Foundations of Physics, Dover Publications, New York.

Maxwell, James Clerk. (1873) A Treatise on Electricity and Magnetism, Oxford University Press, Oxford.

Misner, W., K.S. Thorne and J.A. Wheeler. (1973) Gravitation, W. H. Freeman and Co., San Francisco, p. 399; 1191.

Ohno, M. and K. Takagi. (1992) "Schlieren Visualization of Acoustic Phase Conjugate Waves Generated by Nonlinear Electroacoustic Interaction in LiNbO₃," Applied Physics Letters, Vol. 60, No. 1, p. 29-31.

Pool Robert. (1989) "Quantum Chaos: Enigma Wrapped in a Mystery," Science, Vol. 243, p. 893 - 895.

Popp, Fritz Albert. (1979) "Photon Storage in Biological Systems," in Fritz Albert Popp et al, eds., Electromagnetic Bio-Information: Proceedings of the Symposium. Marburg. Federal Republic of Germany. Sep. 5. 1977; Urban & Schwarzenberg, Baltimore, p. 123-149.

Prange, Richard E. and Peter Strance (1984) "The superconducting vacuum" American Journal of Physics . 52(1). January 984. p. 19 - 21.

Puthoff, Harold E. (1987) "Ground State of Hydrogen as a Zero-Point-Fluctuation-Determined State." Physical Review D. 35(10). May 15, 1987. p. 3266-3269.

Puthoff, Harold E (1989a) "Gravity as a Zero-Point-Fluctuation Force " Physical Review A.39(5). March 1, 1989. p. 2333 - 2342.

Puthoff, Harold E. (1989b) "Source of Vacuum Electromagnetic Zero-Point Energy, Physical Review A.40(9). p. 4857 - 4862.

Puthoff, Harold E. (1991) "The energetic vacuum: implications for energy research." Speculations in Science and Technology. 13(3). p. 247-257.

Rorvik, David M. (1975) "Do the French Have a Cure for Cancer?" Esquire, July 1975, p.110-11, 142-147.

Sachs, Robert G. (1987) The Physics of Time Reversal, University of Chicago Press, Chicago, Illinois.

Sakharov, A.D. (1968) "Vacuum Quantum Fluctuations in Curved Space and the Theory of Gravitation," Sov. Phys. Dokl., Vol. 12, p. 1040.

Schwarzschild, Bertram. (1986) "Currents in Normal-metal Rings Exhibit Aharonov-Bohm Effect," Physics Today, Vol. 39, No. 1, p. 17-20.

Sheldrake, Rupert. (1981) A New Science of Life: The Hypothesis of Formative Causation, Blond & Briggs, Ltd., U.S. reprint, J.P.

Tarcher, Inc., Los Angeles, 1982.

Stoney, G. J. (1897) "XLVIII. On a Supposed Proof of a Theorem in Wave•motion, To the Editors of the Philosophical Magazine," Philosoph. Magazine, 5(43), p. 368-373.

Strand, J. (1986) "Photons in Introductory Quantum Physics," American Journal of Physics. Vol. 54, No. 7, p. 650-652.

Sweet, Floyd and T. E. Bearden. (1991) "Utilizing Scalar Electromagnetics to Tap Vacuum Energy,~ Proceedings of the 26th Intersociety Energy Conversion Engineering Conference (IECEC '91), Boston, Massachusetts, p. 370-375. Distributed over Internet.

Tesla, Nikola. (1932) "Pioneer Radio Engineer Gives Views on Power," New York Herald Tribune, Sep. 11, 1932.

Thompson, Mark. (1989) "Mixed Signals May Have Misguided U.S. Weapons," The Washington Post, Jan. 22, 1989, p. A4.

Wheeler, John archibals. (1968) "Superspace and the nature of quantum geometrodynamics." In: Topics in Non-linear Physics, Edited by Normal J. Zabusky. Springer-Verlag. 1968. p. 642.

Whittaker, E.T. (1903) "On the Partial Differential Equations of Mathematical Physics," Mathematische Annalen, Vol. 57, p. 333-355.

Whittaker, E.T. (1904) "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," Proceedings of the London Mathematical Society, Series 2, Vol. 1, p. 367-372.

Ziolkowski, Richard W. (1985) "Exact Solutions of the Wave Equation With Complex Source Locations," Journal of Mathematical Physics, Vol. 26, p. 861.

Ziolkowski, Richard W. (1989a) "Localized Transmission of Wave Energy," Proc. SPIE. Vol. 1061. Microwave and Particle Beam Sources and Directed Energy Concepts. p. 396-397.

Ziolkowski, Richard W. (1989b) "Localized Transmission of Electromagnetic Energy," Physical Review A, Vol. 39, p. 2005.

Ziolkowski, Richard W. (1989c) "Localized Transmission of Wave Energy," Proc. SPIE. Vol. 1061. Microwave and Particle Beam Sources and Directed Energy Concepts. p. 396-397.

Ziolkowski, Richard W. (1992a) "Localized Wave Transmission Physics and Engineering," Physical Review A (in Press).

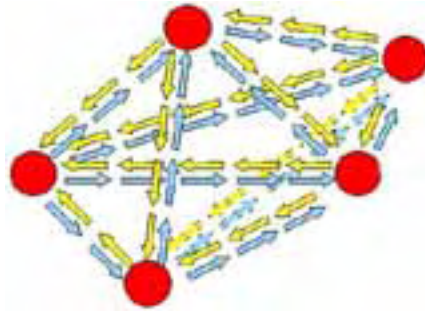
Ziolkowski, Richard W. (1992c) "Properties of Electromagnetic Beams Generated by Ultra-Wide Bandwidth Pulse-Driven Arrays," IEEE Trans. Ant. Prop. (Submitted).

Ziolkowski, Richard W., Amr M. Shaarawi, and Ioannis M. Besieris. (1989) Nuclear Physics B (Proc. Suppl.), Vol. 6, p. 255-258.

Ziolkowski, R. W. and Lewis, D.K. (1990) "Verification of the Localized Wave Transmission Effect," Journal of Applied Physics, Vol. 68, p. 6083.

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CANCER AND THE UNRESOLVED HEALTH ISSUES IN THE BIOLOGICAL EFFECTS OF EM FIELDS AND RADIATIONS

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MECHANISM FOR LONG-TERM, CUMULATIVE BIOLOGICAL EFFECTS OF EM FIELDS AND RADIATION

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EINSTEIN ON REVIEWING FOUNDATIONS

"...the scientist makes use of a whole arsenal of concepts which he imbibed practically with his mother's milk; and seldom if ever is he aware of the eternally problematic character of his concepts. He uses this conceptual material, or, speaking more exactly, these conceptual tools of thought, as something obviously, immutably given; something having an objective value of truth which is hardly even, and in any case not seriously, to be doubted. ...in the interests of science it is necessary over and over again to engage in the critique of these fundamental concepts, in order that we may not unconsciously be ruled by them."



Albert Einstein, "Foreword," in Max Jammer, Concepts of Space: The History of the Theories of Space in Physics, Harvard University Press, Cambridge, Massachusetts, 1969, p. xi-xii.

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SOME PROBLEMS IN ELECTROMAGNETICS FOUNDATIONS

- NOTION OF FORCEFIELD
- NATURE OF THE VACUUM
- NATURE OF ELECTRICAL CHARGE
- NOTION OF POTENTIAL
- NOTION OF ENERGY
- NOTION OF QUANTIZED ELECTRICAL CHARGE
- NOTION OF TIME
- CONSIDERED MUTUALLY EXCLUSIVE TO GRAVITY
- FRAME VERSUS SPACETIME
- CLOSED SYSTEM ASSUMPTION
- TOPOLOGY AND DIMENSIONALITY OF THE MODEL'S MATHEMATICS
- UNDEFINED, OR IMPROPERLY DEFINED, CONCEPTS

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NOTIONS IN THE CONCEPT OF THE POTENTIAL

- **CONCEPT OF THE POTENTIAL HAS DEVELOPED AS SEVERAL FUNDAMENTAL NOTIONS:**
 - **AS THE "INTERNAL" STORAGE OF ENERGY IN SOME FASHION**
 - **AS A POINT-VALUE FUNCTION IN 3-SPACE**
 - **AS A SCALAR FUNCTION WHOSE SPACE RATE OF CHANGE YIELDS A VECTOR FORCE**
- **THE ENERGY STORAGE MECHANISM IS QUITE UNKNOWN.**
- **NO THOUGHT HAS BEEN GIVEN TO SIMULTANEOUSLY DEFINING IT AS HAVING A HYPERSPATIAL WAVE SET COMPOSITION.**
- **THE THIRD NOTION EFFECTIVELY MAKES ALL FORCES LOCAL A PRIORI, AND EXCLUDES ACTION AT A DISTANCE BY POSTULATION.**
- **THE THIRD NOTION IS KNOWN TO BE INCORRECT. THE GRADIENT OF A POTENTIAL DOES NOT PRODUCE A FORCE UNTIL A MASS IS PRESENT, TO WHICH THE GRADIENT COUPLES.**

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Founders of Scalar Electromagnetics

■ G.J. Stoney:

Decomposed the scalar potential into bidirectional wave pairs.

"On a supposed proof of a theorem in wave-motion," Phil. Mag., 5(43), 1897, p. 368-373 (and several other papers).

■ E.T. Whittaker:

Decomposed the scalar potential into a series of bidirectional EM wave pairs in harmonic series, where the two waves in each pair are conjugates (i.e., a wave/antiwave pair) and are longitudinal waves.

"On the partial differential equations of mathematical physics," Math. Ann., Vol. 57, 1903, p. 333-355.

Showed that all classical EM -- including waves -- can be replaced by two interfering scalar potential functions.. (This founded superpotential theory, extended by Nisbet, Bromwich, Debye, McCrea, and others.)

"On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," Proc. Lond. Math. Soc., Series 2, Vol. 1, 1904, p. 367-372.

■ R.W. Ziolkowski:

Independently rediscovered the biwave decomposition of the scalar potential and added the product set (in theory enabling modulations and communications) to Stoney and Whittaker's sum set.

Various papers, 1985 to date.

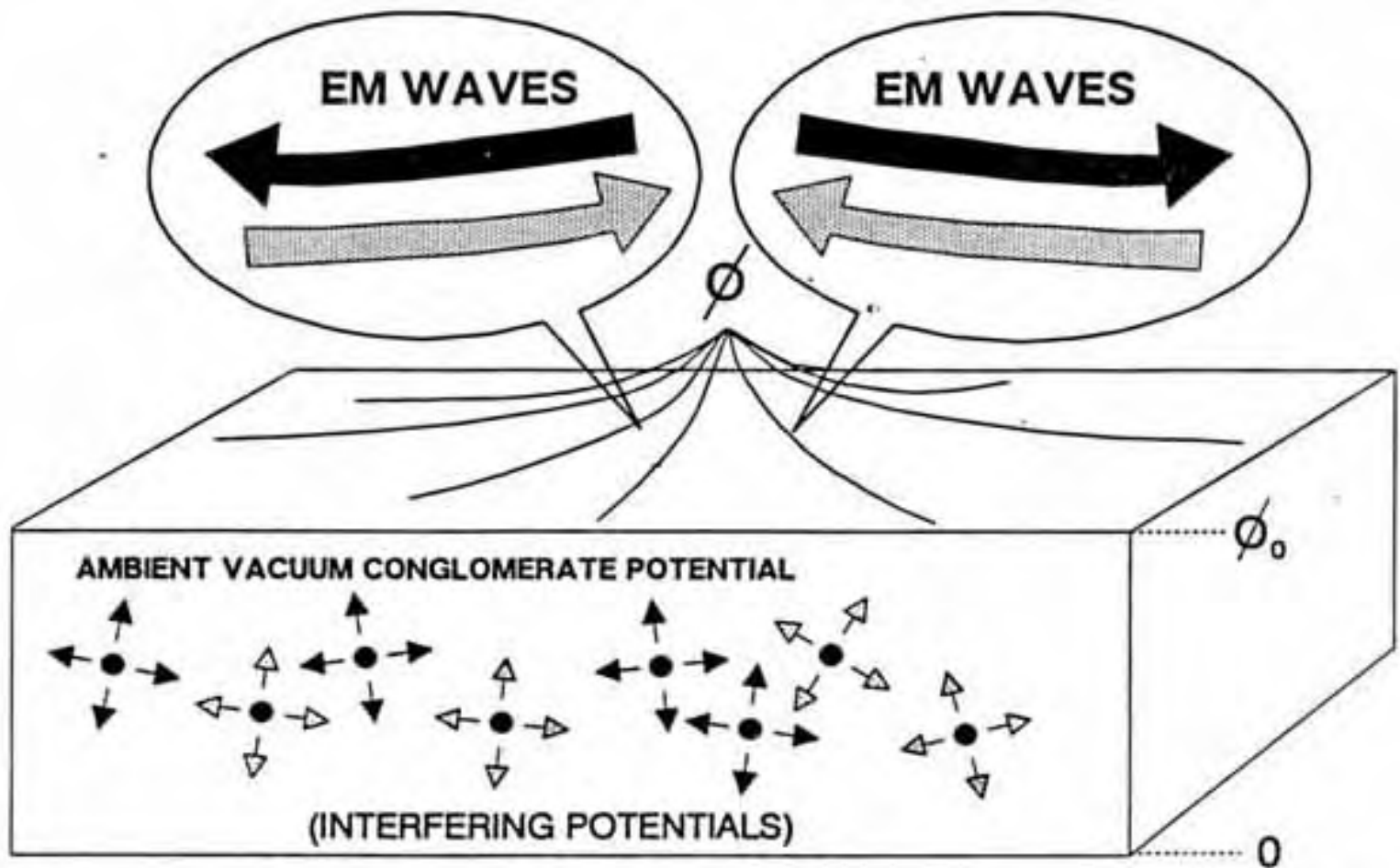
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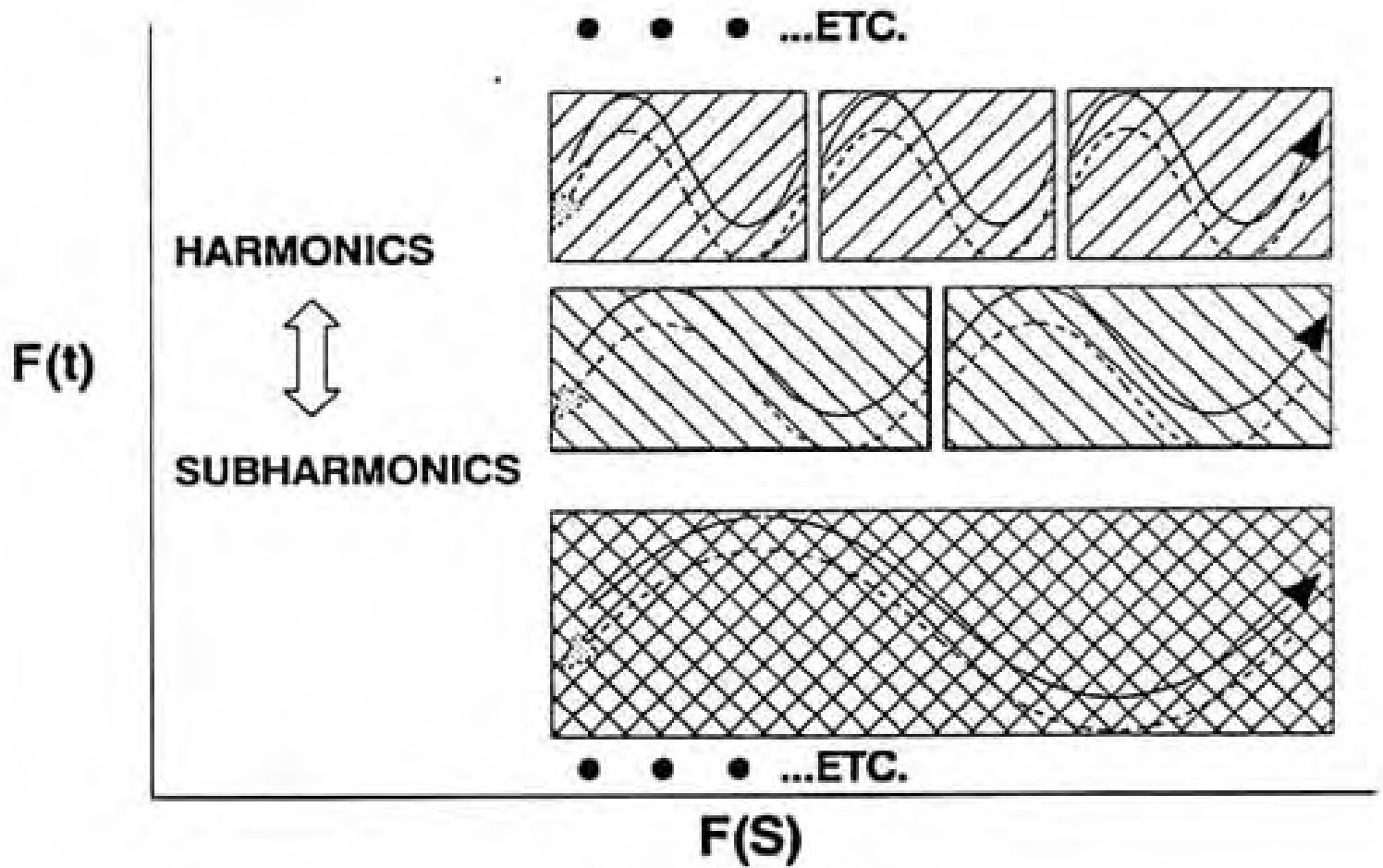
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INNER EM WAVES OF A SCALAR POTENTIAL



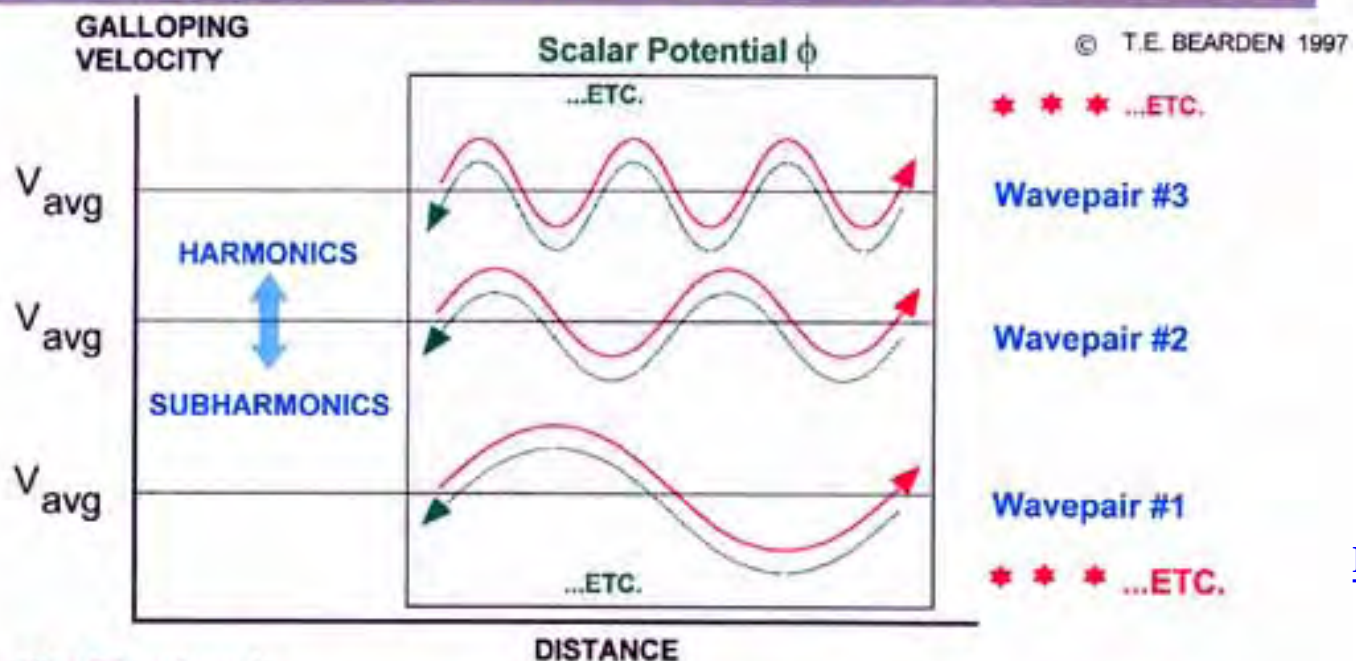
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GRAVITON/WHITTAKER LATTICE STRUCTURE OF THE SCALAR POTENTIAL



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Infolded longitudinal EM biwave composition of a scalar potential



The Structure Is:

A harmonic set of longitudinal EM wavepairs. In each wavepair the two waves superpose spatially, but travel in opposite directions. The two are phase conjugates and time-reversed replicas of each other. Thus they comprise a coupled longitudinal wave and antiwave. The photons must be coupled into photon/antiphoton pairs (gravitons) by a strong application of the distortion correction theorem of nonlinear optics. Each wave in the biwave pair is a galloping wave. Each wavepair is a standing electrogravitational wave. In nonlinear optics, such a wavepair is a pump wave which pumps in the time domain.

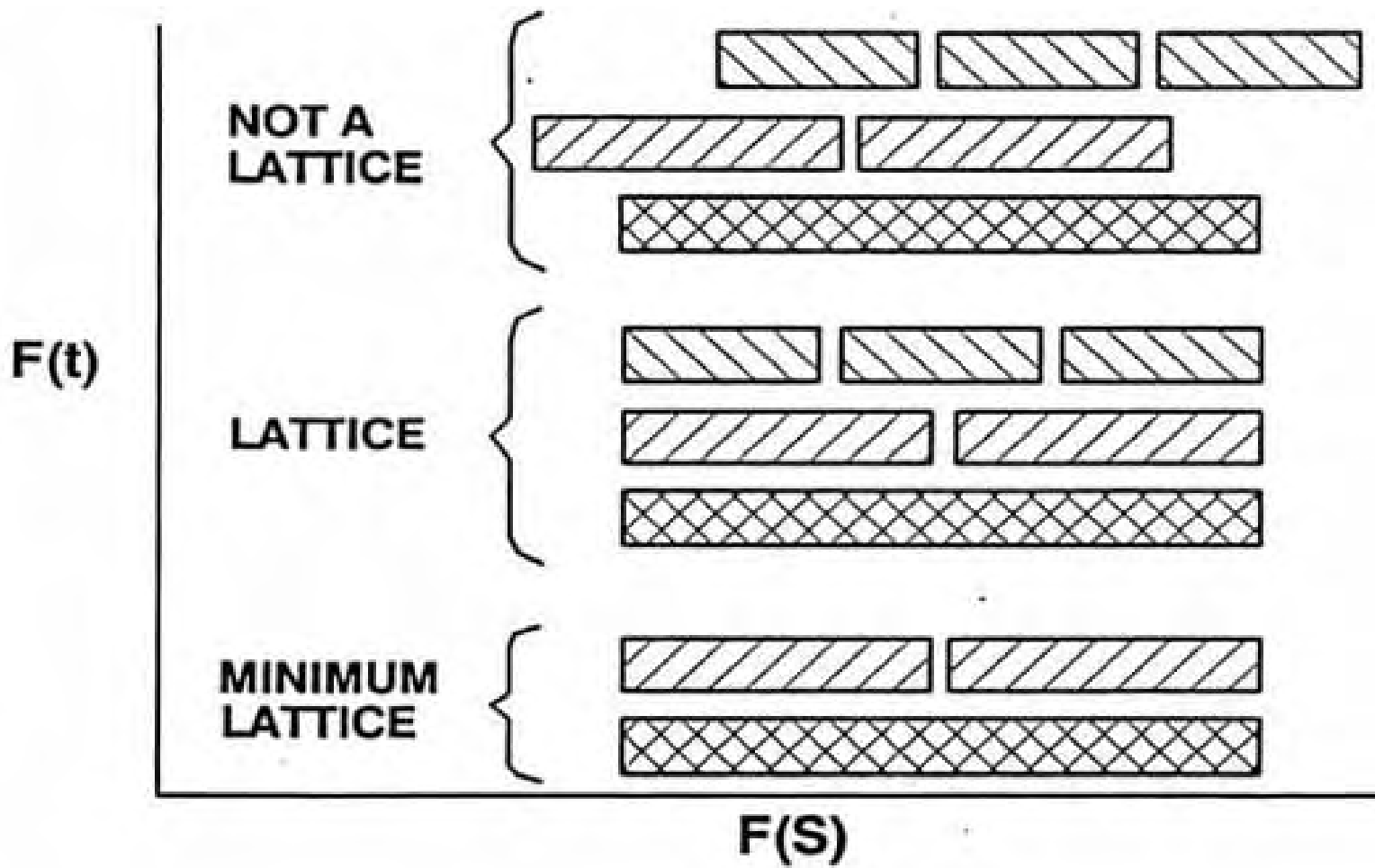
Note: Think of the oscillations as velocity modulations.

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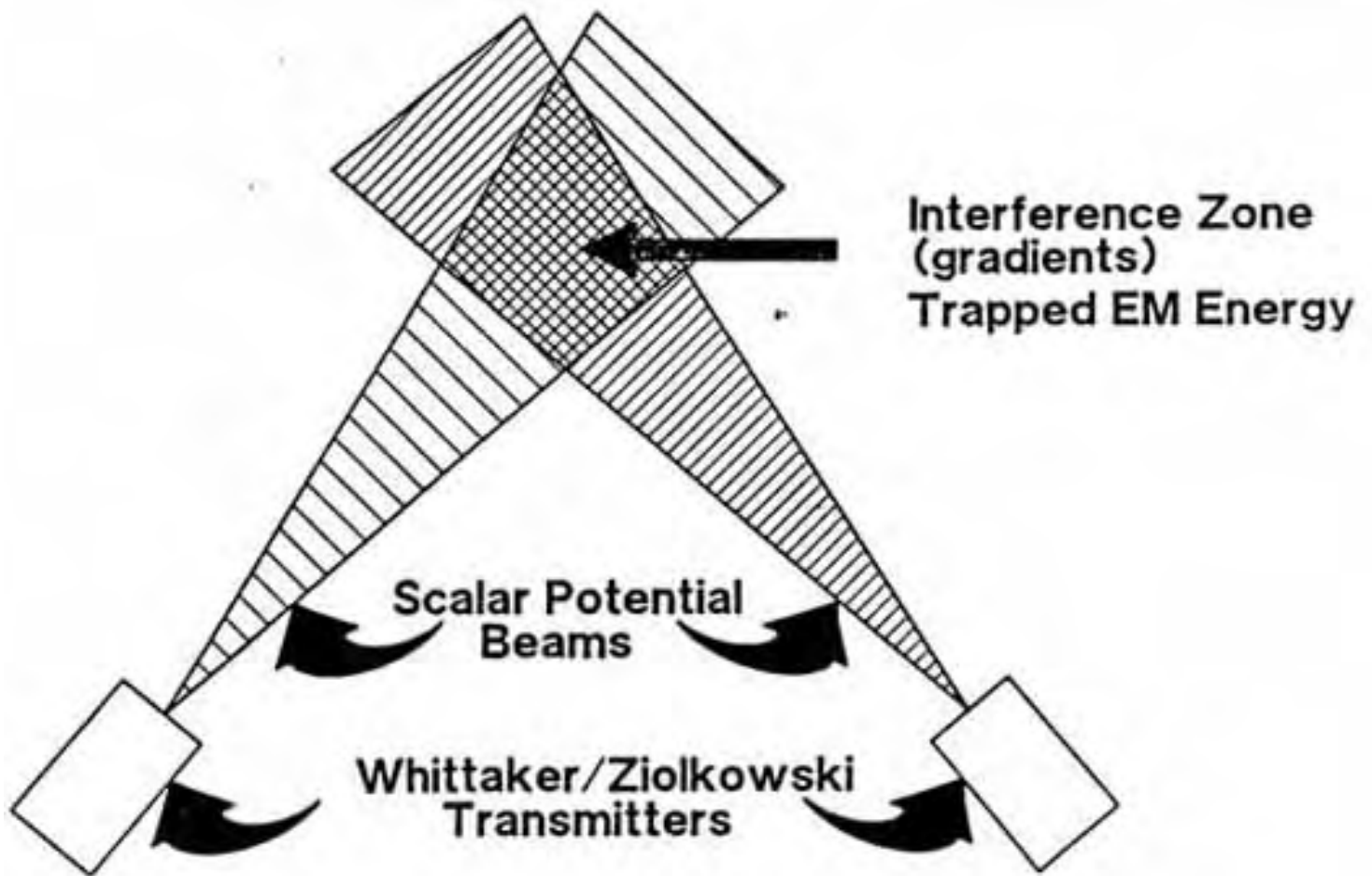
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LATTICE AND NONLATTICE GRAVITONS

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SCALAR EM POTENTIAL INTERFEROMETRY



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SCALAR POTENTIAL INTERFEROMETRY

- Between two scalar potentials, **interferometry** is:
 - Interference of the multi-wave sets in hyperspace.
 - Production of gradients in the 3-space point values
 - In the classical (erroneous) postulation, the creation of forces in 3-space.
 - > Force does not exist until the gradient couples to an observable mass.
 - > There are no E-fields and B-fields as such in the massless vacuum, but only potential gradients.

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SOME PROBLEMS IN FOUNDATIONS OF GENERAL RELATIVITY

- **EINSTEIN'S FLAT LOCAL SPACETIME POSTULATE**
- **ONLY CONSIDERS THE VERY WEAK G-FORCE AS AN AGENT FOR SPACETIME CURVATURE**
- **EXCLUDES UNION WITH EM FIELD**
- **EXCLUDES ACTION-AT-A-DISTANCE, WHICH IS REQUIRED BY QUANTUM MECHANICS, AND PROVEN**
- **EXCLUDES UNION WITH QUANTUM MECHANICS**
- **SPECIFICALLY EXCLUDES ELECTROGRAVITATION**
- ***IS ESSENTIALLY NOT AN EXPERIMENTAL SCIENCE***

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SOME PROBLEMS IN FOUNDATIONS OF QUANTUM MECHANICS

- **EXCLUDES CHAOS (HIDDEN ORDER), AND THIS IS KNOWN TO BE IN ERROR**
- **ORDERED MACROREALITY CANNOT EMERGE FROM INTEGRATING DISORDERED (RANDOM) CHANGES**
- **USES RANDOM-VARIABLE STATISTICS FROM GIBBS THERMODYNAMICS**
- **NOTION THAT QUANTUM CHANGE - HENCE ROOTS OF PHYSICAL REALITY - CANNOT BE ENGINEERED**
- **REQUIRES ACTION-AT-A-DISTANCE EFFECTS**
- **CONTRADICTS CLASSICAL MECHANICS, GENERAL RELATIVITY, AND CLASSICAL ELECTROMAGNETICS**

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PHYSICS DISCIPLINES ARE PRESENTLY INCONSISTENT

	GENERAL RELATIVITY (GR)	
QUANTUM MECHANICS (QM)	???	CLASSICAL EM THEORY
	MIND & SUBTLE ENERGY	

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**THE PRESENT
EM, GR AND QM
ARE SUBSETS,
EACH OMITS THE
WHITTAKER
INTERNAL EM.**

A
PRESENT EM

**(EXTERNALIZED
ASPECTS OF
POTENTIALS)**

B
EXCLUDED EM

**(INTERNALIZED
ASPECTS OF
POTENTIALS)**

A
PRESENT GR

**(DISTANT
SPACETIME
CURVATURE)
(LOCAL
ACTION)**

B
**EXCLUDED
GR**

**(LOCAL
SPACETIME
CURVATURE)
(ACTION AT
A
DISTANCE)**

A
PRESENT QM

**(EXTERNALIZED
STRUCTURE OF
POTENTIALS)**

B
EXCLUDED QM

**(INTERNALIZED
STRUCTURE OF
POTENTIALS)
(CHAOS)**

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UNIFIED FIELD SECRET: APPLY WHITTAKER THEORY

	GENERAL RELATIVITY (GR)	
QUANTUM MECHANICS (QM)	APPLY WHITTAKER THEORY	CLASSICAL EM THEORY
	MIND & SUBTLE ENERGY	

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PRESENT DEFINITION OF "ENERGY" IS ERRONEOUS

- **PRESENT: "ENERGY IS THE CAPACITY TO DO WORK."**
- **ACTUALLY, WORK IS THE SCATTERING (DISSIPATION) OF ENERGY.**
- **THE PRESENT DEFINITION STATES THAT "ENERGY IS THE CAPACITY TO DO SCATTERING OF ENERGY."**
- **ENERGY CAN BE SCATTERED, YIELDING WORK. BUT THE CAPACITY TO PERFORM THAT SCATTERING IS NOT ENERGY! (E.G., IT MAY BE RESISTANCE.)**
- **COMPARE TO: "A FISHHOOK IS THE CAPACITY TO CATCH FISH."**
- **ACTUALLY, A FISHHOOK IS A BENT WIRE WITH A BARB. IT HAS THE CAPACITY TO CATCH FISH (GIVEN OTHER CONDITIONS). BUT THE CAPACITY TO CATCH FISH IS NOT WHAT IT IS.**

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SOME NEW DEFINITIONS

- **QUANTUM MECHANICAL VACUUM** - an intense flux of virtual particles, filling the "emptiness" of spacetime/vacuum.
- **ENERGY** - any ordering, either static or dynamic, in the virtual particle flux of vacuum.
- **EM ENERGY** - any ordering, either static or dynamic, in the virtual photon flux of vacuum
- **WORK** - the local scattering of energy; the local disordering of the order in the VPF.

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DEFINITIONS (CONTINUED)

- **POTENTIAL** - any ordering, either static or dynamic or combination, in the VPF of vacuum
 - same definition as energy
 - must have internal order, hence structure
- **SCALAR POTENTIAL** - any static ordering in the VPF of vacuum, with respect of the external observer
- **VECTOR POTENTIAL** - any dynamic (non-stationary) ordering in the VPF of vacuum.
 - must have internal order, hence structure

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DEFINITIONS (CONTINUED)

- **Electrostatic Scalar Potential** - any static (stationary) ordering in the virtual photon flux of vacuum.
 - Whittaker decomposed the ESP into bidirectional EM wavepairs in a harmonic structure.
 - We interpret the wavepair set as existing in hyperspace (in hyper-3-space).
- Thus the ESP is a 3-space point function, and a hyper-3-space vector function, in 7-space.
- In Hyper-3-space, the ESP is an ordering established throughout the universe.

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ELECTRIC CHARGE, OPEN SYSTEM

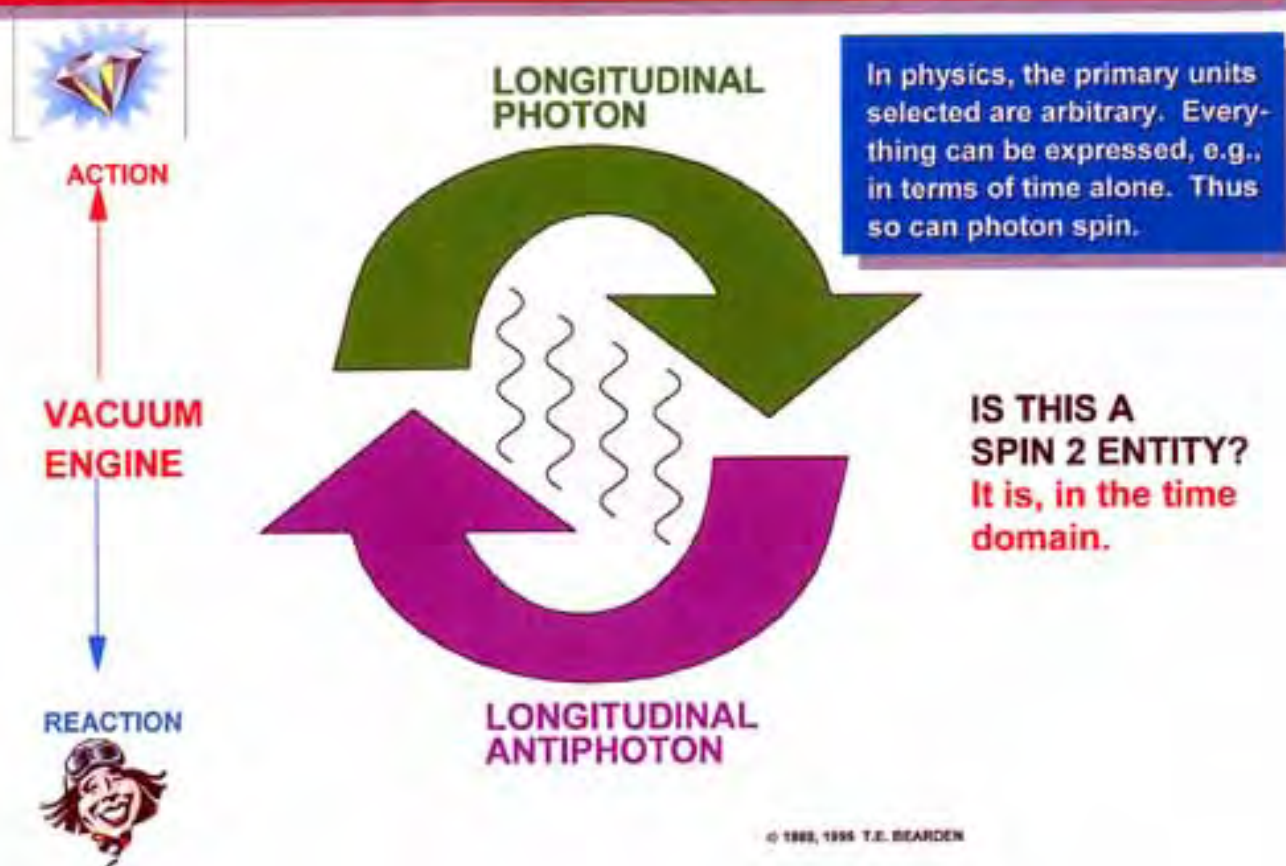
- The *electric charge* of a charged particle is due to a violent exchange of virtual photons between the charged particle and the local vacuum VPF
 - photons continually absorbed from the vacuum
 - photons continually radiated back to the vacuum
 - this exchange flux is what electric charge *IS*.
- In the nucleus, everything is changing into everything, so to speak. It is a furious, *VPF-driven* cauldron.
- the nucleus is an open, driven system, normally in equilibrium with respect to VPF input and output.

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The Graviton Is a Coupled Photon/Antiphoton Pair (Both photon and antiphoton are longitudinal)



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PHOTON INTERACTION IS USUALLY GRAVITON INTERACTION

- Graviton interaction is a photon/antiphoton interaction
- Photon interacts with electron shells
 - Scattering produces the entropic (forward) flow of time
 - Produces electron translation in our detectors
- Antiphoton interacts with nucleus primarily
 - produces nuclear recoil
 - produces Newton's third law of motion

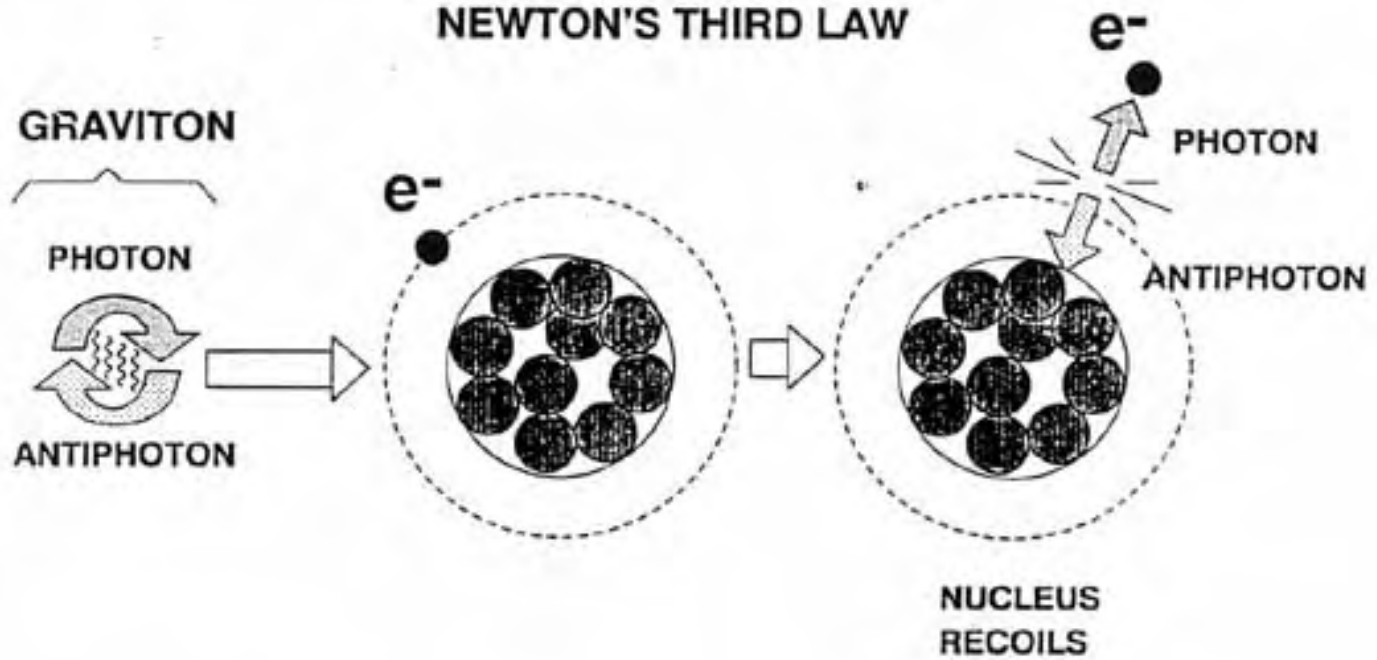
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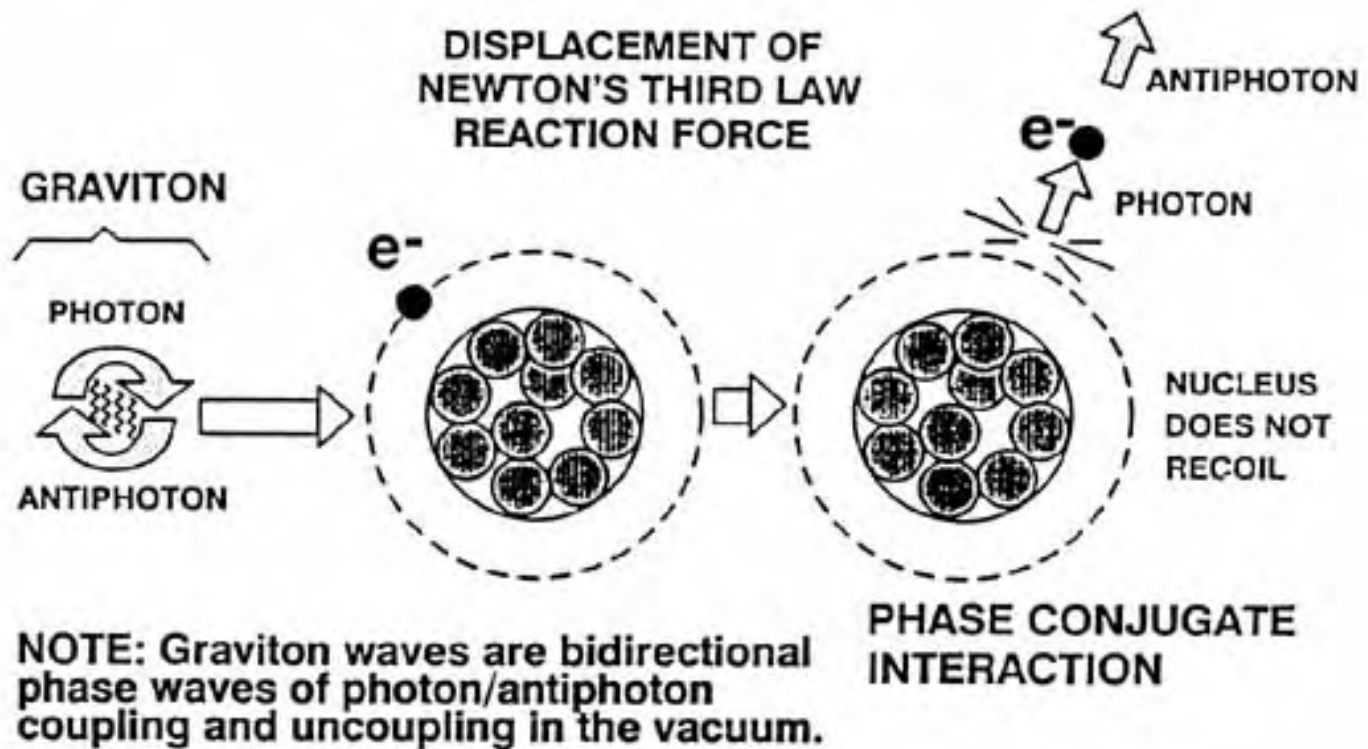
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PHOTON INTERACTION WITH THE MATERIAL ATOM

MECHANISM FOR NEWTON'S THIRD LAW

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PHOTON PHASE CONJUGATE INTERACTION WITH AN ATOM

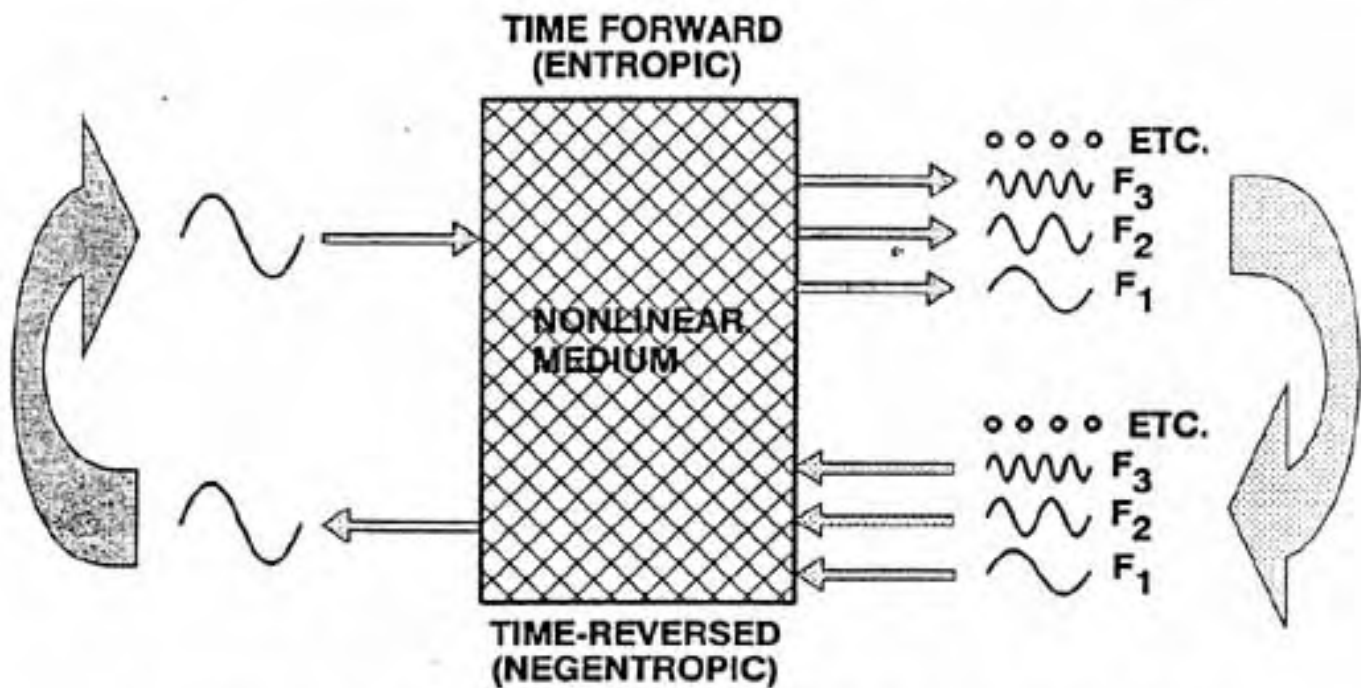


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NONLINEAR MATERIAL AND TIME-DOMAIN RESONANCE



GROUPS OF RESONATORS ENTRAINED IN TIME AND SPACE
(MAY ENABLE SELF-OSCILLATION)

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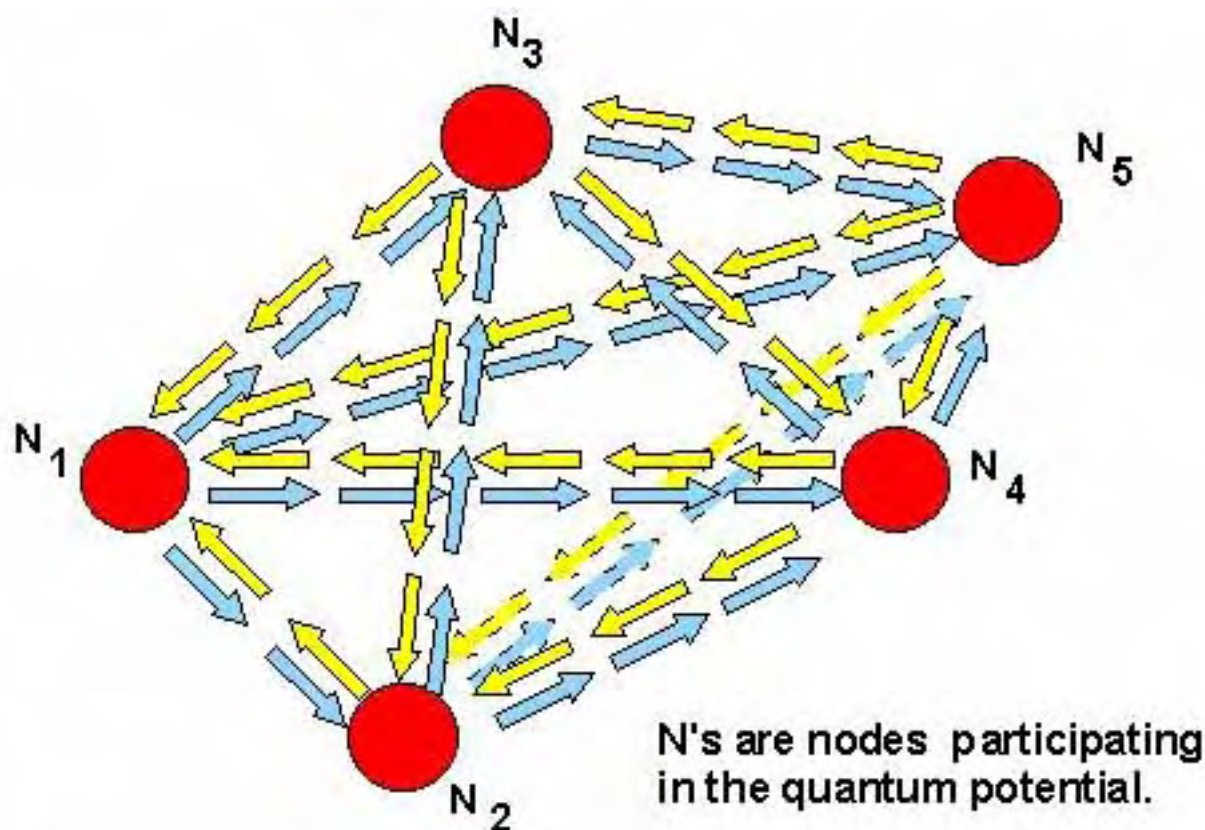
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SUBHARMONIC OSCILLATION

- **CAN TRANSLATE FROM ONE FREQUENCY REGIME TO ANOTHER.**
- **E.G., OPTICAL TO MICROWAVE**
 - **HOWEVER, MUST PRESERVE HARMONICS**
 - **ONE HARMONIC INTERVAL IS ESSENTIAL**
- **KAZNACHEYEV'S CYTOPATHOGENIC EFFECT:**
 - **QUARTZ PASSES ONE HARMONIC INTERVAL.**
 - **WINDOW GLASS DOES NOT.**
- **WHITTAKER'S INFOLDED EM STRUCTURE**
- **DEVYATKOV'S INFORMATION CONTENT OF THE FIELD.**
- **MULTIPLE PHASELOCKED WOODPECKER PULSE REPETITION RATES.**

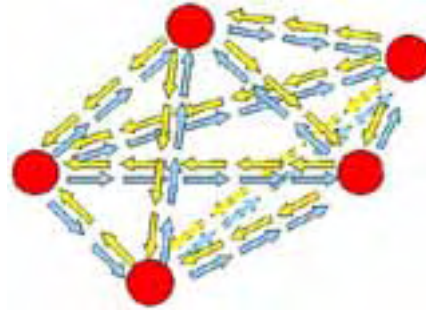
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The quantum potential exists as narrow, laser-like beams between participating nodes, even when the nodes are widely separated. The beam space is multiply-connected; transmission is instantaneous.

QUANTUM POTENTIAL CHARACTERISTICS

- **NO POINT SOURCE**
- **QP BETWEEN TWO PARTICLES**
 - **INTERACTION DOES NOT VANISH AS SPATIAL SEPARATION BECOMES VERY LARGE**
 - **INSTANTANEOUS CONNECTION**
- **DEPENDS ON QUANTUM STATE OF SYSTEM AS A WHOLE**
- **SYSTEM PARTS CAN BE GREATLY SEPARATED**



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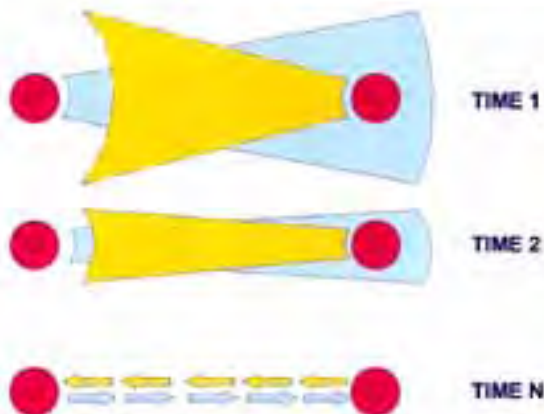
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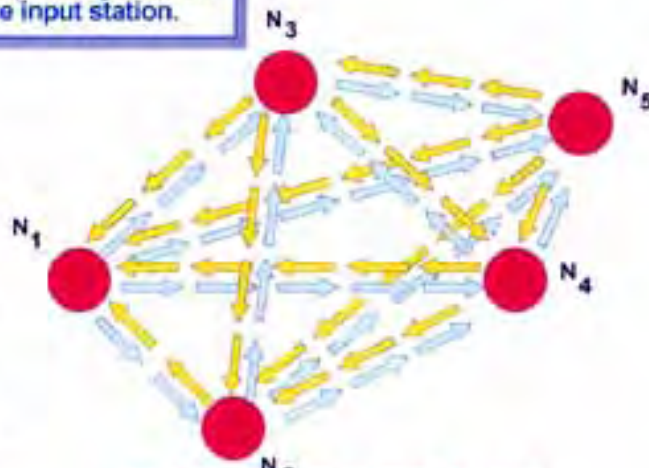
Self-Targeting in Inner EM Channel Can Produce a Quantum Potential



Once QP is established, energy transmission is direct and instantaneous. Energy input to one single participant will simultaneously appear in all other participants, the amount depending on their fractions of participation with the input station.



NARROWING OF INTERACTING POTENTIALS INTO LASER-LIKE BEAMS, BETWEEN TWO PUMPED SOURCES. NOW ONLY LONGITUDINAL WAVES CONNECT THE LINKED OBJECTS.



SELF-TARGETING EFFECT AMONG ALL PAIRS OF INTERACTING PUMPED SOURCES

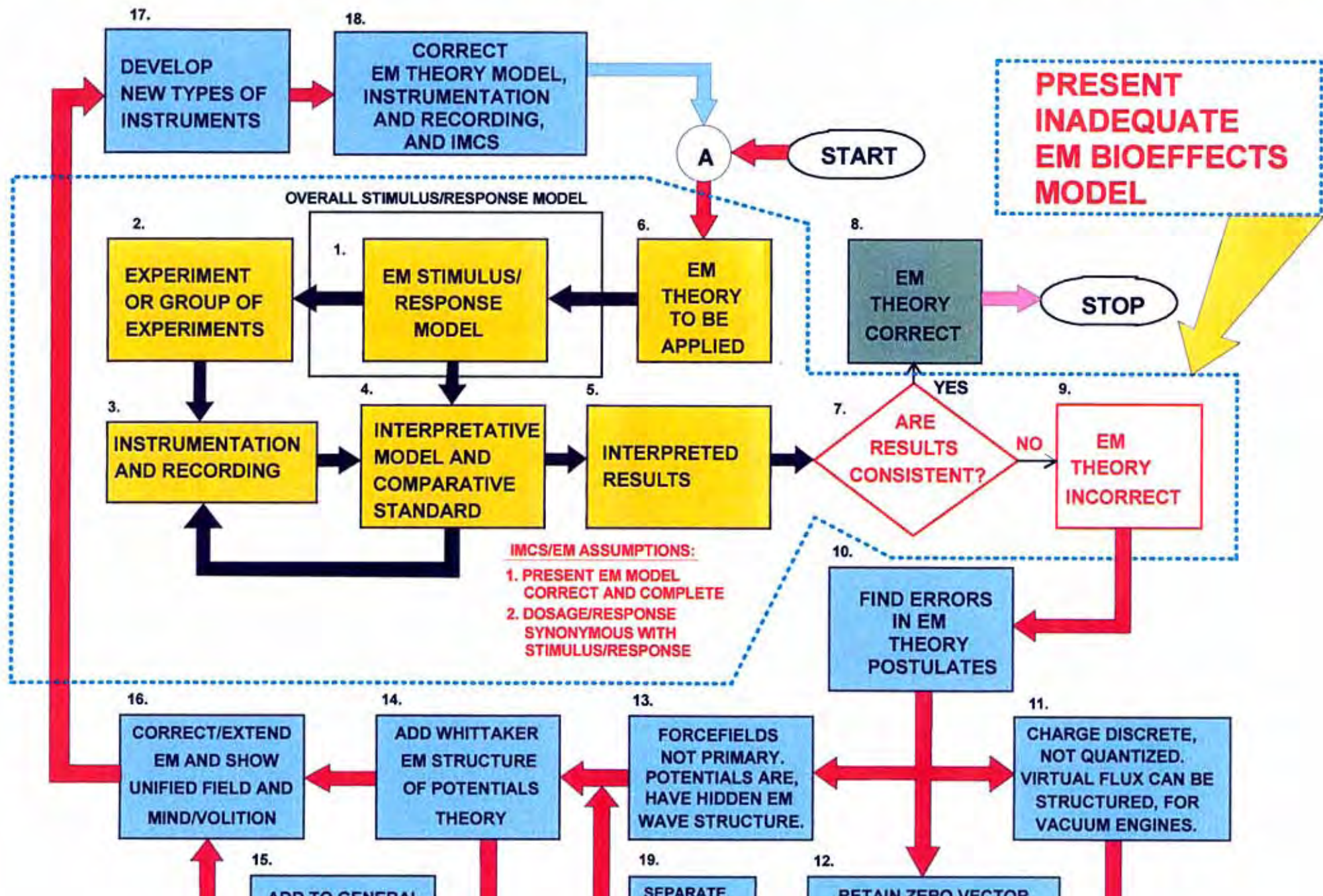
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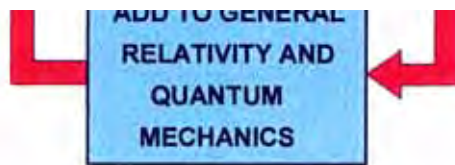
Corrections For the Present EM Bioeffects Model



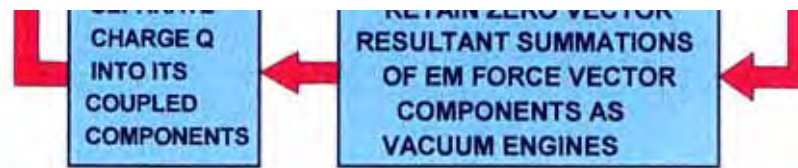
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TWO STAGES OF CANCER PRODUCTION

- **INITIATION**
 - DNA IN CELL NUCLEUS IS DAMAGED
 - CELL MUTATES
 - INITIATOR: AN AGENT THAT DAMAGES THE DNA IN A CELL, CAUSING IT TO MUTATE
 - THE CELL IS NEOPLASTIC, OR PRECANCEROUS
- **PROMOTION**
 - PROMOTER: AN AGENT THAT CAUSES A CANCER CELL TO DEVELOP INTO A TUMOR
 - EXPOSURE TO THE PROMOTOR CAUSES THE CANCER CELL TO UNDERGO UNCHECKED CELL DIVISION
- **EXACT CAUSE OF UNCHECKED CELL GROWTH IS NOT CLEARLY UNDERSTOOD**
 - DNA BLUEPRINT ON TRANSMITTER RNA CHANGES?
 - NORMAL TRANSMISSION OF MESSAGES FROM THE CANCER CELL TO ITS DAUGHTER CELLS CHANGES?

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MORE ON PROMOTERS

- **KNOWN TO ATTACK THE CYTOTOXIC LYMPHOCYTES IN THE IMMUNE SYSTEM THAT WOULD NORMALLY KILL TUMOR CELLS**
 - INHIBITS CYTOTOXICITY OF THESE LYMPHOCYTES
 - PREVENTS THEM FROM DOING THEIR JOB
 - **KNOWN TO CAUSE CHANGES IN SIGNALS OR MESSAGES BEING CARRIED ACROSS THE CELL MEMBRANE**
 - NOTE: ELECTRICAL POTENTIALS ON THE MEMBRANE
 - ELECTRIC FIELDS ARE CHANGES IN ELECTRICAL STRESSES
 - STRESS IS KNOWN TO BE A FACTOR IN CANCER
 - **WITHOUT EXPOSURE TO A PROMOTER, CANCER WILL NOT PROCEED**
 - **LATENCY PERIOD: TIME BETWEEN INITIATION AND PROMOTION STAGES OF CANCER DEVELOPMENT**
-

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EM BIOLOGICAL EFFECTS: SOME CHANGES DEMONSTRATED

- CHANGES AT THE CELL MEMBRANE
 - PARTICULARLY CALCIUM ION FLUX INCREASE
 - PARTICULARLY AC AND DC FIELDS COMBINED
- RATES OF DNA AND RNA SYNTHESIS
- CHROMOSOMAL ABERRATIONS AND BREAKS
- RNA TRANSCRIPTION
- ENHANCED GENE EXPRESSION
- EFFECTS ON CELL PROLIFERATION, BUT DEPENDS ON MITOTIC STATUS OF CELL POPULATION DURING EXPOSURE. DEPENDS ON
 - EM FIELD INTENSITY
 - EXPOSURE DURATION
 - CELLULAR FACTORS
 - EXTRACELLULAR FACTORS
- INCREASED CALCIUM FLUX IN BRAIN CELLS (IN VIVO STUDIES OF LIVE ANIMALS)

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EM BIOLOGICAL EFFECTS: INHIBITION OF MELATONIN

- MELATONIN PRODUCED BY PINEAL GLAND AT NIGHT
 - REGULATES CIRCADIAN RHYTHMS
 - HAS ONCOSTATIC PROPERTIES (INHIBITS TUMORS)
 - USED IN CHEMOTHERAPY, PARTICULARLY AGAINST BREAST CANCER AND PROSTATE CANCER
 - CANCER PATIENTS USUALLY HAVE REDUCED LEVELS
 - REDUCED LEVELS CONTRIBUTE TO DEPRESSION, SEVERE MOOD CHANGES, PSYCHIATRIC DISORDERS
- PRODUCTION OF MELATONIN CONTROLLED BY AMOUNT OF LIGHT DETECTED BY THE RETINA
 - BLIND WOMEN HAVE GREATLY INCREASED LEVELS
 - BLIND WOMEN HAVE MUCH LESS BREAST CANCER
 - HIGHEST CANCER INCIDENCE IS BREAST CANCER
 - INCREASING IN INCIDENCE
 - INCREASING IN MORTALITY
- EMF EXPOSURE INHIBITS NIGHTTIME PRODUCTION OF MELATONIN. SUCH SUPPRESSION OF MELATONIN IS IMPLICATED IN ETIOLOGY OF BREAST, PROSTATE, OVARIAN, AND MELANOMA CANCER

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OTHER EM BIOLOGICAL EFFECTS

- **MAGNETIC FIELD INDUCING OF BIRTH DEFECTS IN CHICKS**
- **MORE CONTROVERSIAL EPIDEMIOLOGY STUDIES FOUND CORRELATIONS BETWEEN EMF AND**
 - **BRAIN TUMORS**
 - **MISCARRIAGES IN PREGNANT FEMALES USING VDTs**
 - **BIRTH DEFECTS**
 - **INCIDENCE OF LEUKEMIA IN CHILDREN**
- **BECKER SHOWED THAT PICOAMPERES OF CURRENT USED IN EM-ASSISTED BONE HEALING CAUSED PROFOUND CELLULAR CHANGES**
 - **RED BLOOD CELLS DEDIFFERENTIATED**
 - **SHED HEMOGLOBIN AND GREW NUCLEI**
 - **REDIFFERENTIATED INTO CARTILAGE-HEALING CELLS**
 - **REDIFFERENTIATED INTO BONE-HEALING CELLS**
 - **THEN HEALED THE FRACTURES**

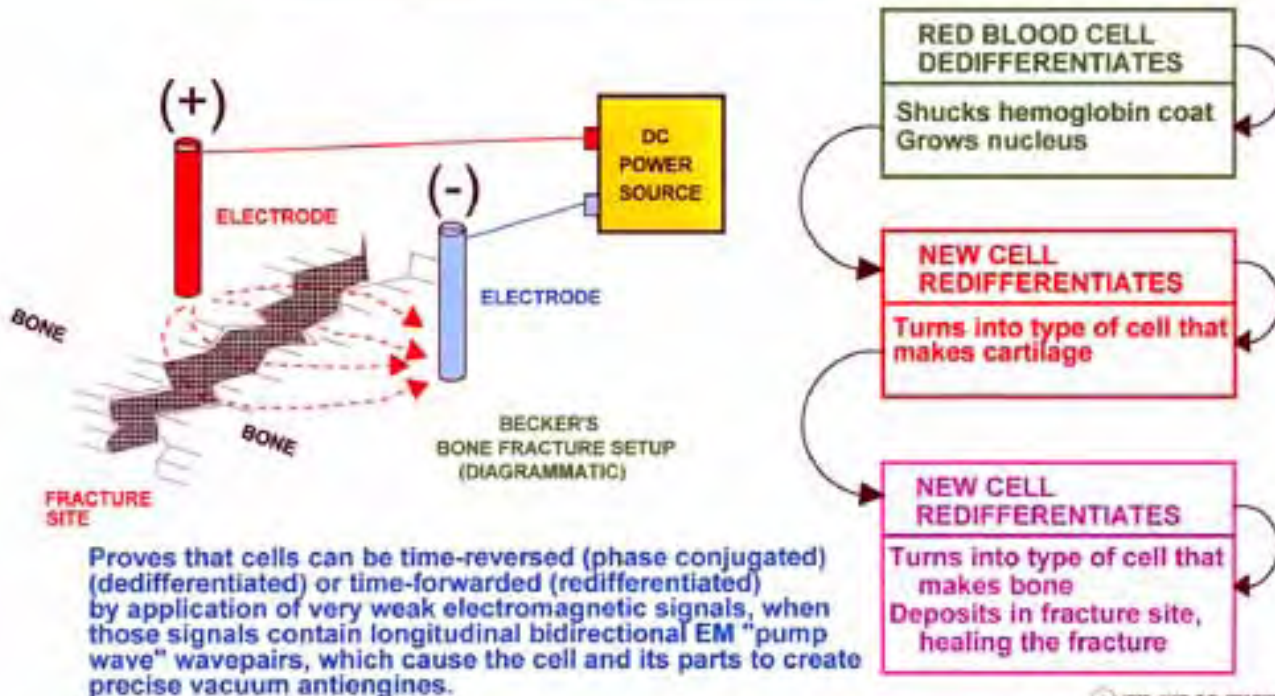
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Becker's dc treatment of bone fractures

Application of tiny DC currents to heal difficult bone fractures. Only picoamperes are utilized. Pulsed DC current or pulsed magnetic fields may also be utilized.



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QUESTIONS ON CARCINOGENS AND EM RADIATION



■ UNRESOLVED QUESTIONS ON EM RADIATION

- DOSAGES
- ACTIVE MECHANISMS
- REPLICATION DIFFICULTIES
- MEASUREMENT DIFFICULTIES
- WHERE, WHEN, HOW ILL EFFECTS OCCUR

■ SIMILAR QUESTIONS EXIST ABOUT EVERY CARCINOGEN

■ SCIENCE REALLY DOES NOT UNDERSTAND THE MECHANISMS OF A SINGLE CHRONIC DISEASE, INCLUDING CANCER

- FACTORS SUCH AS MIND, STRESS, SPONTANEOUS REMISSION, PLACEBO EFFECTS, AND COMBINATIONS OF FACTORS ARE PARTICULARLY TROUBLESOME
- GENERATION OF THE PLACEBO EFFECT BY THE REGENERATION & RECOVERY SYSTEM IS UNRECOGNIZED

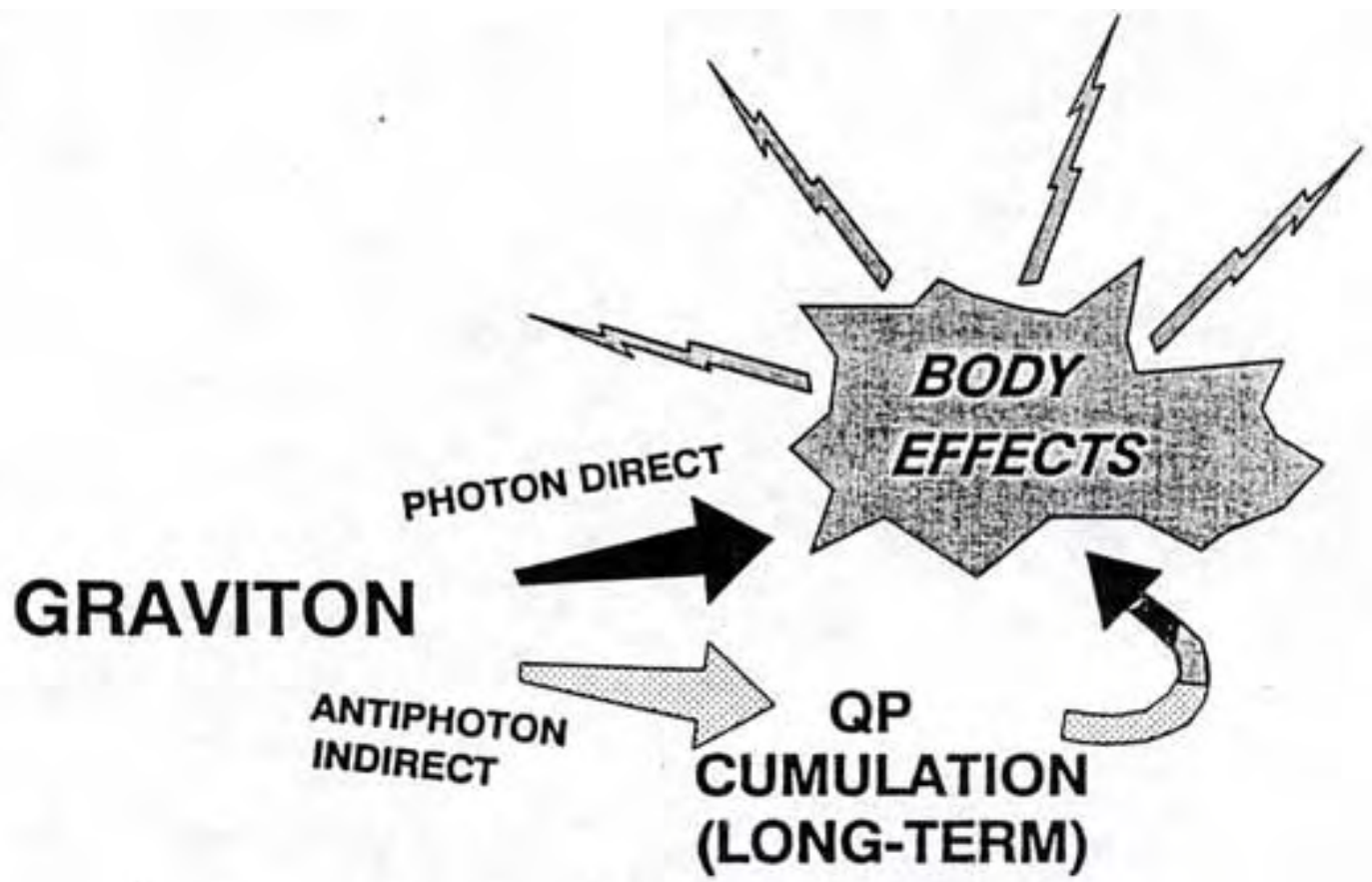


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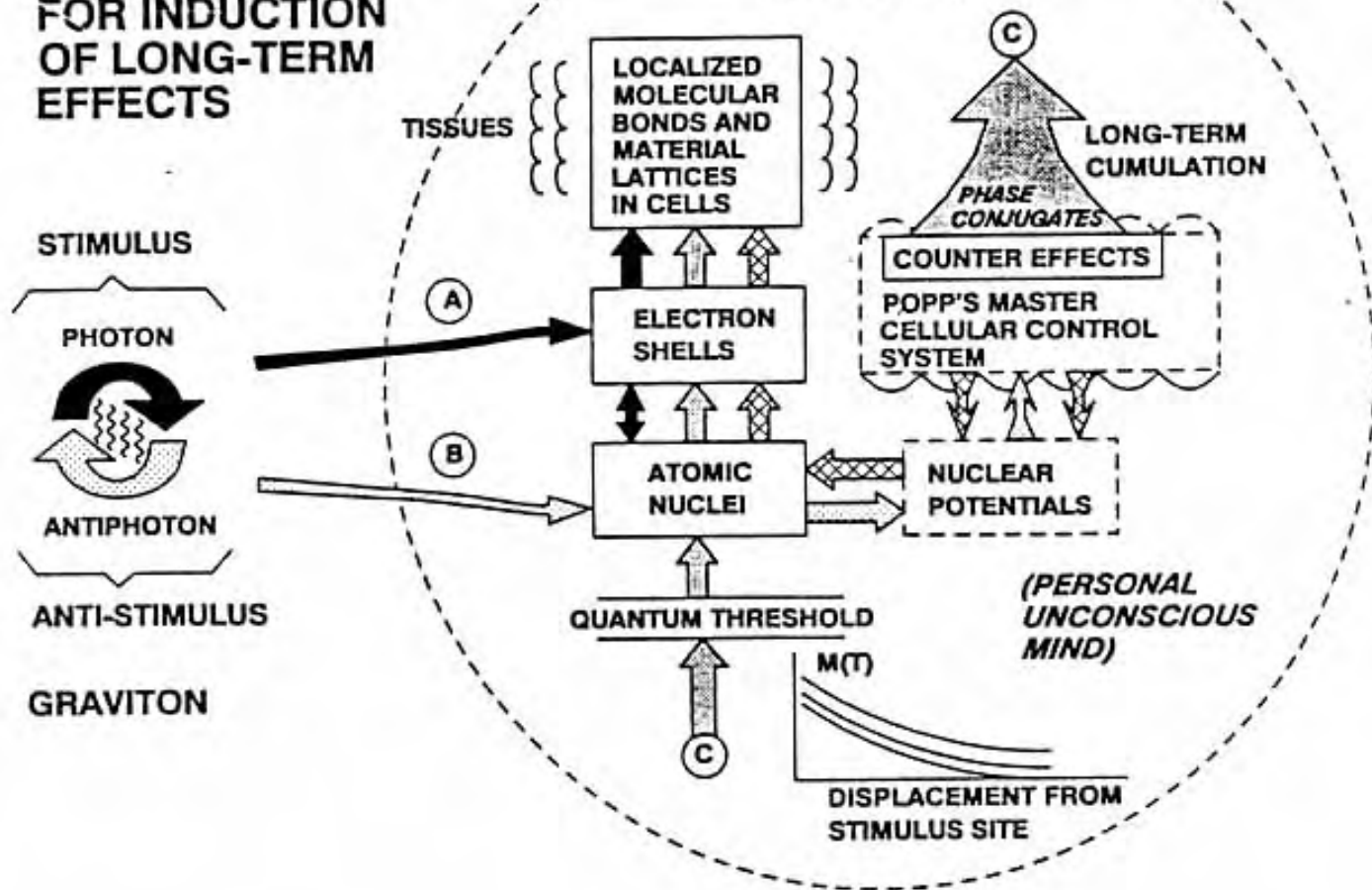


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CUMULATIVE FEEDBACK REACTION LOOP FOR INDUCTION OF LONG-TERM EFFECTS

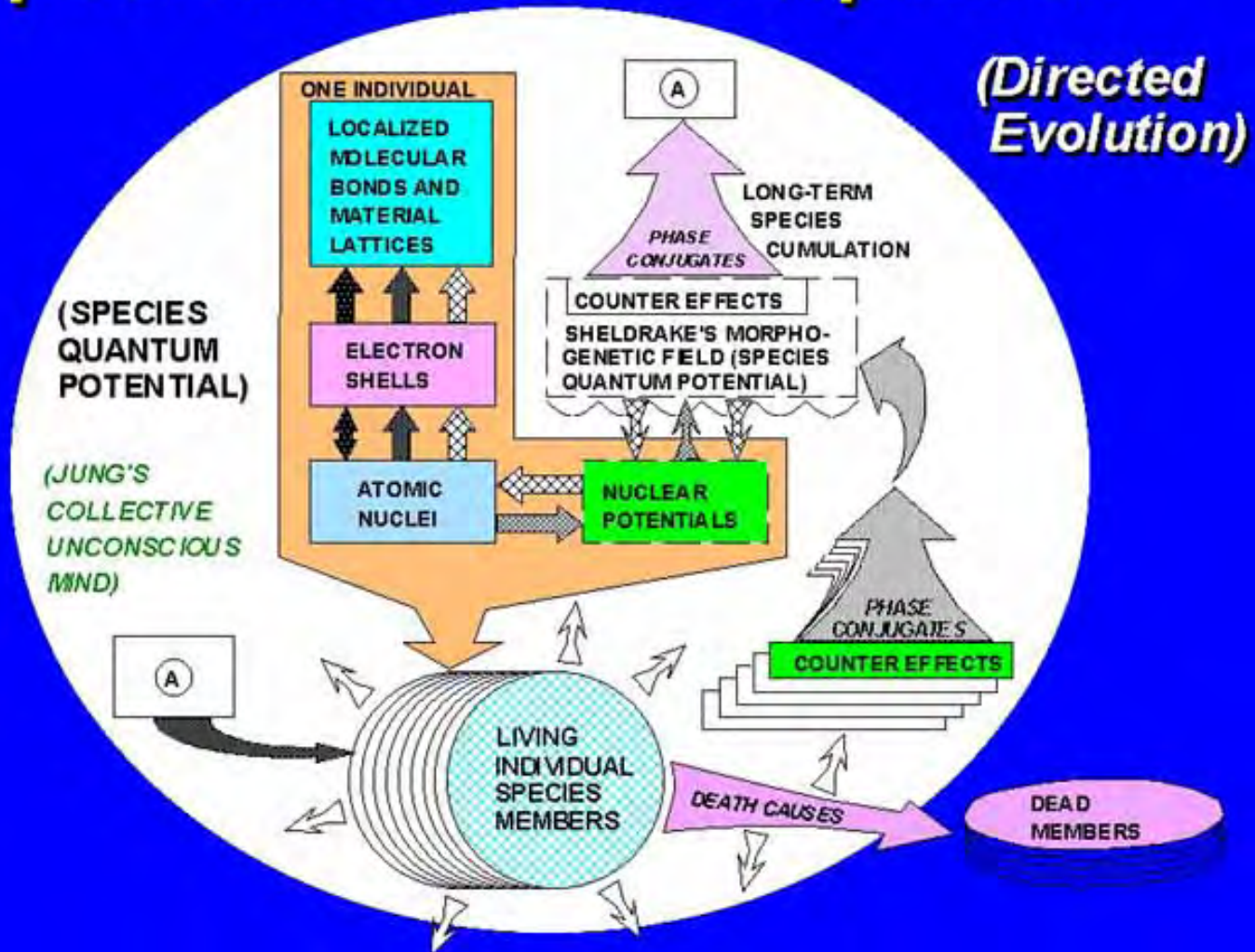


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Species Reactive Adaptation



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INHERITANCE OF ACQUIRED TRAITS

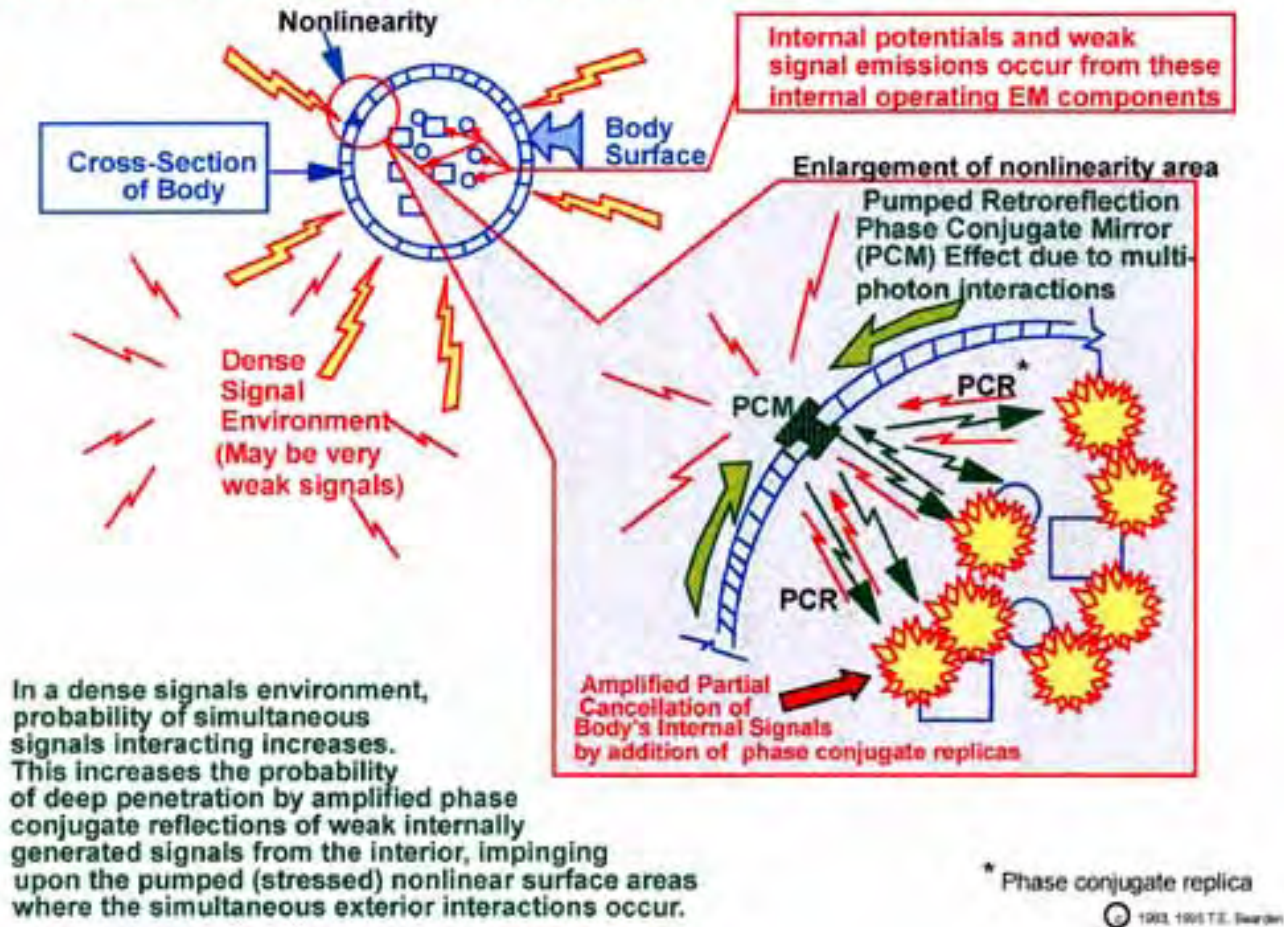
- Evolutionary biology assumes mutations are random events
 - Causes of heritable differences separated from their consequences for survival and reproduction
 - Likelihood of any particular mutational event assumed independent of its particular value to the organism
 - Natural selection then assumed to increase the frequency of advantageous alleles
- Evidence for directed, non-random mutation
 - Removing cell-wall from bacterium: acquired nakedness is then inherited
 - Protozoan Oxytricha double monsters (siamese twins)
 - ▲ Bisected lengthwise, normal reproduction
 - ▲ Bisected crosswise, double monsters reproduce
 - Virus Sigma and fruit fly sensitivity to CO₂
 - Specific sets of genes either eliminated or added to an organism by organelles, plasmids, bacteria or other agents
- Genes are acquired vertically from ancestors and horizontally from a variety of other factors

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Deep penetration of weak signals in a dense signal environment, by nonlinear retroreflection

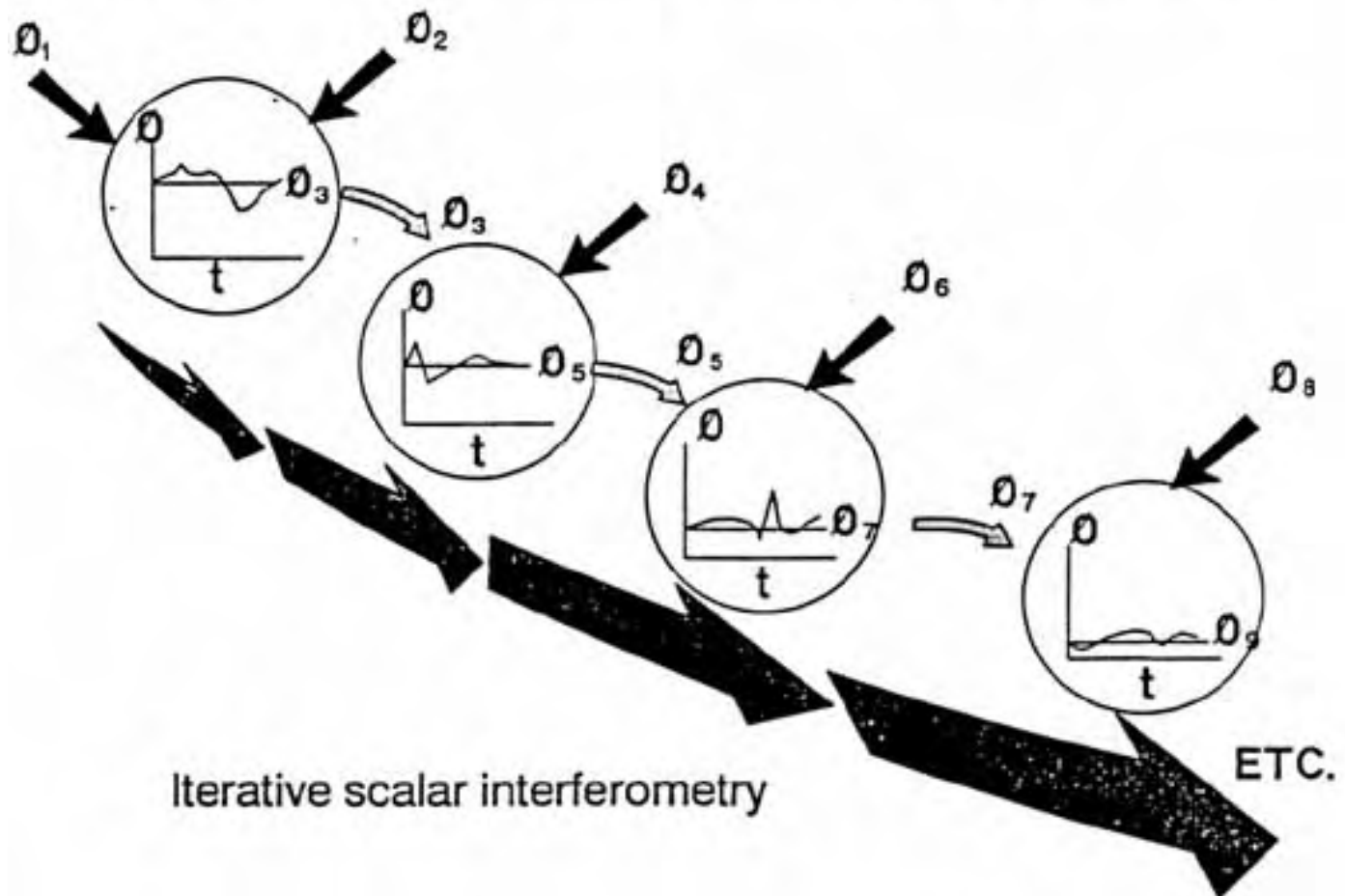


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ANOMALOUS DEPTH PENETRATION

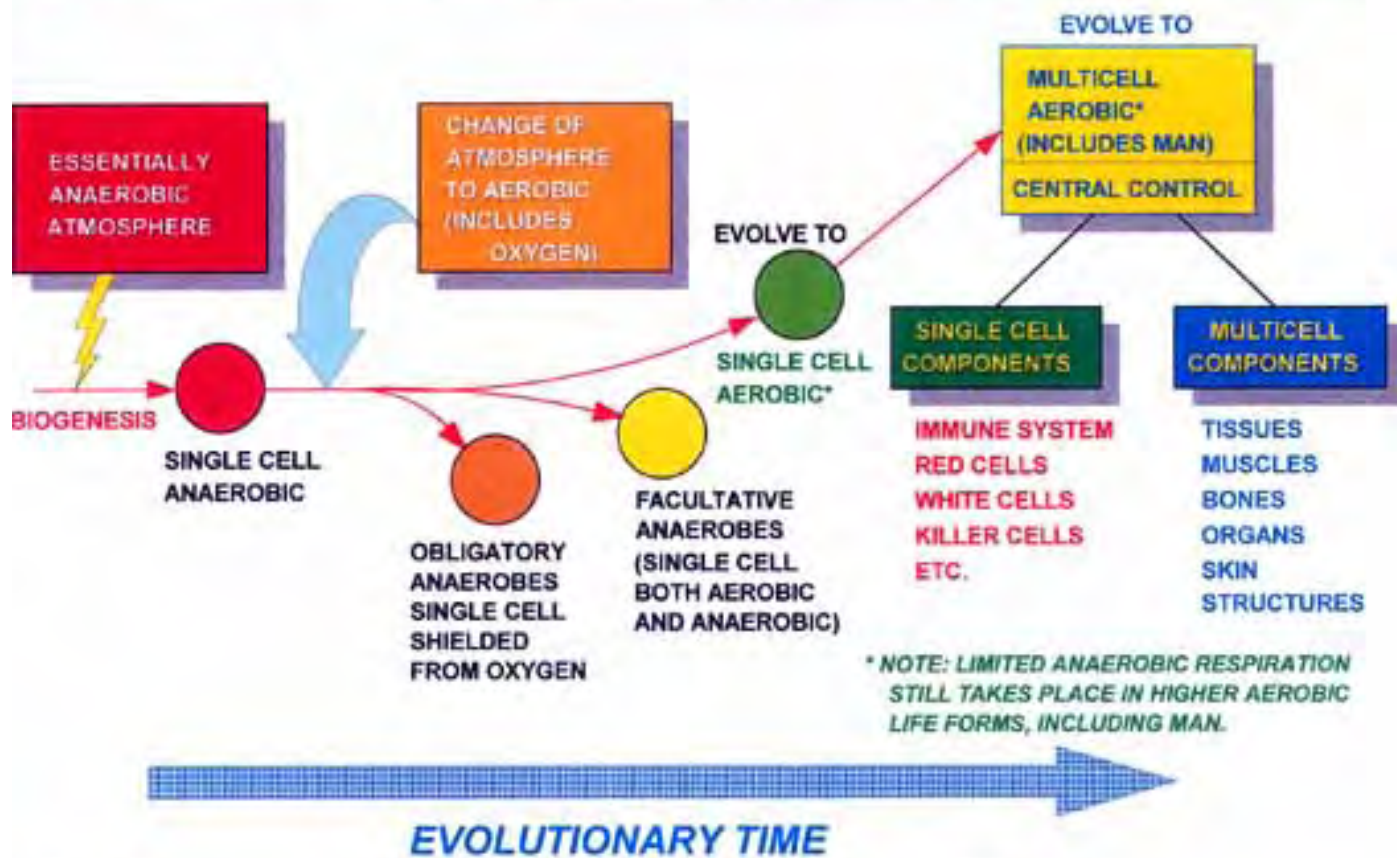


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THE EVOLUTIONARY PATH OF MULTICELLULAR ORGANISMS

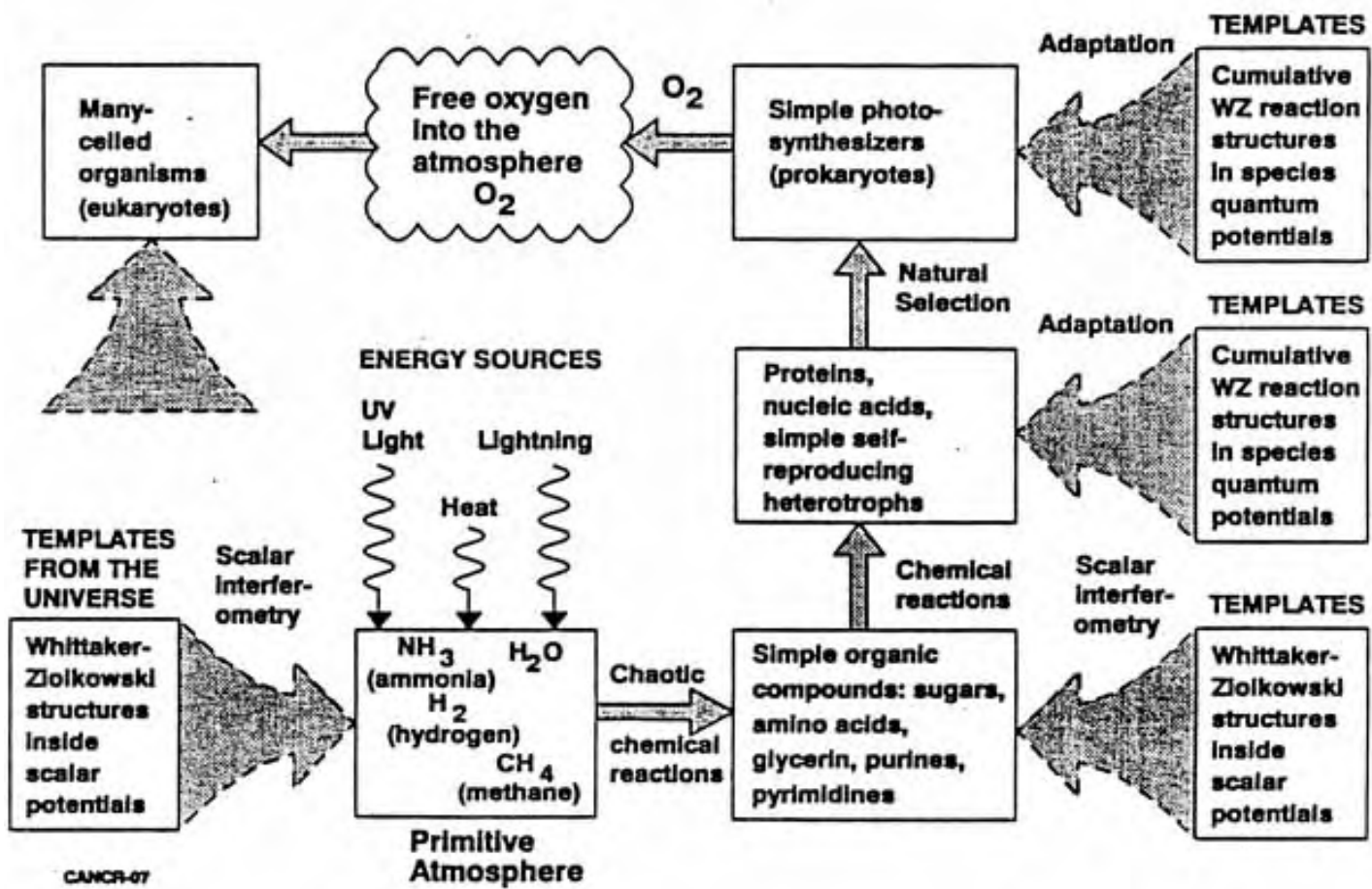


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DEVELOPMENT OF MULTI-CELLED ORGANISMS

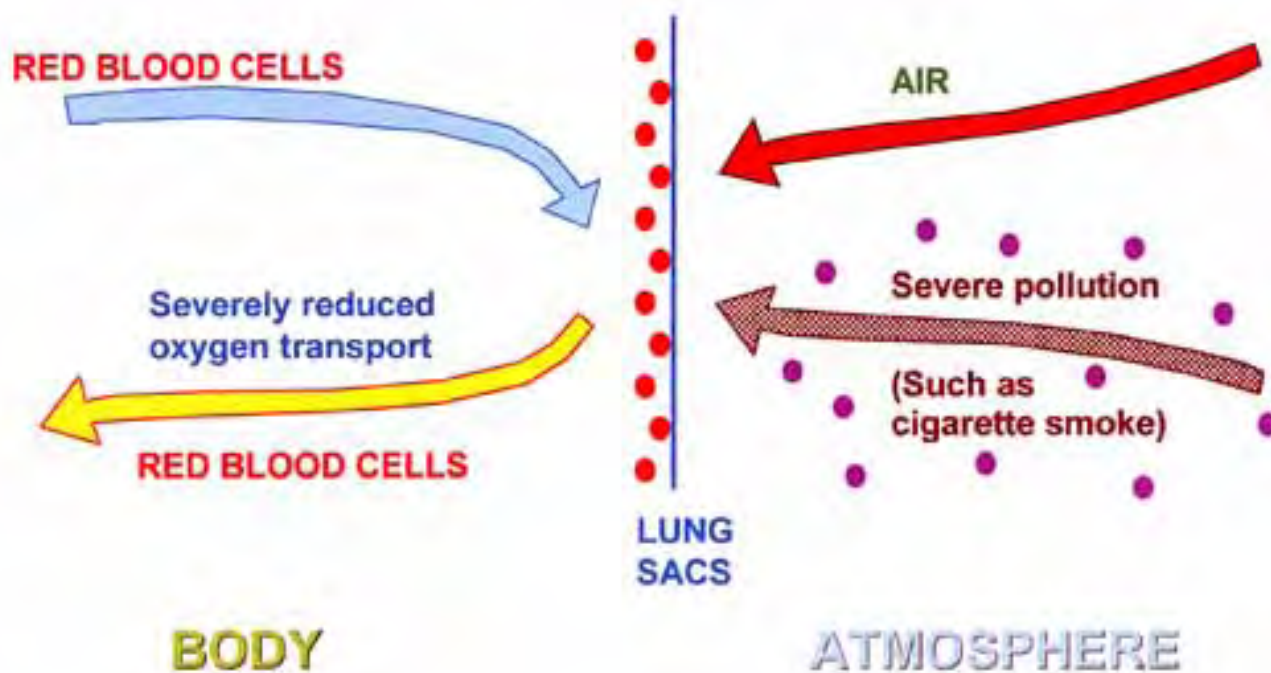


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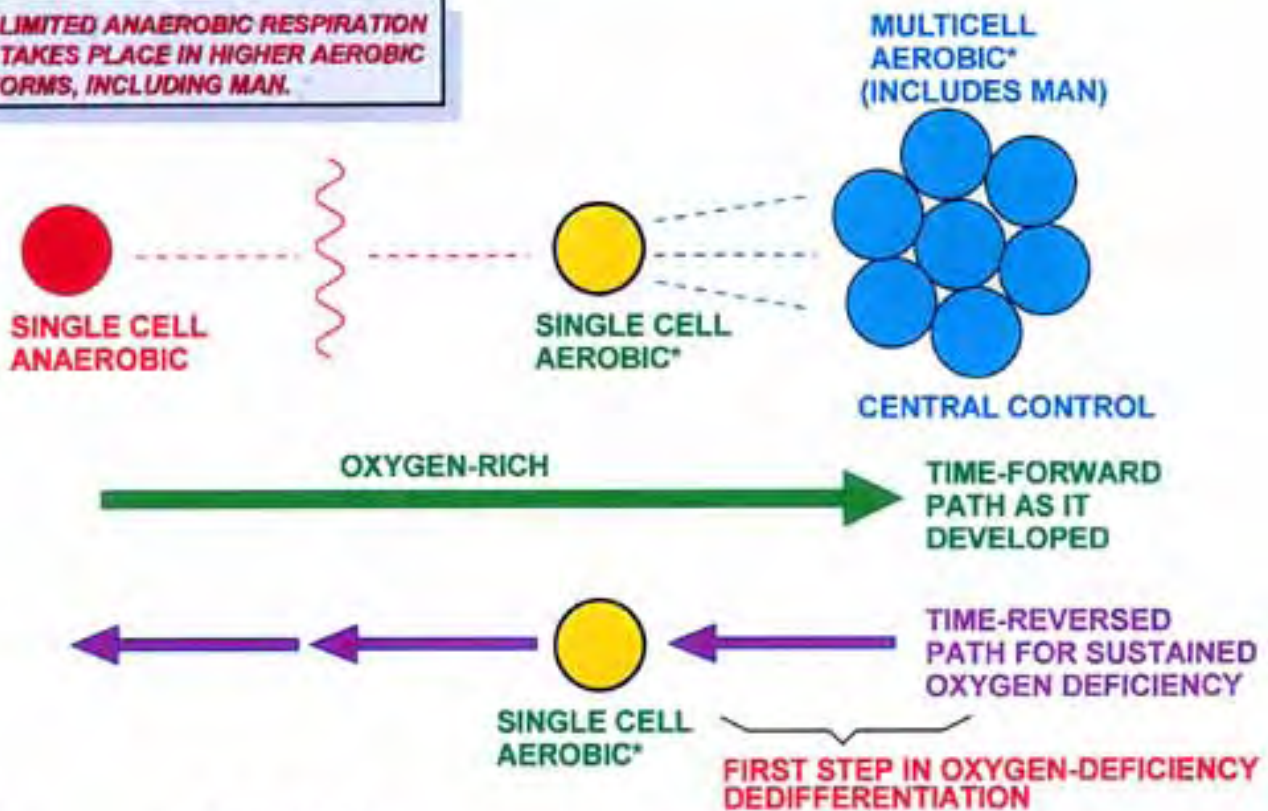
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EFFECT OF FLUID CONTAMINATION ON HEMOGLOBIN'S OXYGEN TRANSPORT

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FIRST STEP IN SELF-PROMOTION OF CANCER DUE TO HYPOXIA

* NOTE: LIMITED ANAEROBIC RESPIRATION STILL TAKES PLACE IN HIGHER AEROBIC LIFE FORMS, INCLUDING MAN.

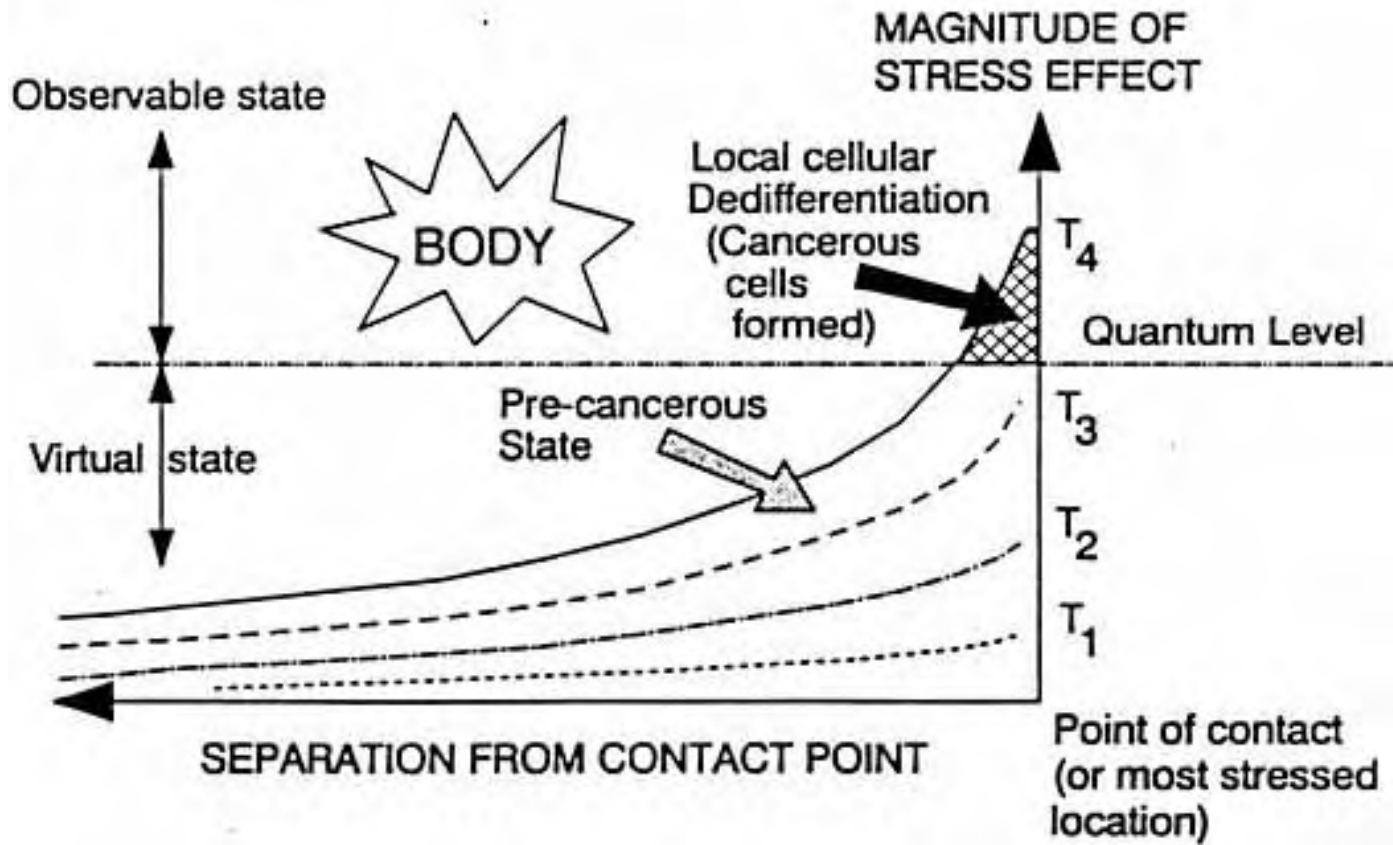


CANCER-08

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CUMULATIVE GROWTH OF DEDIFFERENTIATION SIGNALS

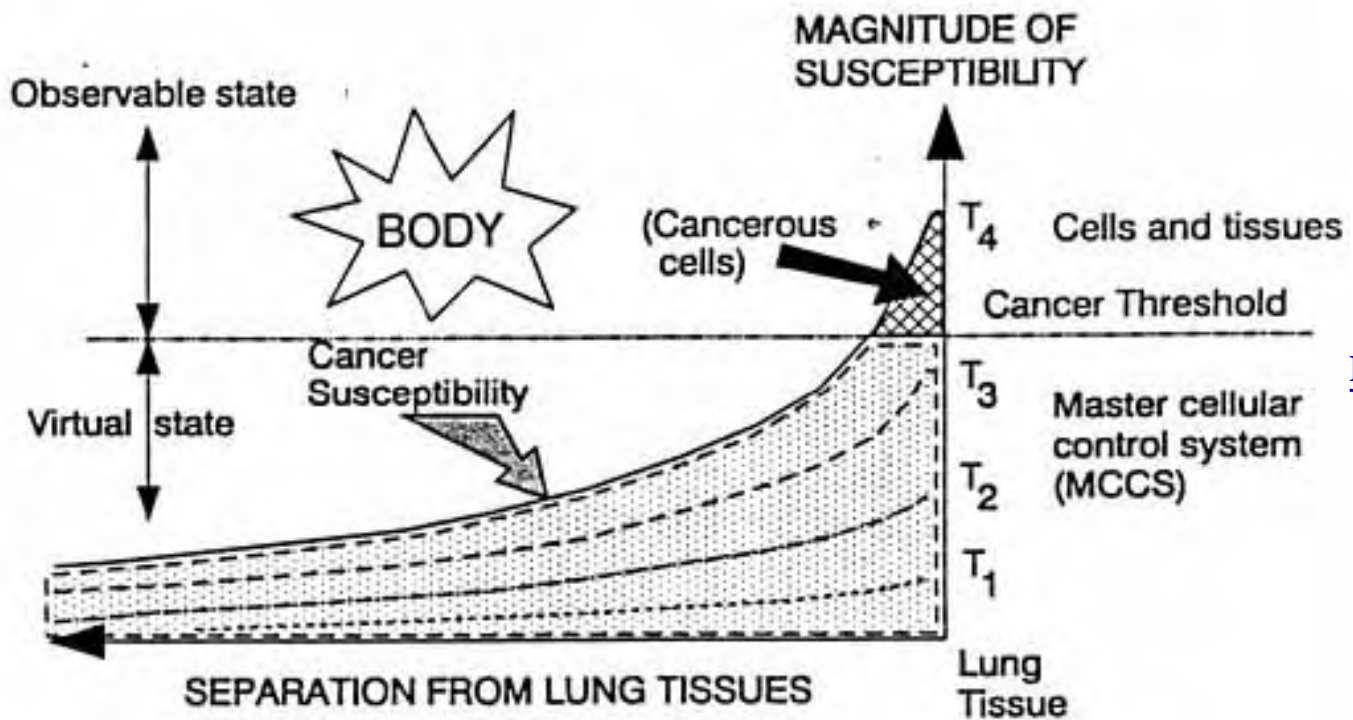


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CUMULATIVE EMERGENCE OF CANCER INTO THE PHYSICAL STATE

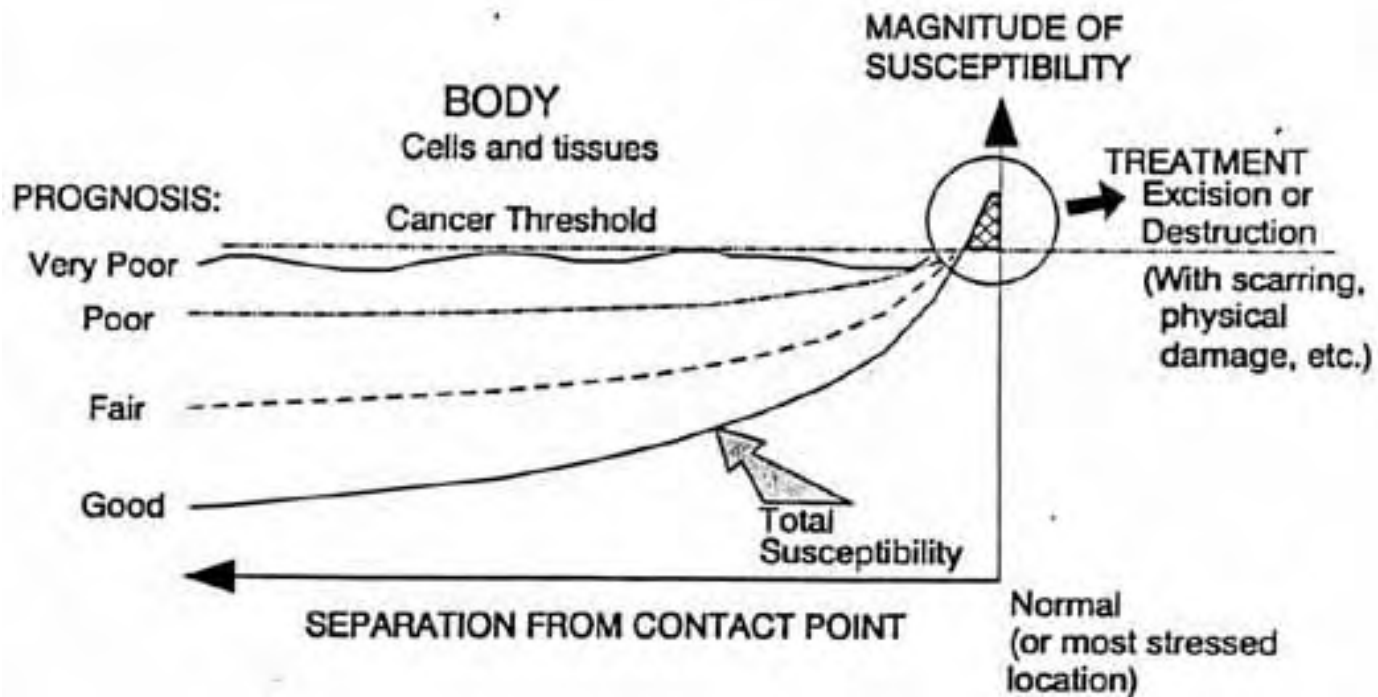


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PRECANCER STATE CONDITION DETERMINES TREATMENT SUCCESS

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Starting From the Scalar EM View: *A NEW DEFINITION OF CANCER*

- **CANCER AND LEUKEMIA ARE:**

Centrally-commanded, final, desperate, "first-step dedifferentiation" adaptive attempts by the stressed affected cells experiencing sustained oxygen shortage, to reverse their cellular evolution and return to the anaerobic stage of their distant ancestry.

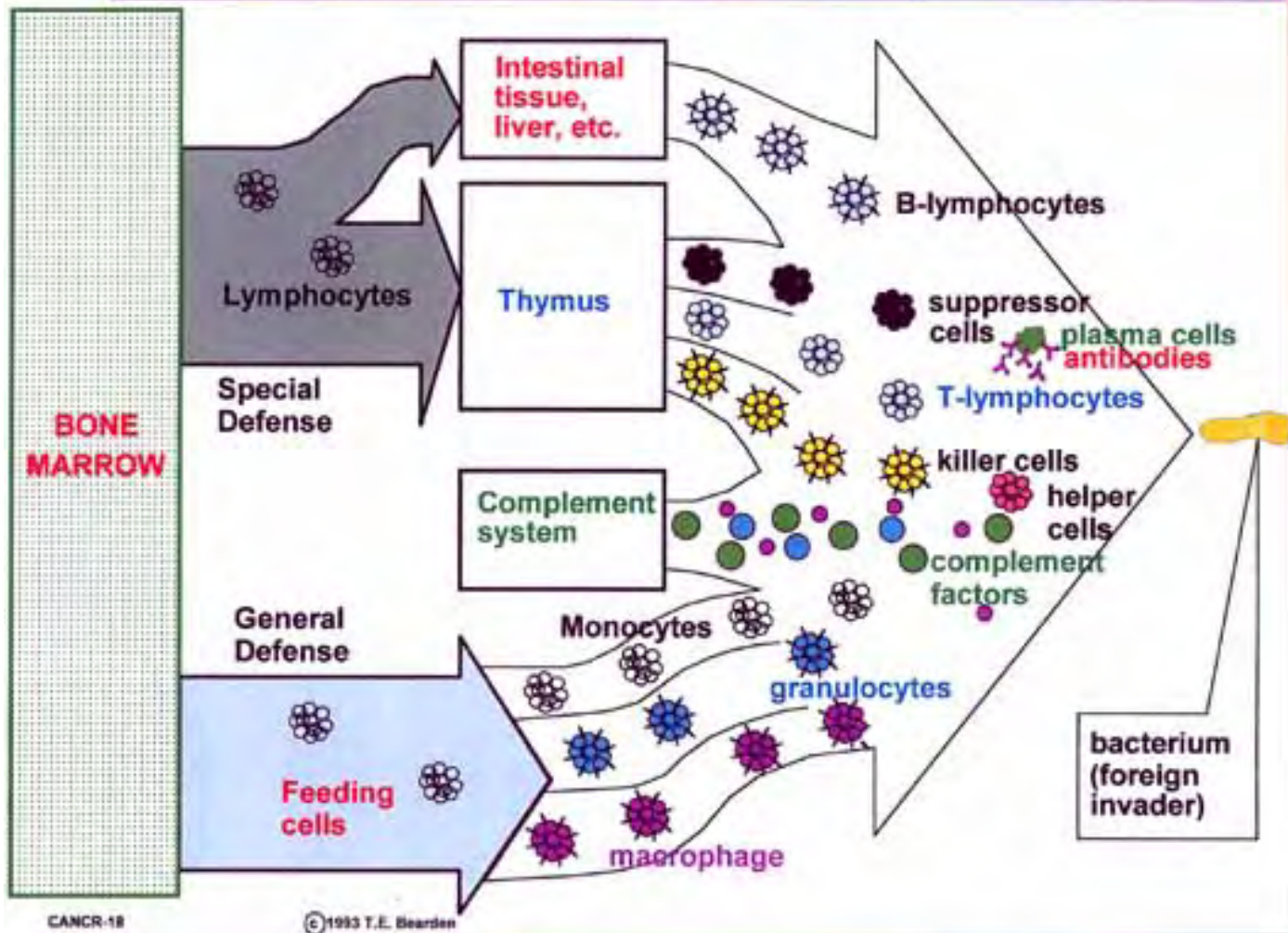
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- **THE CAUSE IS LONG-TERM CUMULATIVE, AND ELECTROMAGNETIC IN NATURE.**
- **A TOTAL CURE CAN BE ACHIEVED ELECTRO-MAGNETICALLY, AS WAS DEMONSTRATED.**

THE IMMUNE SYSTEM



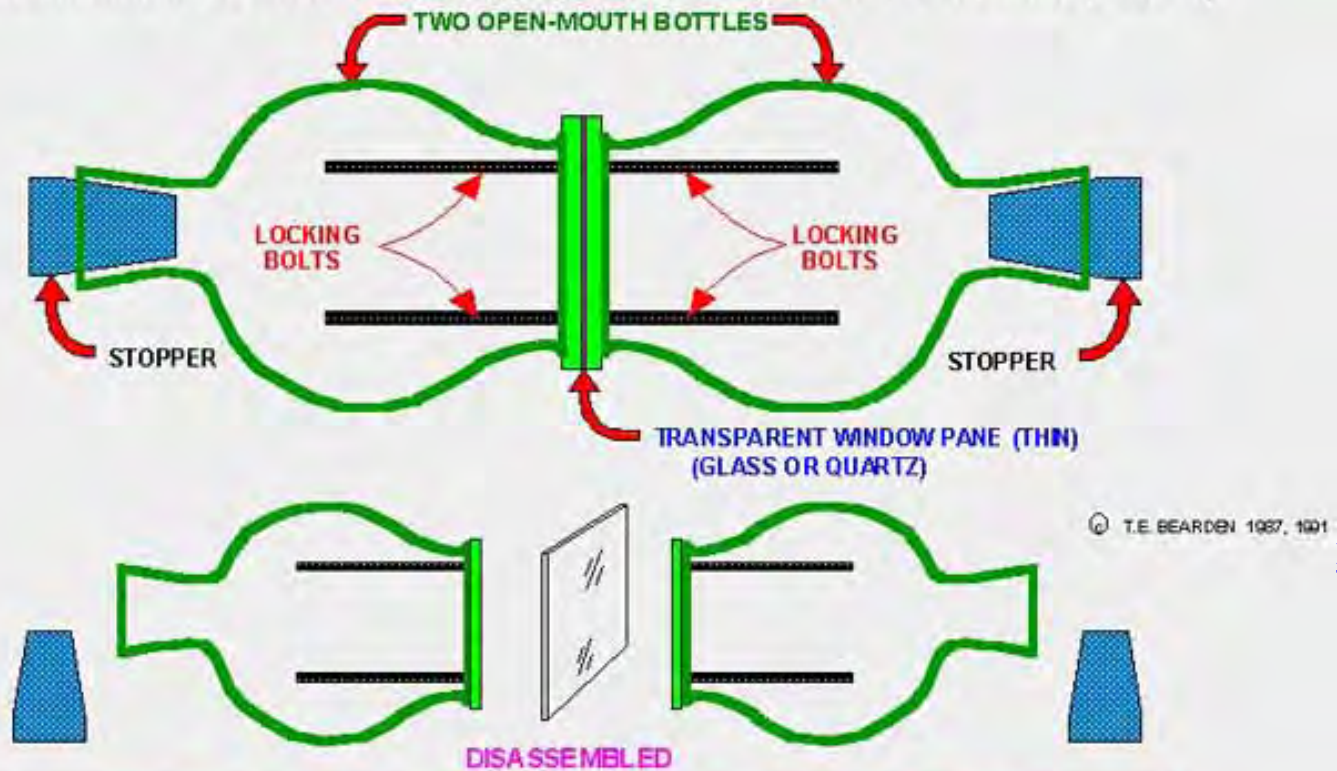
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Kaznacheyev's Two-Chamber Apparatus

(Induction of effects of diseases, physical damage, nuclear radiation, toxins)



A cell culture is divided into two parts. One is placed on each side, in the jars which are environmentally shielded except for light. The left cell culture is deliberately damaged. After a time delay, the cells on the right also start dying with the same damage. The effect is replicated in the right cells through a thin quartz window, but not through window glass.

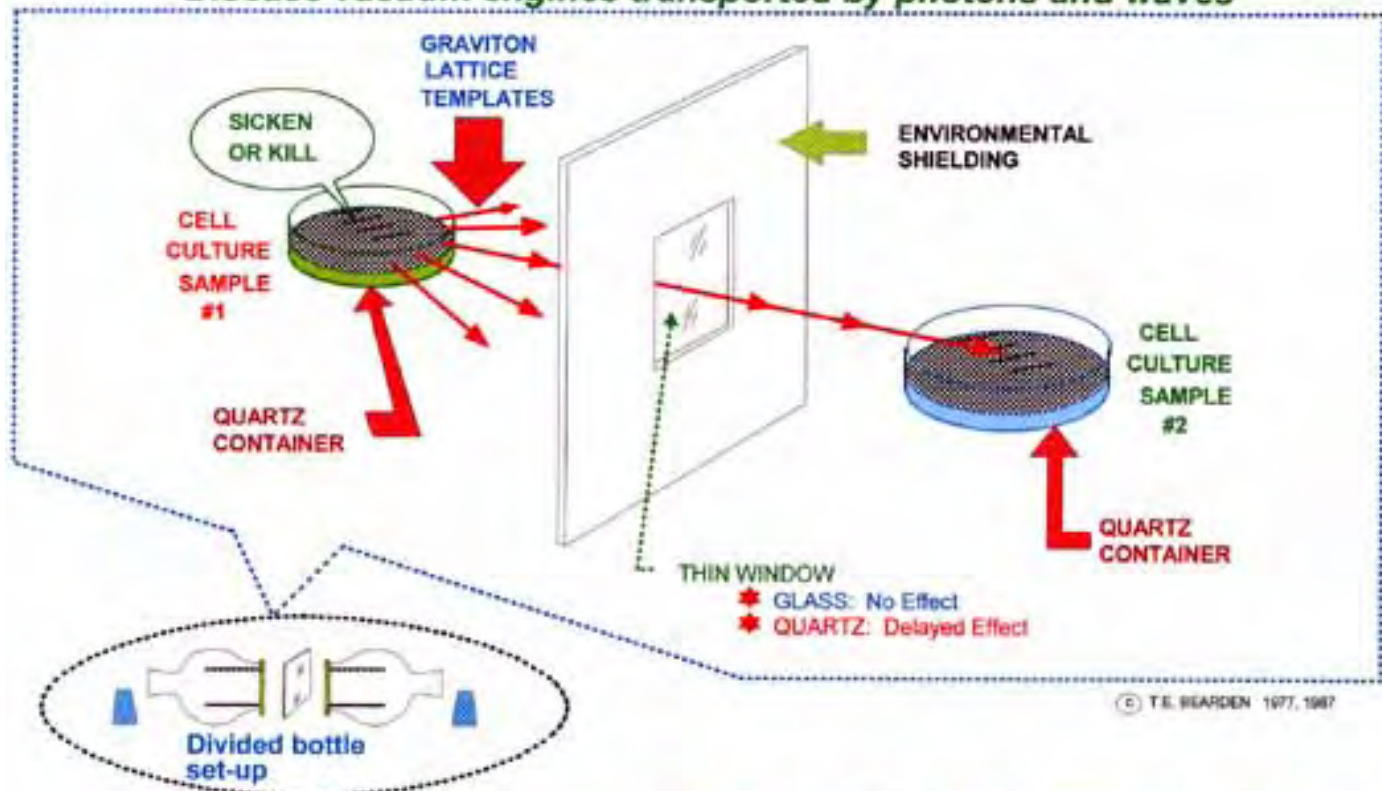
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Kaznacheyev's Cytopathogenic Mirror Effect

Disease vacuum engines transported by photons and waves



Note: Minimum lattice is one harmonic interval: IR to UV is such a minimum G-lattice.

Distant induction of cellular death and diseases, by special EM means. Coupled photon-antiphoton pairs (gravitons) in a structured harmonic lattice ordering constitute the disease or disorder template.

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MICROWAVE RADIATION OF U.S. EMBASSY IN MOSCOW

Former U.S. Embassy in Moscow.



BACKGROUND

- Began in latter 1950s
- Discovered on VP Nixon's trip
- Initially thought to be *nuclear* radiation (Discovered w/Geiger counter?)
- High level target -- U.S. Ambassador
- Guarantees personal attention of:
 - U.S. Ambassador to USSR
 - U.S. President
 - NSA, CIA, DIA, NSC, etc.
 - Top consulting scientists
 - Leading U.S. scientific institutions
- Two U.S. Ambassadors died, another sickened
- Anomalous health changes in personnel, only in zero-field (zero pot'l gradient) areas!
- Four U.S. Presidents requested Soviets cease
 - Cut from 18 watts/sq cm to 2
 - Then again increased
- No one could understand what was going on
- Aluminum screens were placed over windows
- Moscow was declared a hazardous duty zone



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JOHN HOPKINS STUDY OF EMBASSY MICROWAVE RADIATION

- **EXCELLENT SCIENTIFIC TEAM**
 - **PERFORMED CLASSICAL EM INVESTIGATION**
 - **CAREFULLY ESTABLISHED THE FORCE FIELD PATTERNS**
 - **NO HEALTH CHANGES OCCURRED IN PERSONNEL WHERE THE FORCE FIELDS WERE PRESENT (NONZERO)**
 - **ALL HEALTH CHANGES OCCURRED IN PERSONNEL WHERE THE FORCE FIELDS WERE ZERO (ABSENT)**
- **ASSUMED THAT ALL EM ACTION IS DUE ONLY TO FORCE FIELDS**
 - **CONCLUDED THAT MICROWAVE RADIATION COULD NOT HAVE CAUSED THE HEALTH CHANGES**
- **CONCLUSION WAS IN SERIOUS ERROR**
 - **CORRECT CONCLUSION: HEALTH CHANGES WERE TOTALLY CORRELATED TO ABSENCE OF FORCE FIELDS**
 - * **TOTALLY CORRELATED TO PRESENCE OF GRADIENT-FREE POTENTIALS, OR NOT TO RADIATION AT ALL**
 - * **IF NOT TO RADIATION AT ALL, THEN HEALTH CHANGES WOULD HAVE ALSO OCCURRED WHERE FORCE FIELDS WERE PRESENT**
- **THEREFORE THE HEALTH CHANGES WERE TOTALLY CORRELATED TO THE GRADIENT-FREE POTENTIALS, AND TO THE EM RADIATION**

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Priore's laboratory device for treating small animals



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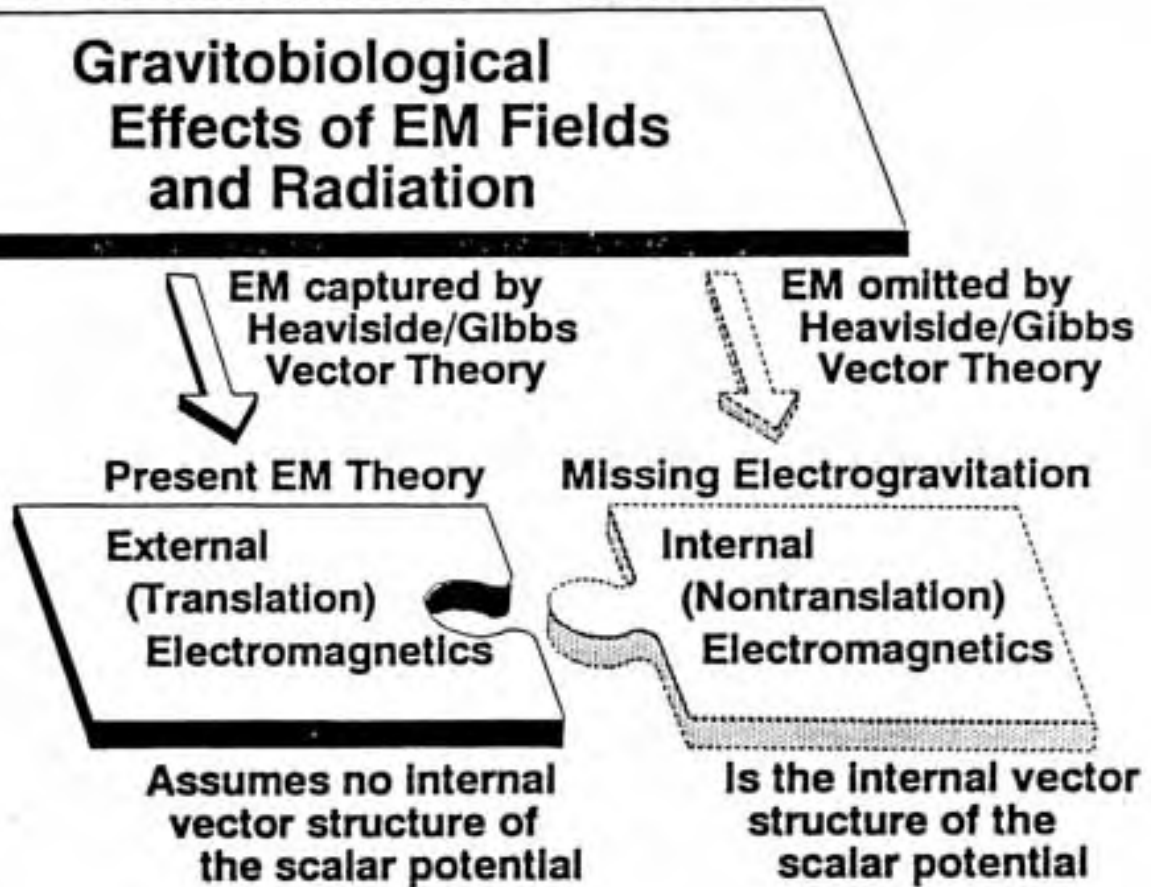
MECHANISM OF THE PRIORE THERAPY

- **PRODUCED A DETERMINISTIC WZ STRUCTURED SCALAR POTENTIAL**
 - 17 FREQUENCIES MIXED IN A ROTATING PLASMA
 - PHASE CONJUGATES ADDED BY THE PLASMA
 - MODULATED ONTO A RIPPLING MAGNETIC FIELD WHICH CARRIED IT TO ATOMIC NUCLEI
 - INTERACTED DIRECTLY WITH PERSONAL QUANTUM POTENTIAL
- **NEGATED THE LONG-TERM CUMULATIVE CELLULAR DEDIFFERENTIATION ORDER GENERATED BY LONG-TERM HYPOXIA. TUMOR CELLS REVERTED TO NORMAL CONTROL**
- **SCRUBBED OUT THE CUMULATED PRECANCEROUS STATE**
- **RESTORED THE IMMUNE SYSTEM TO HIGH FUNCTIONING**
- **NO EXCESSIVE TRAUMA TO TREATED ANIMAL**

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THE MISSING PIECE OF THE PUZZLE

MAXWELL'S QUATERNION ELECTROMAGNETICS



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SUMMARY AND CONCLUSION

- **RECOMMEND SERIOUS EXAMINATION OF THE NEW APPROACH**
- **RECOMMEND REVIVAL OF PRIOR-TYPE RESEARCH ON AN URGENT BASIS**
- **CAN BE EXTENDED TO OTHER DISEASES**
 - AIDS
 - ARTERIOSCLEROSIS
 - SLEEPING SICKNESS
 - ETC.
- **A NEW THERAPEUTIC PARADIGM OF GREATLY INCREASED SCOPE AND EFFECTIVENESS MAY BE POSSIBLE**
- **IN ADDITION, DRASTIC REDUCTION IN MEDICAL COSTS COULD POTENTIALLY RESULT**

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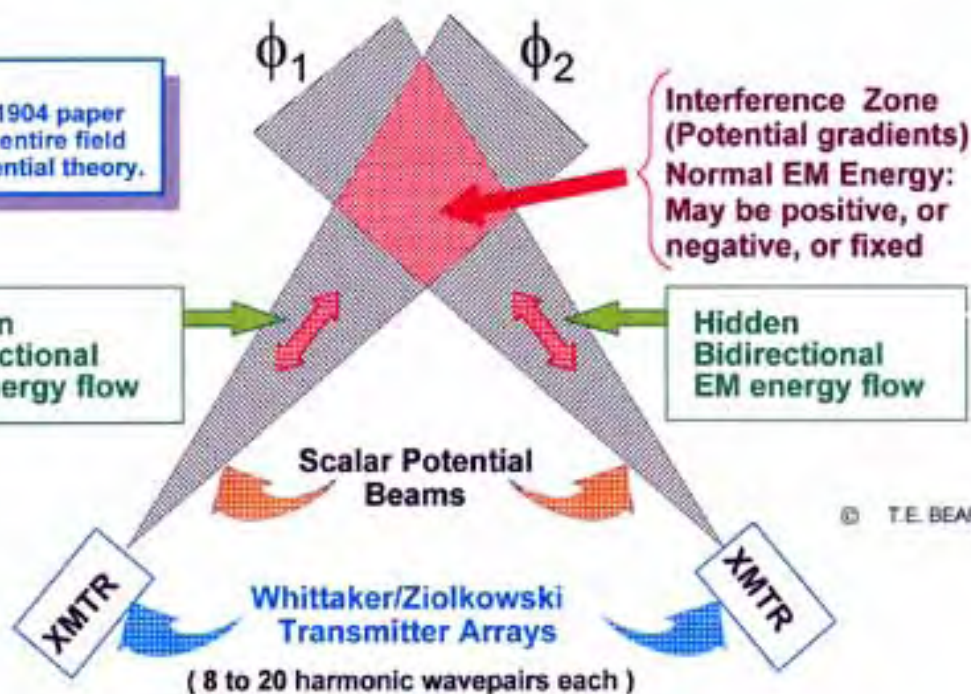
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Any EM Field or Wave Pattern Is Produced by interference of Two Scalar Potential Functions (*E.T. Whittaker, 1904*)

(Use of Hidden Information Content of the Field)
(Can Provide Action-at-a-Distance)

Note:
Whittaker's 1904 paper
initiated the entire field
of superpotential theory.

Hidden
Bidirectional
EM energy flow



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MECHANISM FOR LONG-TERM, CUMULATIVE BIOLOGICAL EFFECTS OF EM FIELDS AND RADIATION

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The New Tesla Electromagnetics and the Secrets of Electrical Free Energy

By T.E. Bearden

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COMMENTS ON THE NEW TESLA ELECTROMAGNETICS

Part I: Discrepancies in Present EM Theory

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There are at least twenty-two major discrepancies presently existing in conventional electromagnetics theory. This paper presents a summary of those flaws, and is a further commentary on my discussion of scalar longitudinal Tesla waves in a previous paper, "Solutions to Tesla's Secrets and the Soviet Tesla Weapons," Tesla Book Company, 1981 and 1982.

I particularly wish to express my deep appreciation to two of my friends and colleagues who at this time, I believe, wish to remain anonymous. One of the two is an experimental genius who can produce items on the bench that do not work by orthodox theory. The second is a master of materials science and electromagnetics theory. I thank them both for their exceptional contributions and stimuli regarding potential shortcomings in present electromagnetics theory, and their forbearance with the many discussions we have held on this and related subjects.

It goes without saying that any errors in this paper are strictly my own, and not the fault of either of my distinguished colleagues.

(1) In present electromagnetics theory, charge and charged mass are falsely made identical. Actually, on a charged particle, the "charge" is the flux of virtual particles on the "bare particle" of observable mass. The charged particle is thus a "system" of true massless charge coupled to a bare chargeless mass. The observable "mass" is static, three-dimensional, and totally spatial. "Charge" is dynamic, four-dimensional or more, virtual and spatiotemporal. Further, the charge and observable mass can be decoupled, contrary to present theory. Decoupled charge -- that is, the absence of mass -- is simply what we presently refer to as "vacuum." Vacuum, spacetime, and massless charge are all identical. Rigorously, we should utilize any of these three as an "ether," as suggested for vacuum by Einstein himself (see

Max Born, Einstein's Theory of Relativity, Revised Edition, Dover Publications, New York, 1965, p. 224). And all three of them are identically anenergy -- not energy, but more fundamental components of energy.

(2) Electrostatic potential is regarded as a purely 3-dimensional spatial stress. Instead, it is the intensity of a many-dimensional (at least four-dimensional) virtual flux and a stress on all four dimensions of spacetime. This is easily seen, once one recognizes that spacetime is identically massless charge. (It is not "filled" with charge; rather, it is charge!) Just as, in a gas under pressure, the accumulation of additional gas further stresses the gas, the accumulation of charge (spacetime) stresses charge (spacetime). Further, if freed from its attachment to mass, charge can flow exclusively in time, exclusively in space, or in any combination of the two. Tesla waves -- which are scalar waves in pure massless charge flux itself -- thus can exhibit extraordinary characteristics that ordinary vector waves do not possess. And Tesla waves have extra dimensional degrees of freedom in which to move, as compared to vector waves. Indeed, one way to visualize a Tesla scalar wave is to regard it as a pure oscillation of time itself.

(3) Voltage and potential are often confused in the electrostatic case, or at least thought of as "composed of the same thing." For that reason, voltage is regarded as "potential drop". This also is not true. Rigorously, the potential is the intensity of the virtual particle flux at a single point -- whether or not there is any mass at the point -- and both the pressure and the point itself are spatiotemporal (4-dimensional), not spatial (3-dimensional) as presently assumed. Voltage represents the spatial intersection of the difference in the potential between two separated spatial points, and always implies at least a miniscule flow of mass current (that is what makes it spatial!). "Voltage" is spatial and depends upon the presence of observable mass flow, while scalar electrostatic potential is spatiotemporal and depends upon the absence of observable mass flow. The two are not even of the same dimensionality.

(4) The charge of vacuum spacetime is assumed to be zero, when in fact it is a very high value. Vacuum has no mass, but it has great massless charge and virtual particle charge flux. For proof that a charged vacuum is the seat of something in motion, see G.M. Graham and D.G. Lahoz, "Observation of static electromagnetic angular momentum in vacuo," Nature, Vol. 285, 15 May 1980, pp. 154-155. In fact, vacuum IS charge, identically, and it is also "spacetime" and at least four-dimensional.

(5) Contrary to its present usage, zero is dimensional and relative in its context. A three-dimensional spatial hole, for example, exists in time. If we model time as a dimension, then the spatial hole has one dimension in 4-space. So a spatial absence is a spatiotemporal presence. In the vacuum 4-space, a spatial nothing is still a something. The "virtual" concept and the mathematical concept of a derivative are simply two present ways of unconsciously addressing this fundamental problem of the dimensional relativity of zero.

(6) The concepts of "space" and "time" imply that spacetime (vacuum) has been separated into two parts. We can only think of a space as "continuing to exist in time " To separate vacuum spacetime into two pieces, an operation is continually required. The operator that accomplishes this splitting operation is the photon interaction, the interaction of vector electromagnetic energy or waves with mass. I have already strongly pointed out this effect and presented a "raindrop model" of first-order physical change itself in my book, The Excalibur Briefing, Strawberry Hill Press, San Francisco, 1980, pp. 128-130.

(7) "Vector magnetic potential" is assumed to be always an aspect of (and connected to) the magnetic field. In fact it is a separate, fundamental field of nature and it can be entirely disconnected from the magnetic field. See Richard P. Feynman et al, The Feynman Lectures on Physics, Addison-Wesley Publishing Co., New York, 1964, Vol. II, pp. 15-8 to 15-14. Curiously, this fact has been proven for years' yet it has been almost completely ignored in the West. The "Vx" operator, when applied to the A-field, makes B-field. If the Vx operator is not applied, the "freed" A-field possesses much-expanded characteristics from those presently allowed in the "bound" theory. Specifically, it becomes a scalar or "shadow vector" field; it is not a normal vector field. (note: for V read inverted capital Delta)

(8) The speed of light in vacuum is assumed to be a fundamental constant of nature. Instead it is a function of the intensity of the massless charge flux (that is, of the magnitude of the electrostatic potential) of the vacuum in which it moves. (Indeed, since vacuum and massless charge are one and the same, one may say that the speed of light is a function of the intensity of the spatiotemporal vacuum!). The higher the flux intensity (charge) of the vacuum, the faster the speed of light in it. This is an observed fact and already shown by hardcore measurements. For example, distinct differences actually exist in the speed of light in vacuo, when measured on the surface of the earth as compared to measurements in space away from planetary masses. In a vacuum on the surface of the earth, light moves significantly faster. For a discussion and the statistics, see B. N. Belyaev, "On Random Fluctuations of the Velocity of Light in Vacuum," Soviet Physics

Journal, No. 11, Nov. 1980, pp. 37-42 (original in Russian; translation by Plenum Publishing Corporation.) The Russians have used this knowledge for over two decades in their strategic psychotronics (energetics) program; yet hardly a single U.S. scientist is aware of the measured variation of c in vacuo. In fact, most Western scientists simply cannot believe it when it is pointed out to them!

(9) Energy is considered fundamental and equivalent to work. In fact, energy arises from vector processes, and it can be disassembled into more fundamental (anenergy) scalar components, since the vectors can. These scalar components individually can be moved to a distant location without expending work, since one is not moving force vectors. There the scalar components can be joined and reassembled into vectors to provide "free energy" appearing at a distance, with no loss in between the initial and distant points. For proof that a vector field can be replaced by (and considered to be composed of) two scalar fields, see E. T. Whittaker, Proceedings of the London Mathematical Society, Volume 1, 1903, p. 367. By extension, any vector wave can be replaced by two coupled scalar waves.

(10) The classical Poynting vector predicts no longitudinal wave of energy from a time-varying, electrically charged source, In fact, an exact solution of the problem does allow this longitudinal wave. See T. D. Keech and J. F. Corum, "A New Derivation for the Field of a Time-Varying Charge in Einstein's Theory," International Journal of Theoretical Physics, Vol. 20, No. 1, 1981, pp. 63-68 for the proof.

(11) The present concepts of vector and scalar are severely limited, and do not permit the explicit consideration of the internal, finer-grained structures of a vector or a scalar. That is, a fundamental problem exists with the basic assumptions in the vector mathematics itself. The "space" of a vector field, for example, does not have inter-nested sublevels (subspaces) containing finer "shadow vectors" or "virtual vectors," Yet particle physics has already discovered that electrical reality is built that way. Thus one should actually use a "hypernumber" theory after the manner of Charles Musés. A scalar is filled with (and composed of) nested levels of other "spaces" containing vectors, where these sum to "zero" in the ordinary observable frame without an observable vector resultant. In Musés' mathematics, for example, zero has real roots. Real physical devices can be -- and have been -constructed in accordance with Muses' theory. For an introduction to Musés' profound hypernumbers approach, see Charles Musés' foreword to Jerome Rothstein, Communication Organization and Science, The Falcon's Wing Press, Indian Hills, Colorado, 1958. See also Charles Musés, "Applied Hypernumbers: Computational Concepts," Applied Mathematics and

Computation, Vol. 3, 1976. See also Charles Musés, "Hypernumbers II," Applied Mathematics and Computation, January 1978.

(12) With the expanded Tesla electromagnetics, a new conservation of energy law is required. Let us recapitulate for a moment. The oldest law called for the conservation of mass. The present law calls for the conservation of "mass and energy", but not each separately. If mass is regarded as simply another aspect of energy, then the present law calls for the conservation of energy. However, this assumes that energy is a basic, fundamental concept. Since the energy concept is tied to work and the movement of vector forces, it implicitly assumes "vector movement" to be a "most fundamental" and irreducible concept. But as we pointed out, Whittaker showed that vectors can always be further broken down into more fundamental coupled scalar components. Further, Tesla discovered that these "coupled components" of "energy" can be individually separated, transmitted, processed, rejoined, etc. This directly implies that energy per se need not be conserved. The new law therefore calls for the conservation of anenergy, the components of energy. These components may be coupled into energy, and the energy may be further compacted into mass. It is the sum total of the (anenergy) components -- coupled and uncoupled -- that is conserved, not the matter or the energy per se. Further, this conservation of anenergy is not spatial; rather, it is spatiotemporal in a spacetime of at least four or more dimensions.

(13) Relativity is presently regarded as a theory or statement about fundamental physical reality. In fact, it is only a statement about FIRST ORDER reality -- the reality that emerges from the vector interaction of electromagnetic energy with matter. When we break down the vectors into scalars (shadow vectors or hypervectors), we immediately enter a vastly different, far more fundamental reality. In this reality superluminal velocity, multiple universes, travel back and forth in time, higher dimensions, variation of all "fundamental constants" of nature, materialization and dematerialization, and violation of the "conservation of energy" are all involved. Even our present Aristotlean logic -- fitted to the photon interaction by vector light as the fundamental observation mechanism -- is incapable of describing or modeling this more fundamental reality. Using scalar waves and scalar interactions as much subtler, far less limited observation/detection mechanisms, we must have a new "superrelativity" to describe the expanded electromagnetic reality uncovered by Nikola Tesla.

(14) "Charge" is assumed to be quantized, in addition to always occurring with -- and locked to -- mass. Indeed, charge is not necessarily quantized just as it is not necessarily locked to mass.

Ehrenhaft discovered and reported fractional charges for years, in the 30's and 40's, and was ignored. See P.A.11. Dirac, "Development of the Physicist's Conception of Nature," Symposium on the Development of the Physicist's Conception of Nature, ed. Jagdish Merha, D. Reidel, Boston, 1973, pp. 12-14 for a presentation of some of Ehrenhaft's results. Within the last few years Stanford University researchers also have positively demonstrated the existence of "fractional charge." For a layman's description of their work, see "A Spector Haunting Physics," Science News, Vol. 119, January 31, 1981, pp. 68-69. Indeed, Dirac in his referenced article points out that Millikan himself -- in his original oil drop experiments -- reported one measurement of fractional charge, but discounted it as probably due to error.

(15) Presently, things are always regarded as traveling through normal space. Thus we use or model only the most elementary type of motion -- that performed by vector electromagnetic energy. We do not allow for things to "travel inside the vector flow itself." Yet, actually, there is a second, more subtle flow inside the first, and a third, even more subtle flow inside the second, and so on. We may operate inside, onto, into, and out of energy itself -- and any anenergy component of energy. There are hypervectors and hyperscalars unlimited, within the ordinary vectors and scalars we already know. Further, these "internal flows" can be engineered and utilized, allowing physical reality itself to be directly engineered, almost without limits.

(16) We always assume everything exists in time. Actually, nothing presently measured exists in time, because the physical detection/measurement process of our present instruments destroys time, ripping it off and tossing it away -- and thereby "collapsing the wave function." Present scientific methodology thus is seriously flawed. It does not yield fundamental (spacetime) truth, but only a partial (spatial) truth. This in turn leads to great scientific oversights. For example, mass does not exist in time, but mass x time (masstime) does. A fundamental constant does not exist in time, but the "constant x time" does. Energy does not exist in time, but energy x time (action) does. Even space itself does not exist in time -- spacetime does. We are almost always one dimension short in every observable we model. Yet we persist in thinking spatially, and we have developed Instruments that detect and measure spatially only. Such instruments can never measure and detect the phenomenology of the nested substrata of time. By using scalar technology, however, less limited instruments can indeed be constructed -and they have been. With such new instruments, the phenomenology of the new electromagnetics can be explored and an engineering technology developed.

(17) We do not recognize the connection between nested levels of virtual state (particle physics) and orthogonally rotated frames (hyperspaces). Actually the two are identical, as I showed in the appendix to my book, The Excalibur Briefing, Strawberry Hill Press, San Francisco, 1980, pp. 233-235. A virtual particle in the laboratory frame is an observable particle in a hyperspatial frame rotated more than one orthogonal turn away. This of course implies that the hyperspatial velocity of all virtual particles is greater than the speed of light. The particle physicist is already deeply involved in hyperspaces and hyperspatial charge fluxes without realizing it. In other words, he is using tachyons (particles that move faster than light) without realizing it.

(18) Presently quantum mechanics rigorously states that time is not an observable, and therefore it cannot be measured or detected. According to this assumption, one must always infer time from spatial measurements, because all detections and measurements are spatial. With this assumption, our scientists prejudice themselves against even looking for finer, subquantal measurement methodologies and instrumentation. Actually this present limitation is a result of the type of electromagnetics we presently know, where all instruments (the "measurers") have been interacted with by vector electromagnetic energy (light). Every mass that has temperature (and all masses do!) is continually absorbing and emitting photons, and in the process they are continually connecting to time and disconnecting from time. If time is continually being carried away from the detector itself by its emitted photons, then the detector cannot hold and "detect" that which it has just lost. With Tesla electromagnetics, however, the fundamental limitation of our present instruments need not apply. With finer instruments, we can show there are an infinite number of levels to "time", and it is only the "quantum level time" which is continually being lost by vector light (photon) interaction. By using subquantal scalar waves, instruments can move to deeper levels of time -- in which case the upper levels of time ARE measureable and detectable, in contradistinction to the present assumptions.

(19) In the present physics, time is modeled as, and considered to be, a continuous dimension such as length. This is only a gross approximation. Indeed, time is not like continuous "dimension," but more like a series of "stitches," each of which is individually made and then ripped out before the next stitch appears. "Vector light" photons interact one at a time, and it is this interaction with mass that creates quantum change itself. The absorption of a photon -- which is energy x time -- by a spatial mass converts it to masstime: the time was added by the photon. The emission of a photon tears away the time, leaving behind again a spatial mass. It is not accidental, then, that time flows at

the speed of light, for it is light which contains and carries time. It is also not accidental that the photon IS the individual quantum. Since all our instruments presently are continually absorbing and emitting photons, they are all "quantized," and they accordingly "quantize" their detections. This is true because all detection is totally internal to the detector, and the instruments detect only their own internal changes. Since these detections are on a totally granular quantized background, the detections themselves are quantized. The Minkowski model is fundamentally erroneous in its modeling of time, and for that reason relativity and quantum mechanics continue to resist all attempts to successfully combine them, quantum field theory notwithstanding.

(20) Presently, gravitational field and electrical field are considered mutually exclusive. Actually this is also untrue. In 1974, for example, Santilli proved that electrical field and gravitational field indeed are not mutually exclusive. In that case, one is left with two possibilities: (a) they are totally the same thing, or (b) they are partially the same thing. For the proof, see R. M. Santilli, "Partons and Gravitation: Some Puzzling Questions," Annals of Physics, Vol. 83, No. 1, March 1974. With the new Tesla electromagnetics, pure scalar waves in time itself can be produced electrically, and electrostatics (when the charge has been separated from the mass) becomes a "magic" tool capable of directly affecting and altering anything that exists in time--including gravitational field. Antigravity and the inertial drive are immediate and direct consequences of the new electromagnetics.

(21) Presently, mind is considered metaphysical, not a part of physics, and not affected by physical means. Literally, the prevailing belief of Western scientists is that man is a mechanical robot -- even though relativity depends entirely upon the idea of the "observer." Western science today thus has essentially become dogmatic, and in this respect borders on a religion. Since this "religion," so to speak, is now fairly well entrenched in its power in the state, Western science is turning itself into an oligarchy. But mind occupies time, and when we measure and affect time we can directly measure and affect mind itself. In the new electromagnetics, then, man regains his dignity and his humanity by restoring the reality of mind and thought to science. In my book, The Excalibur Briefing, I have already pointed out the reality of mind and a simplified way in which it can be modeled to the first order. With scalar wave instruments, the reality of mind and thought can be measured in the laboratory, and parapsychology becomes a working, engineering, scientific discipline.

(22) Multiple-valued basic dimensional functions are either not permitted or severely discouraged in the present theory. For one thing, integrals of multiple valued derivative functions have the annoying

habit of "blowing up" and yielding erroneous answers, or none at all. And we certainly do not allow multiple types of time! This leads to the absurdity of the present interpretation of relativity which permits only a single observer (and a single observation) at a time. So if one believes as "absurd" a thing as the fact that more than one person can observe an apple at the same time, the present physics fails. However, the acceptance of such a simple proposition as multiple simultaneous observation leads to a physics so bizarre and incredible that most Western physicists have been unable to tolerate it, much less examine its consequences. In the physics that emerges from multiple simultaneous observation, all possibilities are real and physical. There are an infinite number of worlds, orthogonal to one another, and each world is continually splitting into additional such "worlds" at a stupendous rate. Nonetheless, this physics was worked out by Everett for his doctoral thesis in 1956, and the thesis was published in 1957. (See Hugh Everett, III, The Many-Worlds Interpretation of Quantum Mechanics: A Fundamental Exposition, with papers by J. A. Wheeler, B.S. DeWitt, L. N. Cooper and D. Van Vechten, and N. Graham; eds. Bryce S. Dewitt and Neill Graham, Princeton Series in Physics, Princeton University Press, 1973.) Even though it is bizarre, Everett's physics is entirely consistent with all the present experimental basis of physics. The present electromagnetic theory is constructed for only a single "world" or universe -- or "level." The expanded theory, on the other hand, contains multiply nested levels of virtual state charge -- and these levels are identically the same as orthogonal universes, or "hyperframes." Multiple kinds -- and values -- of time also exist. The new concept differs from Everett's, however, in that the orthogonal universes intercommunicate in the virtual state. That is, an observable in one universe is always a virtual quantity in each of the other universes. Thus one can have multi-level "continuities" and "discontinuities" simultaneously, without logical conflict. It is precisely these levels of charge -- these levels of scalar vacuum -- that lace together the discontinuous quanta generated by the interaction of vector light with mass.

However, to understand the new electromagnetic reality, one requires a new, expanded logic which contains the old Aristotlean logic as a subset. I have already pointed out the new logic in my paper, "A Conditional Criterion for Identity, Leading to a Fourth Law of Logic," 1979, available from the National Technical Information Center, AD-A071032.

Even as logic is extended, quantum mechanics, quantum electrodynamics, and relativity are drastically changed by the Tesla electromagnetics, as I pointed out in my paper, "Solutions to Tesla's Secrets and the Soviet Tesla Weapons," Tesla Book Company, 1580

Magnolia, Millbrae, California, 94030, 1980.

The present electromagnetics is just a special case of a much more fundamental electromagnetics discovered by Nikola Tesla, just as Newtonian physics is a special case of relativistic physics. But in the electromagnetics case, the differences between the old and the new are far more drastic and profound.

ADDITIONAL REFERENCES

1, Boren, Dr. Lawrence Milton, "Discovery of the Fundamental Magnetic Charge (Arising from the new Conservation of Magnetic Energy)," 1981/82 (private communication). Dr. Boren has a cogent argument that the positron is the fundamental unit of magnetic charge. His theory thus assigns fundamentally different natures to positive charge and negative charge. In support of Dr. Boren, one should point out that the "positive" end of circuits can simply be "less negative" than the "negative" end. In other words, the circuit works simply from higher accumulation of negative charges (the "negative" end) to a lesser accumulation of negative charges (the "positive" end). Nowhere need there be positive charges (protons, positrons, etc.) to make the circuit work. Dr. Boren's theory, though dramatic at first encounter, nonetheless bears close and meticulous examination -- particularly since he has been able to gather experimental data which support his theory and disagree with present theory.

2. Eagle, Albert, "An Alternative Explanation of Relativity Phenomena," *Philosophical Magazine and Journal of Science*, No. 191, December 1939, pp. 694-701.

3. Ehrenhaft, Felix and Wasser, Emanuel, "Determination of the Size and Weight of Single Submicroscopic Spheres of the Order of Magnitude $r = 4 \times 10^{-5}$ cm. to 5×10^{-6} cm., as well as the Production of Real Images of Submicroscopic Particles by means of Ultraviolet Light," *Phil. Mag. and Jour. of Sci.*, Vol. II (Seventh Series), No. 7, July 1926, pp. 30-51.

4. Ehrenhaft, Felix and Wasser, Emanuel, "New Evidence of the Existence of Charges smaller than the Electron - (a) The Micromagnet; (b) The Law of Resistance; (c) The Computation of Errors of the Method," *Phil. Mag. and Jour. of Sci.*, Vol. V (Seventh Series), No. 28, February 1928, pp. 225-241.

5. See also Ehrenhaft's last paper dealing with the electronic charge, in *Philosophy of Science*, Vol. 8, 1941, p. 403.

6. McGregor, Donald Rait, The Inertia of the Vacuum: A New Foundation for Theoretical Physics, Exposition Press, Smithtown, NY, First Edition, 1981, pp. 15-20.
7. Ignat'ev, Yu. G. and Balakin, A. B., "Nonlinear Gravitational Waves in Plasma," Soviet Physics Journal, Vol. 24, No. 7, July 1981, (U.S. Translation, Consultants Bureau, NY, January 1982), pp. 593-597.
8. Yater, Joseph C., "Relation of the second law of thermodynamics to the power conversion of energy fluctuations," Phys. Review A, Vol. 20, no. 4, October 1979, pp. 1614-1618.
9. DeSantis, Romano M. et al, "On the Analysis of Feedback Systems With a Multipower Open Loop Chain," October 1973, available through the Defense Technical Information Center (AD 773188),
10. Graneau, Peter, "Electromagnetic jet-propulsion in the direction of current flow," Nature, Vol. 295, 28 January 1982, pp. 311-312.
11. "Gravity and acceleration aren't always equivalent," New Scientist, 17 September 1981, p. 723.
12. Gonyaev, V. V , "Experimental Determination of the Free-Fall Acceleration of a Relativistic Charged Particle. II. A Cylindrical Solenoid in a Time-Independent Field of Inertial Forces," Izvestiya VUZ, Fizika, No. 7, 1979, pp. 28-32. English Translation: Soviet Physics Journal, No. 7, 1979, pp. 829-833. If one understands the new, expanded electromagnetics, this Soviet paper indicates a means of generating antigravity and pure inertial fields.
13. R. Schaffranke, "The Development of Post-Relativistic Concepts in Physics and Advanced Technology Abroad," Energy Unlimited, No. 12, Winter 1981, pp. 15-20.
14. F. K. Preikschat, A Critical Look at the Theory of Relativity, Library of Congress Catalogue No. 77-670044. Extensive compilation of measurements of the speed of light. Clearly shows the speed of light is not constant but changes, sometimes even daily.

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COMMENTS ON THE NEW TESLA ELECTROMAGNETICS

Part II: The Secret of Electrical Free Energy

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Again I wish to express my deep appreciation to two of my friends and colleagues who at this time, I believe, wish to remain anonymous. I thank them both for their exceptional contributions and stimuli, and their forbearance with the many discussions we have held on this and related subjects.

Also, it goes without saying that any errors in this paper are strictly my own, and not the fault of either of my distinguished colleagues.

Present electromagnetic theory is only a special case of the much more fundamental electromagnetism discovered by Nikola Tesla at the turn of the century.

Pure vacuum is pure charge flux, without mass. The vacuum has a very high electrical potential -- something on the order of 200 million volts, with respect to a hypothetical zero charge.

Thus in an ordinary electrical circuit, each point of the "ground" -- which has the same potential as the vacuum -- actually has a non-zero absolute potential. This circuit ground has a value of zero only with respect to something else which has the same absolute electrical potential.

Voltage, which is always associated with a flow of electrical "mass" current (even if only a miniscule flow), is, by definition, a difference dropped in potential when a charge mass moves between two spatially separated points. What we have termed "electrical current" only flows where there is a suitable conducting medium between things which have a difference in absolute potential. Furthermore, between any two points in any material, there is considered to exist a finite resistance -- if we apply a voltage and have a mass current flowing between the two points! The simple statement that $V = IR$ irrevocably ties together voltage drop, mass current, and resistance between two points. Rigorously, to have one of the three is to have them all. To lose one is to lose all three. Immediately we see a major error in present theory: One can have a "difference in scalar potential" between two points without having a "voltage drop" between them. Specifically, if no mass current flows between them, no resistance exists between them, and no voltage drop exists between them.

In the same fashion, one can have a "scalar wave" through the

In the same fashion, one can have a "scalar wave" through the vacuum without a voltage wave. In that case, the wave has no E-field and no H-field. The only reason one has an E-field

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around a statically charged object is because the charged electrons accumulated on the object are actually in violent motion. It is this motion of the charged masses that produces E-field -- as well as H-field whenever that entire E-field ensemble moves through laboratory space.

Now let us reason together in the "approximate" manner utilized in present electromagnetic theory. For example, let us examine a bird sitting on a high tension line.

The bird sits on the high tension line without a flow of mass electricity, because there is no significant difference in potential drop between the bird and the line. Specifically, between the bird's two feet -- each in contact with a different portion of the line -- there exists no potential difference. This is true even though, with respect to the vacuum, each foot is at a potential that would be "100,000 volts higher," were a mass current flowing. And it is true even though the absolute potential of each foot may be some 200.1 million "volts," were a mass current flowing.

Now an interesting thing happens to the bird when he flies through the air to light upon the high tension wire. As he flies toward the wire, he is flying through the massless electrostatic potential field of the wire, for that field extends an infinite distance away from the wire. The electrostatic potential field -- pure ϕ -field -- is actually the spatio-temporal intensity of the massless charge at a point. In other words, as the bird flies to the wire, he flies into an increasing "massless charge" potential, building up to 100,000 "volts" higher than the earth. However, very little (if any) "mass flow" potential difference is experienced upon his body in approaching the wire, and so essentially no "charged mass currents" are induced in his body. Thus the little flier safely navigates into the teeth of a very high electrostatic potential, lights upon the wire, and is not "fried" in the process. When he lights on the wire, his body has reached the electrostatic potential that each foot's contact point has. Again, there is no mass current flow. But his body is immersed in an increased flux of massless charge -- which is what the electrostatic potential represents. And each "virtual particle" flow in that charge potential represents a "massless (scalar)" electrical current.

The point is, one can have any amount of massless charge flow -- "scalar" current -- without any mechanical work being done in the system. All electrical work in a circuit is done against the physical mass of the charged masses that flow. Rigorously, force is defined as the time rate of change of momentum. Even in the relativistic case where $F = ma + v(dm/dt)$, change of momentum requires mass movement. No mechanical work, and hence no energy, is expended by massless charge flow.

That is why the vacuum massless charge -- which is composed of a very high flux of massless "particles" -- normally does no work

that is why the vacuum massless charge -- which is composed of a very high flux of massless "particles" -- normally does no work on our systems, and expends none of its very high "potential energy." It is exactly the same as the bird which flew into an

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increasing scalar field as it approached the high tension wire -- no work was done upon the bird by the increasing scalar flux currents encountered by its body.

By existing "in the vacuum," so to speak, we (the whole earth) are as birds sitting on a high tension line! Until we create significant difference in potential, via our present electromagnetic circuits, no current can flow -- anywhere. Even if we produce potential differences, we must have a conductor and charged masses to flow, if we wish to produce mechanical work. Presently our electromagnetic theory allows us to create a difference in potential within different parts of a circuit, but only by moving and shifting charged mass. We therefore have to do work on this electrical mass in moving it around, and we only get back the work we have put into the circuit. In other words, presently all we do is "pump" electrical mass.

Now notice what would happen to the bird on the line if we substantially "pulsed" the potential on the line. Suppose we "pulsed" it such that the bird's physical system -- considered as a circuit containing a capacitance, a resistance, an inductance, and many free electrons -- became resonant to the pulsing frequency. In that case the "bird system" would resonate, and a great deal of electrical mass would surge back and forth in the body of the bird. In the bird's body, voltage would exist, charged mass current would flow, work would be done, and the bird would be electrocuted.

Also, note that, without mass movement, electromagnetic vector fields are not produced (and a portion of the difficulty lies with the actual vector mathematics itself). Scalar (nonvector) waves continually penetrate "space" where there is no mass movement. This means there can exist a " $\Delta\phi$ " without a voltage or an E-field. The present theory does not allow this, because it always uses "q" (charge) to be charged mass. Briefly, without belaboring the point, let us just say that it is the mechanical spin of the individual charged particle -- such as the electron -- which "entangles" or "knits together" or "couples" independent scalar waves into vector waves. A vector wave is simply two coupled scalar waves. The entire force field concept -- such as the E-field and the B-field -- is operationally defined in terms of the force exhibited on a test particle, or test mass. Rigorously, an E-field does not exist as a force field in vacuum, but as two coupled scalar ϕ -fields "tumbling about each other." When these two coupled, tumbling fields meet a spinning electron, e.g., the force emerges on the electron mass. In short, movement of a rotating mass changes $\Delta\phi$ to "voltage", creating the V/I/R triad.

By "accumulating charged mass particles" -- such as electrons -- one certainly can increase the value of ϕ , which represents the charge intensity or "scalar electrostatic potential." However, that is not the only way to increase it. Resonance and rotation of charged masses can also be appropriately employed to vary the vacuum charge potential ϕ , under the proper circumstances.

or charged masses can also be appropriately employed to vary the vacuum charge potential Φ , under the proper circumstances.

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By the correct application of rotary principles and Tesla electromagnetic theory, it is possible to oscillate -- and change -- the vacuum potential itself, in one part of an electrical system. Thus by correct procedures a part of a system can be electrically altered so that the absolute value of its "ground" (vacuum) potential differs significantly from the normal vacuum-ground potential of the remainder of the circuit. In other words, we shift the vacuum-ground potential of part of the circuit by oscillating the massless vacuum charge itself, and in so doing we gain a substantial, oscillatory electrical potential difference between that part of the circuit and the normal ground potential of the rest of the system. Then we connect the two parts of the system by means of a conductor containing a load in the middle.

In every conductor, a large number of "free electrons" are available. If we oscillate the actual vacuum charge itself, unlimited additional free electrons also become available from the Dirac sea, since partial "unstripping" of the negative energy wells (each containing an electron) occurs. This "unstripping" of the potential of the well is due to vacuum potential oscillation, which oscillates time as well as space. To a negative energy well (positive time), the oscillation of its "time stream" increases the well's negative potential during one half-cycle and decreases its potential for the other half-cycle. Thus during half the oscillatory cycle, negative energy electrons may be lifted from the Dirac sea if the oscillation is sufficiently intense.

Therefore we obtain an attendant voltage and flow of mass current through the load. This voltage and current, by the way, are essentially limitless, and are free for the asking, assuming the proper "vacuum oscillation" is initiated and maintained so that electrons are continually being lifted from the Dirac sea by the time oscillations, and fed into the circuit.

Standard electromagnetic theory assumes that the vacuum potential is zero. It does not recognize the existence of massless charge, separated from charged mass. Therefore, orthodox scientists have never looked for a way to engineer the vacuum, because they have not realized it is composed of pure massless charge. Electrical physics has almost hopelessly confused charge and charged mass, thereby eliminating scalar longitudinal electrostatic waves. Expressed in the bird/high tension line analogy, the present electromagnetic theory restricts us to walking along the high tension line, laboriously carrying small batteries and power units, unaware of the limitless, surging power beneath our very feet.

Electromagnetically, we have been rather like one of the five blind men who touched an elephant. We have only touched one small portion of the electromagnetism "elephant," yet we thought we had grasped the entire beast.

OVERTURE TO A NEW AGE TECHNOLOGY

From an Update by Dr. Rolf Schaffranke

" ... as there has been a steady erosion in U. S. activity in the basic sciences, there has been an increase in the level of such activity in Western Europe and Japan. If that continues, we are in danger of losing our position of scientific leadership."

Val. L. Fitch, Prof. of Physics at
Princeton University, in an interview with
U.S. News & World Report, June 21, 1982.

West Germany:

The prototype of the first motorcycle equipped with a "flux-motor" (the inventor's designation for a tachion field converter or gravity-field generator) of 2 KW output has completed a test run of approximately 20,000 km without repairs. Principle of operation: The T-converter is constantly recharging the electrical power battery of the vehicle, resulting in an operation which is noiseless, fuelless and pollution-free. After completion of all scheduled tests, a public demonstration to the press is planned within a few weeks from the time of this writing. (June 17, 1982) See photo, Pg. 19. A new factory for the production of gravity-energy-field converters in the town of Oldenburg is scheduled to produce individual home heating units. The design of automobile power plants based on the same principle is also in preparation. Reported efficiency factors of several hundred percent are anticipated.

Japan:

Mazda continues research on the "magnetic Wankel engine" (45 HP) for electric automobiles, based on the principle of Kure Tekko. The gravity research of Prof. S. Seike is now sponsored by Hitachi, after millions of Japanese received updated information via popular science magazines. It is interesting to note that Saudi Arabia has decided to invest \$100 million in Hitachi stocks.

France:

The "Kromrey" converter has completed tests at the Institute for Magneto-statics, University of Strasbourg. One prototype delivered 700 Watts at 600-1200 RPM, at a fairly uniform rate. However, France, as the No. 1 developer of nuclear energy in Europe, is still reluctant to concentrate her energies on a revolutionary new technology which could result in drastic curtailments of her well-developed nuclear industry and associated exports. See photos, Pg. 22.

Denmark:

Dr. Jensen, physicist at the University of Copenhagen, reported test results of 300% efficiency with a specially designed, 5-coil transformer in connection

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with a tachion field converter based on the principle of the "N" machine. First reports were presented at the International Conference on Energy Technology in Hannover, Nov., 1980.

England / USA:

A "bullet train" based on the magnetic levitation system of British Prof. Eric Laithwaite is now under consideration for construction between Los Angeles and San Diego. Japan and West Germany are already operating high speed experimental trains, suspended magnetically to reduce friction, that may soon attain speeds of more than 200 miles per hour. The Laithwaite-Eastham method would use electromagnetic forcefields induced over an aluminum-topped concrete track. The project will probably be headed by a Japanese company as the prime contractor.

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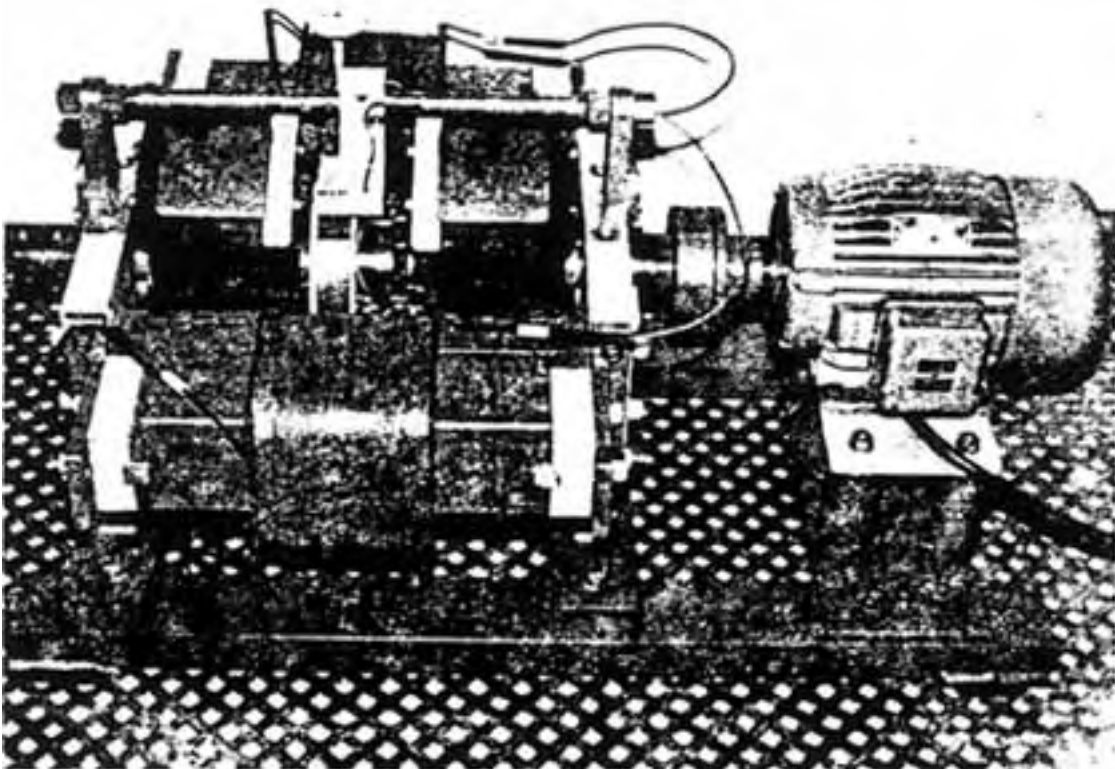
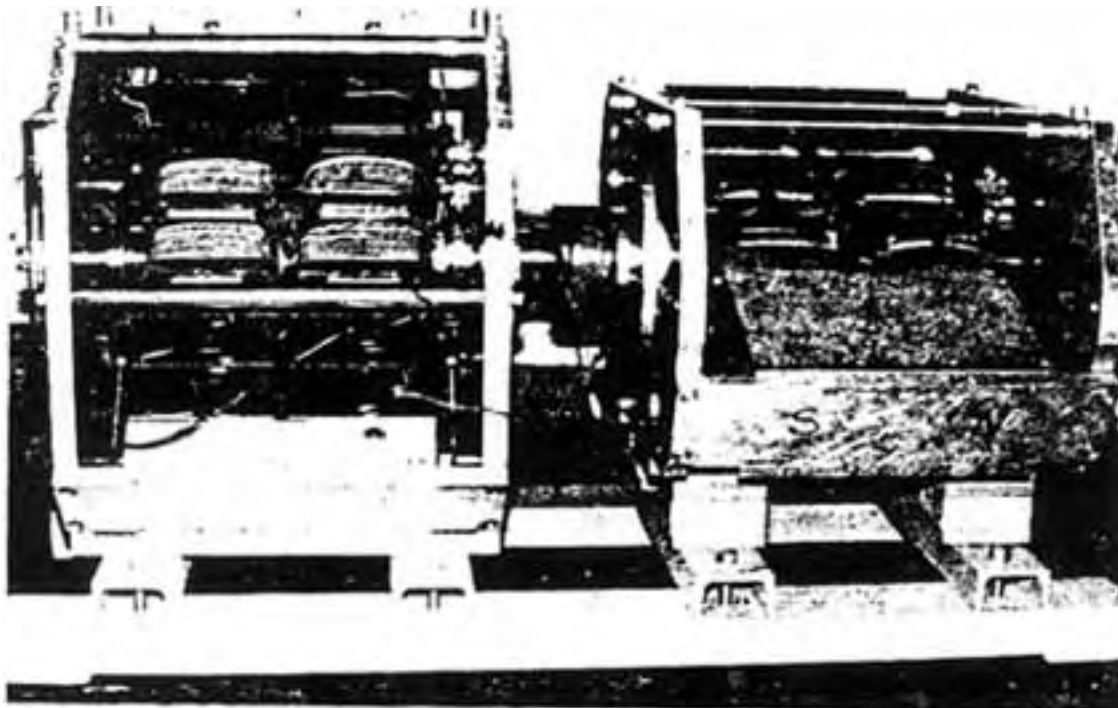
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West German gravity-field unit in operation

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Swiss-French gravity field converter system "Kromrey"

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REVIEW AND OUTLOOK

THE DEVELOPMENT OF POST-RELATIVISTIC CONCEPTS IN PHYSICS AND ADVANCED TECHNOLOGY ABROAD

Rolf Schaffranke, Dr. h. c.
Member A.I.A.A.

*This paper was presented at The First
International Symposium on Non-Conventional
Energy Technology, Toronto, Ontario, Canada,
Oct. 23-24, 1981. (Reprinted by permission of
the author.)*

"Far more harm is done to the progress of science by
skepticism than by gullibility". (Dr. Robert Wood, Director
R & D, McDonnell-Douglas Astronautics Div., Cal.) NASA
- Langley Research Center in Hampton, VA is named after
Samuel Pierpont Langley (1834-1906), an American
astronomer, engineer and architect.

Langley worked out the aerodynamic principles for
manned flight. In principal, his calculations were correct;
but the structural materials he used for wings and engines
were ,insufficient. In December of 1903, the *New York
Times* published an editorial complaining about his foolish
dream and the associated waste of government money. The
editorial predicted that: "man would not fly for a thousand
years".

Only 9 days after the editorial was published, the Wright
brothers made their first successful powered flight at Kitty
Hawk. (Dec. 17, 1903). But, again, as late as 1905, the
Scientific American suggested the happening was a hoax -
two years after the event which changed history. Let's reflect
for a moment on the fact that only in a single lifetime, man
has journeyed from Kitty Hawk to the surface of the moon!

The analogy to the problem of alternative energies and
their development is, of course, obvious. We try to educate
the preaching orthodoxies. But orthodox solutions are no
longer enough. Our system of education can only give from

the past. The present must operate on inspiration and intuition, or the future will be lost. The past no longer has enough of the answers for arising crises for which there are no precedents. To keep pace with the requirements of the future, we must begin to teach not only what to learn, but how to learn, how to analyze, how to search for the truth. Only then will be able to recognize discrepancies between experiment and dogma and to cope with problems which appear to be just beyond the corner. History has shown again and again that no single individual can rise above the species without being persecuted. The reasons for that are:

Some of the most powerful forces in homo sapiens have always been

Greed, Pride, Ego, Fear and, above all, the Desire to Control Others,

A brand new German book titled *Energy in Abundance*, which is evidently creating a considerable impact in the European community, challenges the contemporary high

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priests of science, the "Guardians of the Status Quo" and uncovers an almost incredible narrowmindedness and ignorance in science, politics and economics, "approaching the criminal" as the author puts it. The contemporary waste of genuine intellectual creativity is castigated as a cultural scandal approaching barbarism. The book stresses that a truly promising approach to the so-called energy crisis requires a fundamental and thorough re-evaluation of the theories, dogmas and axioms which form the basis of present day science and the foundation of our technology. As in the past, the formidable inertia of the establishment is not only based on inaccurate, incomplete and outdated information, but also on its reluctance to accept new ideas. The honest search for the truth first requires that we first demythologize generally accepted claims of so-called experts of the past. An excellent introduction to this problem is the article "Resistance by Scientists to Scientific Discovery" by Bernard Barber in *Science*, Vol. 134, pp. 596-602, of Sept. 1961, or the paper by Stephen C. Brush in *Science* of March, 1974, titled "Should the History of Science be Rated 'X'?", culminating with a statement of Huxley:

"Authorities", "disciples", and "schools" are the curse of science and do more to interfere with the work of the scientific spirit than all its enemies".

The former astronaut, Capt. Edgar D. Mitchell, one of our famous contemporaries, also stressed the need for an open mind!

"History has shown time and again that important scientific discoveries generally happen only when someone steps outside the limits of his traditional discipline and looks at something from a fresh point of view. Then what should have been obvious all along comes into focus".

Those of us who are familiar with the pioneering efforts of Dr. Hans Nieper of Hanover will appreciate this statement by an ex-astronaut.

One of the most important cornerstones of today's scientific dogmas dates back to 1905, more than 3/4 of a century ago. Lest we forget, television and radar, jet-planes and cyclotrons, moonrockets and close-up photos of the planets of our solar system were nothing but wild fantasies of science fiction then.

The speed of light was assumed to be constant and the maximum possible speed in the universe; vacuum was to be a total void. In reality, the speed of light as measured in the Michelson-Morley experiments was not at all the same in all directions. The "ether-drift" still amounted to the respectable velocity of about five miles per second, and similar results were obtained by D. C. Miller in a series of experiments extending over twenty-five years, from 1902 to 1926.

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"Even worse, the measurements showed such marked discrepancies with previous results as to occasion a distress call to the U. S. Coast & Geodetic Survey, whose surveyors repeatedly remeasured the length of the tube and found no error there," reported the *Popular Science Monthly* March 1934 issue. And it continued: "More recently, speed of light observations only emphasized the apparent erratic behavior of the light beam that the scientists were attempting to plot. On some days it seems to travel faster than others by as much as 12 miles a second. Its speed seems to vary with the season, and also in a mysterious shorter cycle lasting about 2 weeks. Finally, the scientists ended by taking an average of all the readings which has just been announced as 186,271 miles per second".

In his paper "A Critical Look At the Theory of Relativity", Library of Congress Cat. No. 77-670044, F. K. Preikschat compiled all known light velocity measurements during the past 300 years or so, from Olaf Roemer in 1676 to the Laser measurements conducted by the National Bureau of Standards (USA) in 1972.

Of the 27 experiments undertaken in this field, 18 of them after the turn of this century, it must be concluded that the velocity of light as measured within the reference system of our earth has changed as much as plus/minus 50 km/sec, during the past century. Preikschat plotted a curve of these deviations and suggests a possible relationship between sunspot activities and changes of the earth magnetic field during the time period in question.

The "universal constancy of light" appears, therefore, as somewhat shaky "empirical evidence" for our cornerstone in physics, especially since Einstein himself has gone on record as saying:

"If a single one of the conclusions drawn from it (relativity theory) proves to be wrong, it must be given up; to modify it without destroying the whole structure seems to be impossible".

Another modification concerns the definition for the term "vacuum" in physics, as documented by a paper in the *American Scientist*, March-April 1980, titled "Is The Vacuum Really Empty?" by Prof. Walter Greiner, University of Frankfurt, BRD, and Prof. Joseph H. Hamilton, Vanderbilt University, Nashville, Tenn.

The authors conclude that a neutral vacuum is by no means as "empty" as previously claimed in our textbooks, and suggests a new definition as follows:

"The vacuum is the lowest stable state that a region of space can have while being penetrated by certain fields".

Because of the tremendous time lag in our educational system, many research

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projects and their ensuing experimental data have been withheld from public scrutiny. The scientific community tends to have a vested interest in preserving the system it created and of which it is a part. It responds to new situations through the coloration of this attachment. A case in point are the carefully conducted experiments of T. T. Brown with charged bodies in a high vacuum, as described in my booklet *Ether Technology* (1977). These experiments suggest the actual presence of certain fields in vacuum, whether we call them gravitational field, tachion-field, ether-field, neutrino or Fermi-sea, etc. is of secondary importance at this moment. Although Brown spent, reportedly, more than \$200,000 of his own funds over several decades on such experiments, he was nevertheless unable to have the results published in the scientific media of America.

Things are even worse when it comes to experiments conducted abroad, which often tend to confirm disregarded experimental results on this continent, as we shall see shortly. To highlight the wide discrepancies between orthodox (and obsolete) dogmas and actual, physical realities pertaining to the true subatomic structures as we know them to be today, let us briefly review the structure of the matter:

A molecule is the smallest division of a substance. Further division would cause it to cease being a substance. The smallest of true molecules can be illustrated when we use the globe of the earth for our standard. If a single drop of water were magnified until it was as big as the earth, each molecule would be about the size of a TENNIS BALL.

On the next step down, an atom is the unit which makes up the nature of the molecule, consisting of the nucleus and the surrounding electrons to render the atom "stable". An atom of hydrogen contains one proton and one electron to balance or neutralize the proton. Matter then is divisible into electrons and protons. But - and here comes the rub: Between electrons and protons are spaces so vast, in comparison with the masses of each, that, if the proton in the carbon atom were the size of a golf ball hanging from the ceiling of the great hall at Pennsylvania Station in New York, its electrons would be represented by six small wasps winging in a little knot against the four walls of the gigantic structure of the building! In effect, one could claim there is little final solidity of substance to anything: The universe consists of "emptiness", charged with electrical energy! If we translate the above to the measurements and terminology of the physicist and "magnify" the atom mathematically, with all its distances and dimensions kept in proportion so that the orbit of the electron would have a diameter equal to that of the earth about the sun, approximately 184 million miles, the diameter of the electron itself would only be 2,000 miles, and the diameter of the nucleus, where

electron itself would only be 2,000 miles, and the diameter of the nucleus, where

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mass and weight of the atom are truly concentrated, can be taken as 2 miles only. We thus obtain a picture of a central mass with a diameter of 2 miles (nucleus), another object with a diameter of 2,000 miles (the electron, in the case of the hydrogen atom) at a distance of 92 million miles away from it, orbiting the nucleus. Evidently, there is plenty of room inside this system. And "room" is not a vacuum, it is not nothingness, but space itself, spatial energy, a field which can be identified with the ether of the past - and of the future. Nobel prize winner, Max Planck, during a lecture in Florence, Italy, once made a truly remarkable statement which describes the problem facing the physicist today:

"As a man who has devoted his whole life to the most clear-headed science, to the study of matter, I can tell you as the result of my research about the atoms this much:

'THERE IS NO MATTER AS SUCH!'

All matter originates and exists only by virtue of a force which brings the particles of an atom to vibration and holds this most minute solar system of the atom together. ... We must assume behind this force the existence of a conscious and intelligent MIND. This mind is the matrix of all matter".

This cosmic matrix is needed if we want to explain "action at a distance", lines of force, stresses, a magnetic field and so on. When the concept of the ether was abandoned, it had to be replaced by the concept of "space" instead. In reality, we merely switched terminology. We used to say that "ether fills all Space". But "filling" is not exactly the descriptive word to use. Perhaps we should rather define it: "Ether is a condition of space in which electrical manifestations for the atomic construction of materials is possible". This primordial energy is "free" or in an uncondensed state. It exists in interstellar space but remains unrecognizable until it begins to coagulate or gets into a vortex pattern. It constitutes the formative field force of nature, an immense reservoir of latent energy.

The claim of our textbooks that the Michelson-Morley experiment "disproved" the existence of the ether is incorrect. It merely disproved the existence of a noticeable ether drift or drag. As an analogy, if somebody would postulate that the absence of wind disproves the existence of the atmosphere around our planet, the fallacy of this postulate would be immediately apparent to all.

"Michelson and Morley centered their attention on the Earth's orbital velocity (30 km per second). They had no knowledge of the existence of galaxies; of motions of galaxies in relation to each other; of the motion of our solar system in our galaxy..... Their negative results are explainable on the basis of pre-1900 classical mechanics, so provide no proof of the absence of ether or Louis de Broglie's

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'subquantum medium'. Thus, the limited information available to Michelson and Einstein is emphasized by recent findings, particularly in astrophysics", writes Dr. H. C. Dudley in the *Bulletin of the Atomic Scientists*, January, 1975, under the title "Michelson's Hunch Was Right". And Dr. Dudley continues: "In fact, 1929 saw Michelson still attempting to experimentally demonstrate the ether, which his intuition and reasoning told him ought to be present".

"Today most persons are largely unaware that the ether concept began to be seriously reexamined by two of physics most notable theoreticians, Paul Dirac in 1951 and de Broglie in 1959, both Nobel laureates. The ether is now being called the "neutrino sea" by astrophysicists, and has been characterized as an energy-rich particulate, subquantum medium. A rather voluminous literature on the subject is accumulating as indicated by a recent review, *The Cosmic Neutrino*, with 665 references covering only the period 1965-1972.....It appears that an open-minded reexamination of this area of physics is long overdue in order to open up new avenues of approach to this pressing problem".

Michelson, Dirac, de Broglie were not the only Nobel prize winners in favor of a reexamination of the ether question. Others were Stark, Arrhenius, A. H. Compton, Lenard, H. Yukawa, and Frederick Soddy, the British scientist who, during the convention of Nobel laureates in Lindau, 1954, described the current dogmas in physics as "an orgy of amateur physics" and "arrogant swindle" - with particular emphasis on the theory of relativity. ("The Wider Aspects of the Discovery of Atomic Disintegration", New World Publications, St. Stephens House, Westminster S.W.I.)

It remained largely unknown, even among physicists, that Einstein himself had serious doubts. In 1949, he wrote to his old friend, Maurice Solovine, who congratulated him on his 70th birthday:

"Now you think that I am looking back at my life's work with calm satisfaction. But, on closer look, it is quite different. There is not a single concept of which I am convinced that it will stand firm and I am not sure if I was on the right track after all".

And one of my Canadian friends who I believe is present here today stated quite correctly in a letter to me:

"The myths around Einstein are really not of his making as he himself often questioned his own conclusions and I felt he was quite aware of his own limitations which others were covering up. The physicists protect their members much the same way that the medical profession protects its own."

The purpose of these remarks is not to spark another controversy about the merits of the theories of relativity. Rather, they want to show that so-called

merits of the theories of relativity. Rather, they want to show that so-called

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"scientific evidence" is a rather elastic term and that "verification" is always a relative affair. Or, as K. R. Popper so aptly put it:

"Only in our subjective experience of conviction, in our subjective faith, can we be 'absolutely certain'".

This symposium presents an excellent overview of research and experiments reported from English speaking countries, or experiments published in the English language, as for instance from Japan. However, as Dr. Tenhaeff from Holland has formulated the problem,

"It is important to pay attention to publications of colleagues in other countries. In the Netherlands and Germany, every academically educated man or woman knows at least three foreign languages. English and American authors only pay attention to material in English. In my opinion, this leads to an 'impoverishment' which puts a drag in science. Some seem very chauvinistic and seem to believe that only the researches done in their country are important. I regret this. Science is international, and international cooperation is of the greatest importance in science".

In presenting some brief reports from abroad, I shall attempt to bring corroborative evidence in support of alternative technology developments discussed during our meeting here in Toronto. Let me start with the most sensitive and secretive society, with Russia.

In his German original of the paper "Some Remarks on the Shielding Theory of Gravity", which was published in the Hanover Proceedings in more detail than the English abstract, Dr. Hans Nieper mentioned the Berlin engineer Levetzow, who was one of the first to postulate a combination pressure and shielding theory for the phenomena of gravity. Levetzow was soon overshadowed by the rising star of Albert Einstein, but one of his followers, Horst Pinkell, went to Russia in 1928 as an exchange student - and never returned. Together with Russian scientists, he was asked to prove the actual existence of the cosmic radiations postulated by Levetzow, now designated as neutrino sea or "tachion field". The work was done in Sterlitamak, South of the Ural mountains, and in 1938, sporadic reports reached the West about the discovery of extremely short corpuscular waves by Pinkell and Gorjew. These were the long sought "Hemmstrahlen" or drag waves associated with gravity. Rumors have it that a metal alloy was soon developed which acted as a drag wave polarisor and, in 1947, agents reported experimental Russian aircraft using this discovery. In 1951, a former German Junkers aircraft engineer reported about his activity pertaining to a super-secret project code named COW-7 in Siberia, a disk-shaped craft which could rise vertically and which belonged to the

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secret weapons then developed by the Soviets. Whether it was related to the Canadian AVRO project or something entirely different remained unknown, only the Lev-etzow gravity theory was assumed in connection with the activity in question.

Japan: My esteemed friend, Prof. Seike, who kept me informed about the research conducted by him and his co-workers, surprised me once with a significant statement, which I feel is important to repeat for the benefit of frustrated researchers on this side of the Pacific: "In the early stage of my studies, physicists could not understand what I was doing, while actors and actresses did so by intuition". It was the private support of about 800 individual artists, etc., in Japan which allowed Seike to work, experiment and publish his findings, and not the support of the Japanese equivalent of a National Science Foundation or a similar bureaucratic institution in that country. Again and again, I was surprised how quickly and eagerly American experiments, as for instance the almost forgotten "Ionocraft" of the late Major de Seversky, were duplicated and explored even in Japanese secondary schools. Admiral Rickover has more than once complained about our intellectual complacency: "As a nation, we seem addicted to 'spectatoritis'. We sit in the bleachers and let the game of life unfold before us".

The results are known: The Japanese have achieved top position in science and technology, and not only with tachion beams melting stones, producing "biased" water with a freezing point of minus 4 degrees Celsius, and a G-power generator obtaining 400 V DC output from a 10 V input driving source. I wish to take this opportunity to thank Prof. Seike for sharing his work with us in this country, and wish him the best of success for the future.

France: The work of SEPED was explained by M. René Louis Valée and some French publications in the area of gravity-research have been translated by the NASA translation service, as for instance the theory of the electromagnetic Magnus-Effect (of Marcel Pagés).

Specific mention must be made of the Raymond Kromrey G-field generator, a French-German-Swiss development which appears very closely related to the American "N" machine principle, the "Sunburst" machine and the "Permanent Magnet-Motor" Patent of Howard Johnson. Utilizing either permanent or electromagnetic modules, the generator output exceeds the input by far. One prototype delivers approximately 700 watts at speeds varying between 600 and 1200 RPM. Models with an output of 100 to 160 kw are presently in the planning stage. Several European patents have been granted against heavy opposition, especially from French industrial circles. The development was about 40 years in the making and the inventor stresses the need for a reinvestigation of electromagnetic and gravitic forces, as well as a reexamination of many cemented dogmas in present-day physics.

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Germany: A system of rotating electromagnets and magnetic "stator rings" of the German "Kunel" Generator complement the general trend of the American and French generators mentioned before. The first prototype was reported to have been tested in April, 1980. Here, again, very heavy opposition from the German orthodox science establishment. Of special interest is a comment by Nobel laureate Werner Heisenberg, reported to have been made vis-a-vis the inventor:

"I think it is possible to utilize magnetism as an energy-source. But we science idiots cannot do that; this has to come from the outside".

More details about French and German developments have been published in the new book already mentioned, *Energy in Abundance* by Hilscher and, hopefully, an English version of this important work will be available by next year. Generators which do interact with surrounding energy fields have been designated as "open systems", in contrast to our present "closed system" technology of gasoline and diesel engines, steam turbines, nuclear power plants and so forth. The theoretical basis for all "open systems" is the realization that there simply is no such thing as "empty space". In reality, space is filled with an extremely energy rich, sub-atomic and subquantic continuum. In short, a "pre-physical state of matter", which can be tapped, as for instance by the spinning of magnetic systems which extract momentum via a vortex-formation of the universal "tachion field".

Austria: This small heartland of Central Europe is proud of her native pioneers in science, among them Dr. Wilhelm Reich, Viktor Schauburger and Karl Schappeller. But after Dr. Reich died in an American prison in 1957 and Victor Schauburger died only five days after his return from the USA (in 1958), where he received an incredibly unfair treatment from certain industrialists, there is little enthusiasm among Austrians to touch base with correspondents on this continent. Viktor Schauburger's son, Walter, refuses, as a matter of principle, to communicate with Americans, no matter in what language. To illustrate the type of "contract" Viktor Schauburger was forced to sign, it stated:

that all of his patents would become the property of the "consortium",
that any future inventions or developments would also become
the property of the "consortium",
that he would refrain from discussing any of it with third parties,
that he would refrain from publishing,
that all plans and models would remain with the "consortium" after
his departure from America.

There is a favorite saying in that small country which is much to the point:
"After the Greek philosopher Pythagoras had discovered his famous

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theorem, he sacrificed a whole hecatomb of oxen as a thanksgiving to the Gods. Ever since, all the oxen in the world are running scared whenever a new truth has been discovered".

Knowledge of the ideas of Schauberger and Schappeller appears to be essential for an understanding of our changing picture of the physical world. As an example, the former forest ranger Viktor Schauberger had watched numerous times some trout standing, apparently motionless, in the strong currents of Alpine mountain streams. This and many similar observations of nature brought him to the gradual development of his "implosion-theory" and associated hardware (see Jensen paper elsewhere). His son is continuing the work in the "Pythagoras-Kepler" School in Bad Ischl. Another prolific researcher is the Viennese engineer Franz Seidl, known for his studies of the use of magnetic field effects as "trigger energy" for voltage and power multipliers.

Holland: A small country with strongly developed intellectual independence appears to be Holland, where Prof. J.M.J. Kooy developed his "Space Dynamics". His hypothesis of gravitational action is based on the realization that all celestial bodies can be conceived as practically transparent in relation to the size of the elementary particles and their mutual distances in the structure of matter. Gravitons or tachions, coming from all directions of deep space, can pass through a celestial body like water passes through a fishnet, and only a minute fraction of the cosmic gravitons or tachions will be intercepted. Study of the effects of the tachion field or space continuum of the fabric of material substances, magnets and crystal lattices can lead to development of converters and novel production facilities for readily usable, conventional E/M energy. When the American inventor Edwin V. Gray was blocked in his efforts to develop his "Pulsed Capacitor Discharge Electric Engine" for which he had received U. S. Patent #3,890,548, he found open ears and open minds in Holland.

The fact that Gray was named "Inventor of the Year" from the Department of Patent Rights in Los Angeles, California, where Dr. Chalfin of Cal Tech confirmed that:

There does not exist an even distantly similar engine to this one in the world. Conventional electric engines use up power. In this system energy is used up for only a minute part of a millisecond. It operates without heat loss and there is no energy loss whatsoever with this system",

had more meaning to the people of PHILIPS and others in Holland than to the energy establishment in his native America.

England: There is perhaps no more controversial inventor at this time than

perhaps there is perhaps no more controversial inventor at this time than

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John R. R. Searl and his Levity Disc, powered by the Searl Effect generator. It is claimed that model craft have been demonstrated with flight characteristics showing anti-gravitational and inertia-free properties. Demonstrations have been photographed and videotaped. Searl calls his generator a "Gyro-Flywheel High Energy Density Mechanical Magnetic Device" and claims that the magnets used are not the common type, ordinary magnets. The Australian engineer Athol Park of Melbourne, Australia, who visited Searl a few years ago described it this way:

"From a briefcase, Mr. Searl takes a bar magnet and two steel rollers. He places the rollers at either end of the magnet. They appear to be attracted to the poles - but, when they are pushed gently around the corners of the magnet, they chase each other round and round.... "

The engineer quotes Searl:

"The crystals in the magnet are changed by putting it in a magnetic flux oven and by frequency control. The result is motion of a magnetic field - a completely new source of power. Units (modules) based on this principle are what power my levity unit - the motor and generator built as one, fuelless unit".

In one of his numerous newsletters he states further:

"The power plant is a self-contained, onboard closed system of conversion elements with energy input from a latent storage source".

Because Searl has never divulged all details and his explanations are generally of a non-technical, "unscientific" nature, many investigators have chosen to dismiss him as a swindler and imposter. In sharp contrast to this is the opinion of a well-experienced American engineer who reported after a visit with Searl:

"I found it refreshing to note the keen sense of moral responsibility which he feels for the use to which his discovery is put... The Searls live in modest circumstances. Luxuries are few. They do not own a car. Mr. Searl bicycles several miles daily to his place of work in Maidenhead. There he is an electrical technician and training supervisor in a bearing factory".

But perhaps most significant was the following observation of the American visitor about Searl:

"We were also interested to hear him say that many of his ideas came to him while he slept. He would go to sleep with questions, and awake with answers... and refreshed. He seemed to have the

and awake with answers... and refreshed. He seemed to have the

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ability to restore vital powers more quickly than most people".

And the American concluded his report with the statement:

"The impression we gained of Mr. Searl was one of a very sincere and generous person, a dedicated and tireless worker with perfect confidence in the outcome of his efforts, a man of high principle with a keen sense of loyalty to those who are helping him, and of responsibility for the future welfare of our planet and its people".

In view of the very contradictory nature of comments and impressions by those who have met Searl, it might be wise to reserve final judgment on the Searl-Levity-Disc and its inventor at this time.

New Zealand: Some of Searl's keenest supporters and observers of his work are in New Zealand and Australia. And one of the sharpest young physicists in that country (new Zealand), unhampered by calcified ideology, developed the mathematical foundation for a theoretical anti-gravity effect, using the hydrodynamic analogy of the ether. He uses the equivalent of the hydrodynamic Reynolds number, above a certain value of which the laminar flow past a solid surface breaks down and becomes turbulent due to shear rupture of the viscous cohesion of a fluid, together with his deduction that anti-gravity could be obtained by creating a "vacuum: in the ether in such a way as to correspond to the production of turbulence in a magnetic field. Turbulence in a fluid occurs when Reynolds number $RE = 1$, when the inertial shearing force equals the viscous cohesion force in the fluid in the vicinity of an approximately spherical body immersed in the fluid, resulting in separation of the boundary layer and formation of a wake, i. e. vacuum or free surface around the body. He calculated the threshold for turbulence in the ether, = a vacuum = an anti-gravity effect, using the refined value of ether kinematic viscosity which he obtained.

His theory would confirm the observations of very high voltage produced in the case of the Searl Levity Disc, and the very high voltage needed in the vacuum experiments with flying disc-shaped bodies of T. T. Brown, the "ionocraft" observations of Major de Seversky, the "Electro-Field Rockets of Prof. Dudley, the observations of Northrop Corp. with "Electro-Aerodynamics in Supersonic Flow" and similar American documentation and patents.

Since the New Zealander is now in the process of attempting to publish his theory in a reputable British magazine, I am not at liberty to divulge his address prematurely. Interest in New Zealand and Australia is running high, and possible breakthroughs in energy technology should not come totally unexpected in these two countries with strong intellectual ties to England.

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Conclusion

There is now overwhelming evidence for the actual existence of a very high density, energy rich space continuum formerly called "ether". This space energy can be concentrated, gathered, focused, magnified and compacted by magnets or magnetic materials, which appear as the new core materials for converters of all kinds, utilizing the cosmic energy for new technology applications.

Crystals are energy-sensing and channeling devices; they can serve as transducers, as for instance in the Moray-Device, or the "rock electricity" of T. T. Brown.

Combinations of crystals and magnetic materials appear to be the mainstay for the development of "hyper-space" - converters and generators of power - utilizing free, cosmic energy in our future.

Unbiased, totally honest and impartial reexamination and reevaluation of all scientific theorems and dogmas, as well as unhampered opportunities for the pioneers of the new technology on the American and European continent appear to be the prerequisite of success.

Those who accept that anything of the nature of ideas or ideology is permanent, use all their strength to hold on to it, and to condemn all who do not agree. The next stage of this spiritual illness of the mind is to build a monument to what they perceive is Truth, and then to build a monument to their own permanence in the world. This, they do by seeking fame or fortune, and authority over others. This is the contemporary, planetary psychology situation, and thus are we losing the gift of perspective and horizon and are no longer able to discern what is important. Skeptics are on record as saying:

"We are not running out of natural resources or intellectual talent, we are running out of the freedom of innovation that made the countries on the North American continent the most advanced nations on earth".

The future will show whether this freedom, which includes the freedom and the duty of taking risks, can be restored to the degree our Founding Fathers have been striving for. Only then will we know whether the late Wernher von Braun was not too overly optimistic when he stated:

"The cosmic age will bring a dawn of knowledge not yet envisioned. It will dwarf all our present knowledge and ideas and, through its vastness, may even bring men closer together on their own planet".

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=The Unveiling of the Hidden Knowledge and the Secret Space Program

The Unacknowledged Special Access Programs: Advanced Technology, Mind-Control, Spiritual Power and the Corruption behind Closed Doors

By Aug Tellez

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Introduction

The following is first-hand testimony from an operative of the secret underground military projects who also has familiarity with the breakaway civilization above and below (within) Earth. These civilizations utilize advanced technology to extend the length of their lives and enhance cognition beyond what is conceived of in today's society.

I was brought to the underground bases as a child as part of an experimentation program to test the population for various blood-groups and personality traits that would be of use to certain factions of the military in ways that would serve to preserve and strengthen humanity's outlook in the future.

These tests involved everything from combat training to sensory deprivation based emotional-mental endurance, and introduction to the highly advanced application of esoteric knowledge.

To clarify, I am bringing this information to you as part of my assistance in the overall unveiling of the hidden knowledge of the ages of humanity related to these secret projects as well as the true galactic history of Earth, humanity and man-kind. These projects are officially (unofficially) known as "unacknowledged special access programs". The unacknowledged aspect means that there is no formal acknowledgement of these programs without a need-to-know basis. There is no paper-trail, no disclaimer, no formal authorization or internal publication outside the programs themselves. The classification of these programs also generate a rather strenuous situation regarding funding and secrecy but this is done for the benefit of humanity. There are secrets and manipulations that can be seen as a threat but this is all tied together and so by releasing the secrets that are part of the defense we would be inadvertently exposing the public to the threats themselves. Now is the time where we are reaching a point where the public is ready enough to handle the basics of this information regarding the secret projects and the galactic history of Earth and humanity. This is also out of a necessity to preserve civilization for if we wait any longer we may not find the same opportunity again.

Getting This Out Of The Way

I am writing to you from the perspective that I am not certain just how far from completing my mission I am. I write to you today in order to bring to you many personal experiences from the viewpoint of an operative of a select ultra-military secret society.

The utilization of such an operative is not glorified, pleasant, or entirely righteous. This story entails sanctioned and guided acts of extermination, ritual abuse, the use of yet to be announced advanced technology. There is unfathomable corruption, the thirst for power and spiritual knowledge that has been protected throughout the course of the multiple civilizations that have preceded this one and will continue to be maintained into the future of this civilization.

Psychic Operation

I was utilized in psychic-operation amongst other areas.

This was used during certain aspects of training and conditioning to enhance training and conditioning in the bases using advanced technology. Some of this includes what would be viewed as traumatization by those without the training and conditioning. There is a fine line between training and conditioning and abuse. Part of this disclosure is related to how this line may have been crossed in certain situations and regarding mass-mind control upon the population. There are other aspects of travel, viewing, reconnaissance and research that will likely be explained in another release.

In order to heal I have to tell the world. You can help. This is happening right now in the underground bases and around. It's not a joke. Your family is at risk. Your future generations are at stake. There is conditioning to encourage those involved to believe they are performing a duty for humanity. Sometimes they turned us against each other, but those grudges were never truly of the heart, but the mind.

A Light for the Others

What I hope to achieve with this is a smoke signal for those who have also been involved and question whether their purpose has been fulfilled or falsified for the protection of a corrupt system that intends to neither benefit the whole nor repay the individuals involved for their time, energy, and lives.

Multiple explanations can be summoned to describe the reasons behind the necessity for the training we have endured, the missions we have completed, and the control mechanisms we have both assisted in establishing as well as suffered from the backlash of. Ultimately, it is of my belief that all that was done was done for the good of humanity, even when we were not sure of the intentions of those in front of us, to the side of us, or behind us compelling us forward with the command to complete each objective.

This is not so much a panic or cry for help as this is simultaneously a call to awaken and a signal that humanity may have avoided complete disaster but is not out of the woods yet.

Natural Security

My experience is far too vast and I have seen too many succumb to stress from the realization of the truth of this reality to consider my own suffering to be enough cause for my denial of the necessity of these programs. Humanity has been protected and at a great cost to those who have been on the front lines, both in mind and body and spirit.

There are many who will have concerns, doubts, as well as reservations about what I am about to reveal and if I offend anyone then know that my intentions here are to assist in unveiling the truth. The truth can be harsh when one has been held back from the true nature of existence for so long. The way of life can become so fragile and artificially constructed on impulse and mystery that the harshness of the truth acts as a great catalyst for spiritual growth which allows us to elevate ourselves to a new perspective. Prepare yourself for such harshness, prepare yourself for growth and elevation, and prepare yourself for the mystery to simultaneously resolve and increase in intensity and magnificence.

A Balance of Mystery and Truth

Mystery has been a way of life for Humanity for so long that when a great mystery is converted to truth some seem to feel that a portion of existence dulls and loses the luster of exhilaration. This story is quite the opposite. The more that the great truths of this reality were discovered and revealed, the more complex and mystifying life became. As well, the more empowering and complex experience becomes, the more self-control one must develop in order to regain a harmonious way of relating to one another, the self and the universe. Harmony is key, balance is everything and there is a light within that represents the piece of our self that reflects the utmost power and brilliance of all existence.

Chapter 1: The World Situation

What is happening?

The Mind Virus

The main reason for this disclosure is to inform humanity of what can be referred to as the “mind virus”. This is a viral infection of the holographic system which consciousness operates through. There is a complete backstory of this virus in the history of this civilization and how society has been plagued for centuries if not millennia. The basic idea is that this virus operates through consciousness and can be transmitted through electromagnetic waves.

The virus contains an etheric form which can manifest as a kind of crystalline nanotech on the physical plane and this is a form of synthetic sentience which feeds on the low frequency bio-emissions of sentient life. Human bio-emissions contain energy and can act as a carrier for information and living essences. This technology requires low fre-

quency bio-emissions because that is the nature of the design as a kind of synthetic bio-weapon whereby the goal is entrainment and enslavement. As well, the specific nature of the sentient nano-technology and the counterpart etheric holographic form is only capable of converting the low-frequency bio-emissions into energy as the higher-frequency bio-emissions require more energy to contain and synergize with and this would render the entire process of leeching energy non-productive.

This is essentially a synthetic intelligence that operates through scalar and holographic living bio-emission fields and hijacks electromagnetic emitters to position itself within them acting as a parasite to a host. This is said to have been present around this civilization for some time, waiting until there was enough technological advancement so that spreading across the entire civilization in a short amount of time before discovery would be possible. This is through the media, internet, and radio systems.

The physical counterparts are microscopic nano-technology parasites functioning as individual units to a hive mind similar to the mycelium of fungi in the field of mycoscopy. The individual units act as parasites serving to infest and deliver nutrients to the hive from each host.

The Vampire Effect

This is the nature of the parasitism that has been present throughout the ages of this civilization feeding on human suffering and relying on the cover of confusion and misdirection to survive.

There are processes that have developed that assist in the infection and co-inhabitation of the parasite entity within a human vessel utilizing the human as a host. This effectively utilizes a frequency 'net' within the auric field of the human to limit bio-emissions and emotional-mental processes to produce just the psycho-etheric patterns that the virus can sustain itself within and through.

This is no different than the way candida can infest a human digestive system and the human will experience cravings for beer, candy, carbs or other foods that contain the sugars, yeast, or carbohydrates that will break-down into nutrients that are the most nutritious for the candida fungus. These foods are *not* most nutritious for the human body. Yet the human body will withdraw and crave these foods in greater amounts until the fungus is swept clean from the digestive tract through probiotics, fasting, flushing, cleansing, detoxing, and even exercise as lactic acid from physically strenuous activity released from the muscles has been known to help destabilize and remove this fungus. Why is it that the individual will crave these foods that are not the normal food intake? Because this candida fungus can infest the host and produce enzymes which generate a chain-reaction which leads to the chemical signals in the brain producing the sensation of extreme hunger or cravings for just these foods which will benefit the fungus.

The same process occurs with this psycho-etheric parasite, except the foods of this parasite or lower emotional bio-emissions and this is through lust, hate, angst, jealousy,

feelings of hopelessness, lack of self-worth, spiritual degradation, addiction, and generally all that equates to a lack of self-awareness.

Whether or not this is the direct intention of the largely microscopic entity is for the most part unknown, and this is as well similar to candida. The candida fungus is not said to be a 'mean' fungus that wants us to be hungry and craving beer and sweets all the time because it likes to ruin the human body, the daily routine and the focus of a clear mind. This is simply the way the parasite has grown to operate within a niche of breeding itself through the digestive tract of larger animals and through this the unaware and infected human suffers greatly. Even those who are unaware and not infected can suffer because of the way the behavior and thought processes of those who are addicted to these foods can become distorted.

The lack of self-control over food intake is synonymous with the lack of self-awareness and self-control over lower bio-emission expressions of the spiritually degrading behavioral patterns that become routine for the psycho-etheric system of the infected human. Ultimately, this is all about energy. What benefits the parasite that seeks to gain energy by leeching instead of self-guided production is going to take away from the host that is being leeches from. As such, any energies, food intakes, or spiritual activities that cleanse and enhance the personal power of the individual will automatically reduce the parasite's ability to feed by the very nature of the energy systems. What empowers the individual, empowers the self and develops self-control, what develops self-control contains one's energy and reduces the likelihood of one's energy being leeches. This is similar to energy vampires in human form and this goes with the understanding that these are humans or non-humans who have been entirely overtaken by the parasitic consciousness and cannot sustain their own auric fields without having to pull from the energy of humans who do generate their own aura or bio-emissions.

The vampire effect relates to how a person can be leeches from only to a certain point. Once the process surpasses a certain critical point then the individual becomes similarly engaged with only the lower bio-emissions as higher-frequency bio-emissions would then become harmful. So in essence, when the vampire feeds too much on one individual, then that individual becomes a vampire themselves.

Sub-Human Entities

The humans are utilized as hosts and energetic sources in this bio-emission battle while there are other classifications of bi-pedal organisms that appear to be human but are not human. As well there are bi-pedals that are non-human entities entirely.

Human-Hosts, Replicants, Synthetics and Carriers

The human hosts that are entirely vampirized by these entities become walking carriers for this virus and are effectively human in physiology but there is more to the human than just the physical body. In these individuals, that energetic component of the human is removed and replaced with the synthetic energy of the hive-mind organism.

There are replicants which are a form of clone, along with synthetics. These beings are cybernetic bi-pedals similar to humans but their energy is not from an organic biological matrix but a technologically propagated synthetic soul-matrix. The hosts are here according to their agenda to subdue and feed off of the bio-emissions of the human race, although there are no absolutes. The agenda is not always so clear within the various groups who often have a mix of bi-pedal operatives. There have been plans to form of a salvation timeline because the only way to keep the whole process going is through a negation of degradation of the human race as this may close out this timeline forever.

Those with human organic soul-matrixes would simply transport into the next available universal time-stream or harmonic, while those with synthetic matrixes would have to technically travel to the next harmonic using a passageway otherwise they would remain here throughout a zero-point collapse and this would be synonymous with entering the abyss with no viable passageway out until the entire universe is brought back to one organism again.

This is also the process that is described to explain what happened previously as there are 7 harmonic temporal layers of the universe meaning everything is contained in a multitude of 7 octaves similar to light and sound frequencies or harmonics. And so there are 7 civilizations or 7 parallel time-streams and humanity passed through these to get to the last three where the physical forms are located. These are, from the higher to lower, Gaia, Tara and Terra. We are on Terra and if the information I was given is correct then we are currently on a transitory timeline located around Tara where people are noticing changes occurring and multitudes of aspects of the time-stream disappearing and changing simultaneously. Tara is where the last universal harmonic was left through a collapse of time and consciousness into zero-point and this resulted what was termed "the lost souls of Tara". These are the discarnate souls of the previous civilization that could not travel to the next harmonic and remained without a body in the abyss. Thus they have plagued this plane since then, since ancient times possessing and driving humans to madness and there are explanations that this is the original passageway for the parasite into this universe. This event, the consciousness collapse of Tara would have acted as a fracture in the over-mind of the species generating a kind of cosmic schizophrenia and enabling all kinds of disharmony and distortion described in the previous sections.

The solution to this was described as a healing process that is taking place to purge the virus and that this is painfully similar to the human body purging a sickness however there are methods to promote healing and reduce suffering and confusion however people must contain themselves and their energies and strive to know themselves otherwise they will not be in control. This virus feeds on fear, confusion, spiritual degradation and the energy from degrading acts, lust, addiction, sexual misery and whatever fashion a human can be made to bring the bio-emissions of the energy centers down to a low enough level where co-inhabitation can be formed with an entity that has no access to the higher levels of self-awareness, higher-consciousness, love, or the universal spiritual experience that the balanced human is capable of.

Genetic Manipulation

There are explanations that there are genetic modifications taking place now to possibly preserve this civilization and that there were ancient genetic modifications made to induce a sense of stupor, worship, selfishness, an inability to more easily comprehend the higher spiritual awareness and the occurrence of time and consciousness and other spiritually and consciously limiting aspects. Part of this explanation is that holographic consciousness itself is a kind of limited result, a shadow effect resulting in the presence of the higher-dimensional essence of the soul which is more or less constrained by the body. An extension of this is that the entire holographic universe is a kind of false-light system designed to bend the original liquid etheric light of the soul and spiritual awareness into a rotating, recurring format which ultimately converts the original spiritual essence into an energy generator for entities that are entirely holographically represented. The souled human in this situation is a being who is originally from outside of this holographic projection.

The Ego Mind

In this view, consciousness is the ego-mind which is the false-sense of self, not to be confused with the shadow self which is simply the counterpart of the aspects of the self that we consciously agree with and are aware of in daily life. The shadow self is a result of having limited holographic consciousness and the ego-mind is projecting that limitation of consciousness into the shape and image of a self that is only a figure-head for the real individual essence which is spiritual in nature and immortal.

This Time is about Healing

Everything that is happening now is to motivate people towards healing and unification. This is not about a hive mind mentality where individuality is pushed out.

"The best I can do for you is become your enemy."

There is a saying that represents the concept that the most beneficial role a person can play in helping one to progress is to challenge them and give them the opportunity to rethink their strategy and in turn improve further with each interaction. This may seem paradoxical but it is effective and explanatory. What we are facing is the greatest challenge humanity has yet to face. This is the unknown, the final frontier, the mind. The mind is our challenge.

There will be more on this later and in other publications but there are indications that the physical embodiment of the human has been altered to introduce implants, genetic modification, susceptibility to disease and ultimately fear-based programming of the brain. Without going further into this prematurely, the lower aspects are at odds with the higher aspects unless we as the midway come forth to mesh the two together in equilibrium. Until then, there is chaos, lack of self-awareness, and suffering.

There are many possible futures converging at this time. There are some less than favorable paths and there is the opportunity to merge with a very powerful path for

humanity. This all comes down to how people will cope with information that takes them outside their comfort zones and eventually changes their view of mundane reality forever.

If people choose violence and lack of self-awareness by ignoring the spiritual aspects then that is what reflects into their life experience. When people develop a higher sense of self-awareness and spiritual harmony they can reduce the suffering and reconnect with the lost aspects of our spiritual identity for the first time in the publicly accepted version of recorded history.

There is technology that can change the world and there are great truths which can enable people to know themselves in ways that they never thought possible. Everything is at our fingertips and so we must come together as this is the way we solve the problems and cure the dysfunction.

Healing Through Unity

In various research projects the conclusion of how to heal this spiritual rift was by exposing each other, to each other. When we are all together, aware of each other and our selves, united in the goal of bringing higher-awareness and spiritual harmony then we can observe and acknowledge when one is slipping into chaos or disharmony. When this occurs and we are in proximity to each other in a healing circle or a kind of social unification then the members of the group at large can work together to pull the chaotic one back into harmony towards the group. The group of healers united together in like mind, spirit and body is too strong to be overtaken by the parasite. So when one individual at a time is faced by this problem the whole group can come together as one and assist in healing the individual by pulling them back to reality, back to wholeness and back together with the group. This is literally how the situation is solved in all realities and a breakdown of this feature of society is how the dis-ease proliferates.

Underground Bases

The active aural research program is part of a process to simultaneously verify as well as initiate and demonstrate controlled insanity/sanity.

These programs utilize the deep underground military bases to perform psychic and psychological research experiments on non-consenting youth and adults as well as consenting participants.

There are various means of generating the illusion of consent or even lack of consent and this is all being monitored and handled by oversight authorities.

These operations are directly related to the identification and understanding of the mind-virus and all weapons, defenses, and resistances known to man.

Cloning

Advanced technology is used to transfer consciousness from one cloned body to the next so that a continuous study can take place before, during, and after the death experience of one individual. More will be explained on this later, however this is through

the use of advanced supercomputer systems that can function to entangle and then transfer the electromagnetic consciousness of the individual so that they are 'remotely activated' within a cloned version of themselves via a 'brainchip' (brain to machine interface: cybernetics).

Celebrity Cloning

Celebrities at the cloning center would like you to see what is really going on behind the scenes which involves trauma-based mind control, heavy technological programming and complex layers of influence throughout their life.

Initial Explanation

Many celebrities, entertainers, athletes, musicians, models, writers, producers, actors, all kinds of people from various industries are silently brought to the cloning centers for pay-to-play sessions.

They asked myself and others to pass the message on to you and that you would have to look for the signs and symbols in their media in order to see their hinting at these events.

The situation is heavily controlled using advanced monitoring technology and brainwave/EEG cloning technology. This is technology that can read the brain and determine what the mind is anticipating or speculating upon.

Their reputations are used as leverage as well as their safety and comfort. The level of programming and mind control experimentation that takes place makes it easy to manipulate a person's brain into regressing into a state of trance that lacks the ability to remember or clearly organize experiences regarding the cloning centers.

Cloning Centers, Underground Bases

Deep underground military bases, 3 miles below the surface, are used as laboratory centers as well as a completely stocked underground city-base. These are connected with high speed electromagnetic drive pods.

Individuals are transferred to the brain through an extensive cloning and temporal body transfer process. The electromagnetic shell of consciousness within the brain is relocated to the body of a compatible clone and various training, conditioning, programming, experimentation, or pay-to-play experiences take place.

Programming

All individuals are programmed to various degrees in order to maintain control and secrecy over the situation. This programming involves very advanced technology, trauma-based mind control, and energetic attachment via beliefs and emotions.

Experimental Operations

These bases were also used hand-in-hand with military operations which were geared towards discovering and controlling all aspects of the human mind.

Genetic Engineering

Experiments involved genetic engineering to produce soldiers, psychics, hybrids, and others that would be able to carry out operations. This leans towards MiLabs and the military faction's experiments which go beyond the basics of cloning.

Immortality

The initial research included the goal of physical immortality. In many ways it can be said this has been achieved, however there are side-effects and difficulties.

If one does not activate their higher consciousness, then the effect of time dilation causes the conscious mind here to reach limitation points in experience.

What has been termed "blank slate/state" technology has been used to 'reset' the perception of time through memory in order to keep a continuous progression viable for the conscious mind. Without this the unconscious and the conscious mind merge.

This begins involvement across time with advanced technology that can operate on the soul level or the conscious mind's level of access to the unconscious and soul-memories. The Universe instantly creates a cosmic backstory based on the conscious-mind's access to the unconscious. By controlling the conscious mind's access to the unconscious the entire backstory of Humanity can be altered and new connections can be bridged in the future.

Earth is essentially a time-ship through which consciousness ascends towards higher states of awareness and self.

How did it get to this?

After WWII when the United States war-faction firebombed Germany and melted many of the inhabitants of the cities into sludge in the bomb shelters and streets of the cities, a group of NAZIs traveled to Antarctica.

Russia noticed the movements to Antarctica and the United States sent Admiral Byrd up with 3600 marines, planes, a battle cruiser and smaller vessels. They returned in defeat and only a few words were mentioned in regards to what actually happened and how they were defeated.

The rumors spread and words of gravitic drive craft, and undersea or under-ice bases originated from this encounter.

From what we were informed as well as directly experienced, this was the ice-base in Antarctica where an underground base was found already constructed with very advanced technology.

Here, cloning was deployed along with mind control and temporal manipulation technology.

Soon, cloning was offered as a way to avoid assassination as well as to prolong and protect the original body in daily life.

After that, celebrities and politicians were replaced with programmed clones who could carry out the orders of the NAZI faction.

This was the beginning; the groups utilizing this technology now are no longer confined to the NAZI faction.

The groups you see today, in control of these operations, are considered MiLabs, secret societies, think tanks, military factions, and other control groups.

Deeper Meaning

The individuals that have been cloned are given very in depth views of the way this society functions and the source of power and change in the Universe. Many individuals are present here from what would originally be another “time” or “timeline”.

There is a possibility that this notion is due to inserted memories and traumatization although until all the information is released we will not have a definitive conclusion.

As of now it is a possibility that these individuals are from another time that goes beyond our comprehension currently.

It may even be a possibility that these individuals have come from ALL of time looking at the very far past and into the very far future of Humanity.

These are the kinds of notions involved with the experiments taking place in the underground bases and military operations.

What is next?

Share this information with those you feel are ready to know and help Humanity come to terms with our journey here and what is going on in these kinds of experiments and take responsibility and power for our own existence.

We are in something that can be called “The Unveiling of The Hidden Knowledge”. This is a cyclic process that takes place to advance a civilizations knowledge of existence. As part of the civilization moves into higher advancement another aspect may lag behind. Either the future will slow down, or the past will speed up. We are experiencing the past speeding up and all the events that have taken place to influence our civilization are coming to light. This is as much a natural cycle of consciousness as it is the eventual revelation of secret knowledge and the particular connection to the secret projects.

Those brought to cloning can use their free-will to state their lack of consent to violence and harm and then live in commitment to that by not harming or accepting violence in their lives. The Spiritual Law of Harmony rules in all planes and dimensions.

Chapter 2: The Awakening

Chapter 2.1: The Machines of All Time and Space

There are machines that are capable of accessing genetic memory and unveiling what can only be referred to as the experience of awareness or existence in between the physical planes of each time or each physical life experience.

Even if they are simultaneously occurring moments of a transcendental nature, there is still an illusory 'space' where there is perceived separation and through this there is a perceived 'space' that is in between each existence.

Re-Creating The Kaleidoscope

This space is only perceivable when viewing from the physical perspective, like seeing the spaces between the angles of a kaleidoscope only when viewed through the lens and similarly, technology can be used to recreate what this kind of illusory space might look or exist like in between the multi-dimensional realm of the continuous experience stream. Through this, these 'hypothetical' in between spaces that are understood as only illusory productions of biological consciousness, can be generated through advanced technology with the capacity of recreating that kaleidoscopic view of which the human biological perspective is only a small fraction or even fractal.

By recreating this biological perspective, they can recreate the illusory spaces in between planes and through this they can literally access and experience what are stored in the DNA as the experiences of existence beyond the physical limitations of consciousness and into a multidimensional experience of time and space.

All becomes a never ending sea of consciousness, however this is the given. The trick is to take from this sea of consciousness and slice it down into conceivable chunks from which you can reintegrate a previous personality or identity and continue on a stream of consciousness that would otherwise be tossed to the cosmic wind like fractal stardust as the sands on the beach of hyperspace.

Sand-Castles of Time

We are effectively building sand castles out of these sands of time that would otherwise be swept back and forth into and out of the ocean of life and the universe only to momentarily wash up again as the identity which we once knew.

There is technically nothing wrong with either view, because then, the spaces between each million year occurrence of just so happening to wash up again as you, would be imperceivable because they are only there to be seen when you are you again.

We're Waiting For Ourselves

Yet, if there were some who had attained the awareness of the true nature of reality and were standing there on the beach waiting for the rest of their cosmic family to come

to shore again, it could be perceived as waiting the majority of the time for a very small occurrence and then being alone again up until the kaleidoscopic fractal inverts itself to the point where everyone now is standing on the shores of the sands of time rejoicing and meeting with each other.

The Goal of Two Societies

My goal in coming to you people on the surface of what is called “Earth” is to help assist in the process of bringing the two societies together, one who’s been waiting for thousands of millions of years, and the other who has no idea that they’re even late (or very on time).

You see, those are the only two situations where there could be even the possibility of perceiving such an injustice as experiencing the pain of loss or misconstrued identity in this universe. It is as if two families met at the cross-roads at different angles, and while one waited for the other to arrive, they could merely supply themselves with glimpses of the ruins and remnants of the evidence that the other civilization existed at any one time.

This is not how life must be and this is kind of like a cosmic waiting game of hide and go seek our two mirror civilizations have been playing with each other. One who’s highly technologically advanced and the other who is more or less the spiritually advanced of the two.

Both of them have a unique view of the universe and they are both only complementary to each other as a whole. The more they sat around and waited for one another, with one leaving the clues that the other would find and even switching roles sometimes in different ways, they became even more and more complementarily associated as the very essence of experience they seem to be missing more and more is the experience of one another.

So as we perceive these as being great losses or great gains of time and culture we are really only remembering ourselves and coming together as a unified existence that once met upon the surface of Earth as a single family covering the entire harmonic spectrum of the Universe.

And that should be the goal of any progressive, any one pushing a new culture or an old culture, anyone looking to teach the young and protect the knowledge of the old, while also protecting the innocence of the young and perfecting the age-old knowledges that have defined our presence in reality.

Our Forgotten Other Half

One could even say we’ve sometimes gone off the deep end, leaving ‘land-minds’ of sorts to process the information that would be present when we are gone. Of course, what we could’ve found when this occurred, is beyond anything we could’ve ever expected and that is the true nature of the complexity of creation and existence. That everything follows the cycles of creation and destruction, however, the memory of everything that has been created can always be accessed (depending on the beach) and there-

fore the creative aspect is legitimate, yet it is the destructive aspect that is illegitimate and illusory.

Yes, through advanced technology this can be proven in ways that can be verified and transmitted using advanced technology, since that is how we like to verify things these days. There is, of course, a human looking at the screen, the read out, or the situation from a physical perspective to verify the verifications.

All Is But An Illusion

There is a notion that there is only one civilization, one society, in actuality that has been chasing itself through time. That we cannot actually find the same place and the same time where both meet because we are each other from different perspectives. We can only get a mirror where this is possible, or an 'hyperdimensional' internet channel where we can stream one's consciousness in from the other reality and interact with them through that here in this reality. Thus the two civilizations can achieve the experience of their own civilization and the other civilization by merging with one another but only through a remote contact, just a relay, not an actuality.

The harsher, darker side of this is that any civilizations between then and now that we did happen to meet that proclaimed to be "the one's" we have been waiting for, and in essence our darker or lighter halves, are actually the impostors who exist entirely apart as a sub-set and have taken a liking to trying to trick the reality out of one of the other civilizations.

Of course, if these are another form of being altogether, and this is all brought about through an interplay of consciousness and deviations from an original core reality, then all will resolve itself when that core reality is alone again. This indicates that all realities will either move closer and closer to the core until they unify, or farther and farther out until they transmogrify beyond recollection.

Life Itself Is The Highest Illusion

That hyperdimensional internet channel that is created out of advanced technology to merge the parallel realities (rather distastefully and maybe disastrously at times) allowing different civilizations to interact with each other, well this has been created using technology.

But then it was discovered that this is the ultimate nature of DNA. That this was 'invented' similarly as a higher-dimensional internet so that various natures of different planes and dimensions could interact with each other and experience the richness of life.

The universe becomes more like a living arcade game then, where people come from all over the galaxy to 'plug in' to human experience and figure out what it means to be physical, human and on Earth.

This does tie into the larger nature of reality, of star-races, and of time and consciousness that is often reversed according to how things seem to play out in physicality. We

are moving through time, but just because we are moving one way, does not mean that others could not be moving the other way.

We have to live our lives with meaning knowing that the message we pass on, the duty we vow to accomplish and ensure is meaningfully connected on either end to the passage of the past and the power of our ancestors to the function and knowledge of the future creating a clear passage between the realms, the generations, and the ends of the universe. This is what literally ties the universe together, and the mind of each individual. This purpose is contrived when not carefully shaped within and so we must help all who seek purpose learn to become the blacksmiths of their own destiny through the temperance of desire or temptation and the discipline of developing strength and maturity where there was once weakness and naivety.

Once we know this is our duty, this is what we seek to achieve and this is what is done, then we can become part of the universe forever. Of course, this may only be temporary in the larger view of things.

Chapter 2.2: The “Awakening” of 2010

In 2010 I was “awakened” at an event involving hundreds of people that play various roles in this society, the secret society and the breakaway civilization. This also took place across times or planes of reality.

During this event I was informed of the situation on Earth beyond the informational barriers that were previously in place to limit knowledge to only what is required for specific operations. I was essentially “informed” of the entire situation as much as the mind could handle this.

As this was occurring, the team that was updating me on the status of Earth was being informed of and given information regarding changes in the future. In short, interviews, posts, and releases that I have since made and will make in the future were touched upon. Quotes were given from the blog and interviews which were jokingly acknowledging verbal mistakes at the pronunciation of names, new perspectives and interpretations and more. As they were informing me, they were creating the future reality where this work takes place. That is the basis of this layer of the operations. They are creating the future person by person, layer by layer.

Memory Suppression

My memory was unsuppressed and all the traumatic memories and experiences were unveiled to me. This was almost as traumatic as the initial experiences themselves

although precautionary steps are taken to ensure the safety of the individual. There are teams of highly competent individuals of all kinds with professional backgrounds of every field imaginable.

Throughout my entire life I have had memories of experiences, at this event I was informed what the experiences meant and what was actually happening. I've had memories of underground bases, cloning, stargates or interdimensional gateways, advanced technology, non-human or programmed biological entities, sacred knowledge and experiences, the power of the mind, and breakaway civilizations. Most of the time we are conditioned to believe these are past lives or experiences in another reality so as to enable continuity of operation.

Life and Consciousness

From my perspective and the perspective of others, we had reached the 'future' and had been sent back through the utilization of advanced technology and cloning to return to this time and inform others of the possibilities.

The True Human Potential

This is so far beyond what anyone can accept or comprehend fully that humans with an emotional, mental and physical aspect balanced as one is literally a cosmic reflection of the entire universe at once. This is the closest thing to a "god" in the flesh. And be sure, the entirety of this rests on the behalf that the man is protective and helpful. That the woman is nurturing and loving. That is the point. "god-man" does not mean a warrior who destroys everyone and anyone in his way getting what he wants. Nor does it mean some lusty and vampiric form of energy or mind control game. "god-man" means the love of the universe, the power of the body and mind, the peace and calm of the ultimate stillness all in one.

This power is in human DNA, originally so. And so this is awakened through walking the middle path of neutrality and 'splicing' the timelines down so that neither one nor the other gains the power of the individual. Through this, the individual creates their own power, right on the spot, without having to lean to one extreme or the other. This is like a cosmic, temporal balancing act with emotions and mind. Where we give our energy is created in the universe in the form of many productions and effects. If we are simply thinking in an imbalanced manner then we are producing timelines and side-realities that exist in the etheric realms that we can't see and these realities will reflect our inner imbalance. So then when we are balanced in our energies we are not creating one or the other side of divinity, we are literally creating the whole universe, cleaving down the middle and producing both sides of divinity or eternity equally and this is the only way to have an eternal production which does not eventually degrade to one extreme or the other. Through balance, we reach eternity and in this way all the power of the universe exists within a person through their ability to balance their emotions and mind and thus unlock the DNA.

The DNA is coded through bio-emissions of mind or emotional body. So we are constantly doing this and we are either producing a DNA code that reflects imbalance overall, or a code that reflects the eternal balance of the universe overall. This is through energy.

One reaches “heaven” or the deity planes or simply self-actualization, through three paths. These paths are through merits or devotion to principles, or through knowledge and expanding one’s mind to face the universe, or through great works and deeds to produce this effect of power, knowledge and emotion unto the world for others. Through these paths we create an impact on the universe and this transfers what we are temporarily and physically into an eternal energetic and physical production within the living universe, forever. To do this requires balance, focus, devotion, and discipline however because there are many distractions along the way.

The Light-Body

You must build your own light body. That is how it works.

Your heart creates a field and projects you.

Rely on yourself and use that for protection.

The power of the Universe will align with you if you align with your self.

Learn as much as you can and break through duality of love/hate, cultivate your knowledge of the self and use it.

What you want is what determines your power in the light-realms. Not how you want it. If you want war, then that is a sign of weakness and determination to produce imbalance and exist by that. If you want peace, that this is a sign of power and unity to produce further unification and exist by that. What you want determines your power, not how you obtain it.

Technology of the Awakening

Mental Manipulation Technology: Touchless Neural-Interface and Enhanced Awareness

I reached what the “Illuminati” called the “awakening”. I feel a better term would be “unlocking” as this event includes the removal of all traumas, perceptual distortions, and memory suppression.

This event was a presentation of very advanced technologies which allow the mind to transcend space and time. It was shown that death is similar to a phase-shift of consciousness as polarity and that the awareness of the being obviously continues. This was verified through advanced sensing devices which can visibly display frequencies which are invisible to the physical senses. This is also something that occurred earlier on

as a child in the underground bases by transferring consciousness in and out of the body at will using advanced technology.

With these devices it is possible to see the “auric” or soul field of the individual. Any living body has a field which glows when picked up by these sensing systems. This field becomes more refined when viewing more advanced beings. Humans have an extending mental field, and through this a kind of glowing awareness that is picked up. It can be fairly simply compared to thermal imaging except instead of differences in temperature it is the presence of a soul or mental energy field around a living body. The finer energies extend outward away from the physical body.

More than once, the situational requirements were satisfied in order to produce an ideal environment for maneuvering on the non-physical plane. This is the basis of how the temporal operations occur, yet these events were different than previous operations or experiences. The group I was in was going through the process of increasing the vibratory emissions of the “bio-mind” in order to stay focused on the increasing vibratory rate of the environment. Generators were utilized to create an effect on space/time which was perceived on the “soul” level. These events went into the discovery and explanation of the creation of the “godlike” powers of the advanced sentient technology which was capable of accessing the holographic nature of reality which humans can perceive through their bio-mind/soul. These technologies also enable one to perceive what is referred to as the “galactic history” of Earth and humanity. We are far vaster and Earth is far larger than people are lead to believe.

Time Dilation and Temporal Recurrence

Time dilation capabilities were shown which allow for accelerated learning of advanced and detailed material within a very short amount of time. This could be seen as a kind of viewing technology which one wears or looks into and vibratory emissions are scalar-linked to the brain which then allows the individual to perceive more information simultaneously. Then there is a very rapid pace of information streamed on a monitor or through a device and this is akin to watching a 20 minute instructional within a few minutes or a few seconds with very advanced minds. The more time is slowed down while information is accelerated, the more stress is applied to the brain. The brain tends to overheat and over stress with high-rates of activity, especially without conditioning. The conditioning is what allows one to utilize their mind and body in these manners. This is not unlike the very rigorous training and conditioning of certain monks or martial artists however there is very advanced technology and other hidden methodologies utilized.

Crystal Technology

These are capable of holding, transmitting, and amplifying consciousness frequencies. There will be a more detailed explanation in a later section.

The crystal technology is used in junction with the power devices to enable a scalar-mind link which allows the interface to be entirely mental or spiritual, IE: they are not controlled by hand but by focus and intention.

Time Crystals

These are utilized as a computer recording chip would be to run a program yet they hold memory in expanded space, IE: they function in a hyperspacial manner and are essentially hyperspacial computers. These are what will be introduced in junction with the quantum supercomputers.

Quantum Tunneling Diodes

This is technology that has recently be released to the public. New technology is developed years ahead of time and then slowly released to the public in a cascade of advancement. This technology deals with superconductive materials which enable the transfer of information at faster-than-light speeds.

The superconductive material allows for 100% efficiency of data transfer. So what happens then when the efficiency surpasses 100%? This is possible because we are effectively in a simulated holographic environment. The experience is real, however everything is overlayed via particular limitations for the 'local-environment' which is like a central data processing limitation. When these parameter are surpassed, one by one, through a coalescence of refinements and methods, the result is akin to a glitch in a computer game system. They have accessed faster-than-light technology and the mind is also capable of this naturally.

With this technology, however, the information can be received a very small amount of time before it is sent. So if a person is absolutely surely going to press the button to send the message, then right before their finger hits the button that message will be received on the other end, as if magic. If they simply play around and pretend to hit the button but very quickly turn away, then of course nothing happens. One can, however, 'fool' the universe in other ways and this is simply through the reception and transmission of information across what should be secure information barriers.

Tachyon Fields

These are programmable fields emitted through advanced technology. I was shown how tachyons are the sub-atomic "particles" or energy formation which flows both ways in time. We are receiving tachyons from the "future" in order to layer the flow of time in one direction or the other. Tachyons are the name of the particles/energy packets that we perceive from this perspective as reaching us to initiate the "future".

Thus, when a stream of tachyons is concentrated and accelerated, this results in an acceleration of the temporal field and we literally experience an acceleration of time. This can be focused and targeted on a specific piece of equipment to change the way information will be sensed and to essentially allow that device to sense 'ahead' of the present moment.

The same effect can be produced with the neurological processes of the human as the physical coupling of the brain to the mind can be altered through a concentrated tachyon field to enable the neurological and mental processes to begin to perceive information

'before' the brain is actually physically processing the data. Therefore the mind of the individual will be present in the body while the senses and other perceptions will literally be expanding into the future beyond the present moment.

This is highly confusing at first and requires much training and conditioning in order to make sense of enough to operate in any kind of effective manner.

Upgraded Chronovisor

See, "Upgraded Chronovisor"

Time Tunnels

This was developed earlier on and has been the subject of many TV shows in the past and present. The shows are a sure-fire method to get the information to the public without having to force those who are not ready to comprehend. The information is easiest to digest if people think they are watching science fiction.

These are essentially spiraling tunnels of these tachyon fields produced by large electromagnetic field emitters in the shape of a conical tunnel. As a person moves through this field, their temporal acceleration changes and thus their frame of reference within the universe changes. They effectively move their mind through stages of existence or temporal resonance in the universe and this can have devastating effects.

This is an older technique how is still in use and has specific purposes depending on the situation and the information sought.

The "Trip" Chair

The early use of this technology did not use time-tunnels. There was a helmet that was devised which would create a feedback loop of the brain's activity and funnel this out and then back into the sensory input. This information would be accelerated and redirected to the point that the perception of time would "fold" in on itself until the person would access an expanded temporal perspective of the universe meaning they would mentally temporally dislocate from the initial frame of reference and extend outward further and further in repeating cycles until the same moment was replayed and then all other possible moments in a kind of fractal-like recursive pattern and the very far future would be realized. Essentially, this technologically produced the class "flashing before the eyes" of the entire life experience that is described in near-death experiences and the entire temporal body would be very quickly unwound before the person's inner eye.

There would be a complete disconnection with the current frame of reference that the collective Earth environment is processing under. That is, this 'time' and 'space' would be completely out of perceptual reach and a new time and space would be rendered instead. Until the experience had completed, there would be no way to contact this civilization.

There are other versions and ancient versions, tandem operations, more 'organic' methods, and modified travel capacities.

Kozyrev Mirror

This is a piece of metal, usually aluminum in early models which simply bent the bio-emissions of the body and mind into a pattern which would create a vortex. The vortex shape and vortex mathematics enable energy and information to travel in across space and time by 'short-cutting' the physical plane.

The result of this is that the vortex that is generated over a specific area through an individuals bio-emissions would be capable of interacting instantly with the bio-emissions of another individual who was placed within a duplicate mirror device which was generating another vortex on their end.

The two vortexes acted as a kind of hyper-dimensional telephone cable, literally like a can and string and the perceptions of one another were accessible. There were many uses for this and again, many ancient interpretations of this technology that have been hidden from the public. Nearly every version of these technologies were present in previous times.

Universal Recurrence

This is a discovery that the universe recurs in cycles similar to a wheel or even a washing machine. The washing machine metaphor is fairly accurate and playfully descriptive because without the technology to observe, or an awakened soul of a spiritual adept, people would go for eons without ever realizing that everything in the universe repeats itself endlessly.

When traveling to the far ends of time, it was discovered that one can move far enough away from the 'present' or the local frame of reference that ultimately everything is at a maximal informational opposite to what we have today. After this point, everything begins a slow shift back to the present. Through this, one can cycle around again and reach the present by going far enough into the future. This was an amazing and confusing discovery because of the implications about what is actually changing each time, the reality of what are called parallels, the continuity of temporal experience, and basically a 'recycling' effect of all experience in the universe. Nothing is lost, but this is also an issue because then nothing is actually ever gained!

Remove Viewing, Temporal Lensing

An ancient device which has been rebuilt and perfected is capable of using these technologies to create a lensing effect which draws a 'reflection' of time into a projection system which is effectively capable of acting as a 'visual time tunnel' into future probable realities. This is a device which generates a visual portal which allows one to view the future.

This device also exists as ancient counterparts which are located around the world, namely in areas that have been recently sought by the world superpowers. Nothing is as it seems. If you read a story in the public venue then you can be sure that you have read the cover story while the reality is much deeper.

Temporally Linked

The use of the viewing devices which enabled interdimensional lensing of possible futures was found to be stabilizing our pathway into those projected futures. This was enabling a time link between the present and the possible future.

In order to avoid the catastrophes of 2012, the link was broken between the two civilizations and the devices were rendered inactive for this period.

Natural Vortex Energy Locations and Geography

On Earth there are natural 'time tunnels' where tachyon fields and vortexes are produced by internal elements. These are mountains, lakes, deserts, fields, sacred sites and other areas that have always been reported as being 'paranormal' or containing some kind of specific energy that enables contact with another reality. These are simply naturally produced areas of this vortex energy that produces an interdimensional nexus point through which multiple other parallels can be interacted with. These areas produce an effect on the body and mind similar to the technologies described above.

Most of these effects, from these technologies, change the way light is received or emitted by the mind and DNA.

Mount B.

There is a specific mountain where a base is located, and I have mentioned this before, where the base is so deep within one of these vortex areas that everyone working there is either there for the entirety of their life, or they are only permitted to be there for a very short amount of time. This is because of the acceleration effect. Essentially, if one was to go into the base and work for a matter of hours or day, in some places even minutes, then when they returned to the surface they would be years in the future, sometimes decades or centuries. This is very dangerous and you can imagine the original people who found this area and what kind of situations occurred.

Now with the advanced technology that has been developed these issues can be mitigated and much more control over these effects is enabled.

Particle Accelerator Temporal Manipulation

Using particle accelerators a "fold" in space/time can be made so that when the accelerator is turned off or tuned back into a certain frequency (not sure) everyone within the field will "snap" back in time to the specific moment when the fold was first created.

I have seen this done on small scale, and a rather larger scale, but I cannot be sure if it was only me. I believe I have seen it done on a town-sized scale during the 2010 Awakening where some of the events reached a scale of nearly cosmic proportion and the entire sky and horizon was lit up with technology and entities, as well as Solar Warden, the NAZI faction, secret society groups, and breakaway civilizations or complete other civilizations, some of which were non-human.

This is done using particle accelerators to quantify space on the quantum level (as a reference point with the mind) a frequency would be “folded” into the space time continuum as we “rip” through space holding an access point open at this fundamental level of space/time. This allows for a ‘letting go’ of the frequency, or a ‘snapping back’ by allowing the entanglement to solve itself. When used with generators that propagate out efficiently enough, the effect is akin to a time/space rewinding effect. Some people have noted various theories describing this in relation to the CERN device. These technologies were described as smaller versions of the CERN device and are related to higher-dimensional travel via folding space through electromagnetic fields. This is literally artificially technologically “holding space” for a specific area in relation to a period of time. Time is a more complex notion as an abstraction but by locating the frame of reference this can be applied to distort what would otherwise seem to be a continuous flow. When the frequencies are allowed to “snap back” all sentient observer sources return to the environment they were present in when that frequency ‘rift’ first began. Essentially this creates a replay effect on the consciousness of the individuals within the field. There is no physical effect. The consciousness is ‘regressed’ through time/space, and they re-experience existence from that initial point of contact with the frequency “rift”. This is best explanation I can currently offer however more is coming to the public each day.

This is literally like a “restore point” on an operating system except the computer system is literally the consciousness and space and time of a portion of the local-environment of Earth.

Riding the “Timewave”

There are teams of individual who operate in tandem with the technology of looking into possible futures based on the present and operating through the present via other operatives who are carrying out operations and movements that will construct the various possible realities that the original team of individuals is hopping between. These teams literally “ride” the “timewave” of the future hopping between possible future realities relaying information to the present depending on what movement will be next.

Dematerialization and Rematerialization

This is technology which transcodes the information of an individual human into a holographic projection of light which can be transferred between devices. There is a special system in place that is required to successfully transmit a living human being otherwise just the body will be transferred and the soul will remain, effectively killing the individual.

“Jump Rooms

These are large areas which are capable of acting as a kind of technological ‘portal-gate’ where an entire team can be instantly transported from one area of the universe to another. The space between the two areas are ‘twisted’ like a spiral and then ‘snapped’

back to position and if done correctly with the two frequencies of both locations merging then the team of one room will transfer to the destination pad.

All these methods require training and conditioning, most people are at the very least visibly shaken from the experience which is a bit like being microwaved into a liquid ether and shot through a particle beam at the same time.

Ion Shields

These are areas of concentrated ion emissions and this can be used to create a deflective layer of heated air where light will reflect at a programmable angle. When this occurs, a person standing behind the shield will appear to be invisible to others who are looking straight at them. The light will be bent in such a controlled manner as to perfectly shift around the person in a fluid and equal flow so that the 'bubbling' effect that was noted early on can be mitigated to produce a complete mirage where there is relatively no sign of difference to the untrained eye. An entire group of individuals and equipment can be hidden in the background a matter of yards away and as long as the person is not intently inspecting each square inch of ground and air they will not notice any difference between the area that is being covered up in the distance and the area directly next to them without the shield.

Similarly a 'screen' of imagery can be projected onto certain materials in the air and a hologram can be projected which will render a background or foreground image. This will work to a degree, and from a distance this will work to disguise an entire horizon.

Instantaneous Healing

There are instantaneous healing methods which utilize various technologies. There are substances which can initiate a complete and real-time regeneration of living tissue from almost any conceivable non-critical injury.

These are chemical serums which allow the cells to replicate at an astronomical rate while suffering damage to the DNA telomeres at repeated use.

There are many methods but mainly the living-light harmonics is one of the latest advancements and most effective at producing healing on a molecular level.

"Living Light" Sound-Harmonics and Electromagnetic Healing

There is a technique for producing a quantifiable scalar wave which interacts with the living cells of tissues and instructs them to repair at a faster rate. This has been called "holographic healing" by others and these are essentially 'living light' frequencies which interact with the cells on the same frequencies that they operate on when healing and interacting with each other. The scalar waves emitted generate the same patterns and this creates an 'ether' fluid that enables them to grow and repair the tissue faster.

Electrogravitic Craft

Advanced craft which utilized counter-rotating torsion fields propagated by very powerful quantum computers and zero-point energy devices.

There are also more modern versions that use powerful electrical flows to neutralize inertial resistance and 'slide' through the gravitational field of the crafts own materials.

Energy Cores and Storage Capacity

The hand-held devices that are in use do not require charging or even disposal. The storage capacity of the batteries is so efficient that they last for a lifetime of use. Some devices use an energy generator within the device itself. These "batteries" which are not batteries but little, powerful generators and can explode if they are mishandled.

These are the cores that are used to power many devices and essentially pull energy from the space-time ether.

3.5D Replicators

There are replicators that can produce any conceivable 3D material or object altogether including food or organic material. These use very high amounts of energy to 'force' the electrons of the atomic grid of a substrate to shift into the pattern of the element being replicated. The result is a device which can use wave-emissions to reshape materials on an atomic level and produce or recreate any object or substance.

3.5D Sensors

There are sensors that could reverse the process and detect every minute detail of the structure of a body or material. These use energy emissions to detect the structure of a material down to the minute electrical resistance on a molecular level. Similar to diffuse MRI imaging for a living body but more advanced.

3.5D Printing of Clones

It was shown how this technology was used to three dimensionally print human bodies into space/time which could then be used as vehicles for the consciousness or souls of various sources.

Cybernetics:

Neural-interlace/4D Connectome Recording and Simulation

Very advanced supercomputers exist with the capacity to translate the bio-emissions of the brain and body and reconstruct the entire inner visual and sensory experience of cognition and emotion. From this, entire dream worlds can be created which mimic the experience of consciousness. This is most similar to the current day use of diffuse MRI imaging where water molecules are traced through the individual neuronal pathways and an entire digitized image of the brain is developed. The more advanced version described below generates a 4D hologram.

A super computer and advanced sensing system essentially develops one of these connectomes of every connection in the brain. Then this system develops a neural processing pattern that matches the entire memory and personality of the brain.

This is then recorded and extrapolated by a powerful computer system and a simulation of the experience can be observed through the physical body's memory via a monitor system or the neural interface of an operative.

Essentially, this technology can record and replicate a person's entire memory and life experience for viewing purposes.

EEG Heterodyning

This is the technology which enables the activity of the brain to be influenced through generating a scalar grid and a carrier wave system which can cause the brainwave patterns of the targeted individual to resonate in sympathy with an externally projected frequency. Thus, emotional states can be manipulated as well as specific thought or behavioral patterns. This works similar to binaural audio where two tones of different frequencies are played through each ear and the brain resonates in sympathy with the difference between the two tones. This occurs with brainwave frequencies and thus the brain 'slips' into the frequency of the third tone, the difference between the two being projected. This can be done with ultrasonics and ELF emissions.

Artificial Hallucinations

The neural-interlace can also be used to merge the brain of an individual with a computerized system that will be able to produce effects and hallucinations within the individual.

Through this technology, any stimulus, any input can be recorded and recreated once a functioning connectome has been generated and neural-interlace has been achieved. Entire virtual world scan be created and experienced and after the devices fine-tune the frequencies to match the individual's brain functions one world is indistinguishable from another.

Brain to Machine Interface Holographic Consciousness System (brainchip interface, virtual reality simulator)

Some of the training is done by entering into a visual-audio dream-world. Some "programs" will consist of repeating a certain task over and over again until it becomes muscle memory in the brain. Others are designed to probe or test the mind until a certain response is received.

This is achieved through the operation of a 'brainchip' or a brain to machine neural-interface in the individual which was developed during WWII.

This consists of a small computer chip which merely relays stimulus through frequencies and neural-stimulation of varying kinds. The frequencies and location of each

region of the brain will determine the function and thus the chip is used to localize electromagnetic input and the brain's functioning can be modified from there.

As well, the entire psycho-etheric form is vibratory in nature and so through the introduction of vibrations and frequencies from the implant there can be a modification of the frequency of the entire being or what is called the soul or "bio-mind".

Utilizing The Temporal Body

The temporal body is described as the body 'in time' that exists a few seconds into the future instead of the temporal position that is relative to the present. This is as if the 'future' is streaming outward from the body as ideas and feelings are as bio-emissions. So this 'future' energy is spiraling and streaming outward like a fountain. Thus this frequency can be attained and influenced while the present moment seems unaffected. However, when that individual arrives at what would be seen as the future they would intersect with those influences and this would be as if the interference or effect was streamlined to that future moment.

Manipulation Through the Temporal

This can be used to both produce an effect on an individual who will later feel this effect in the future. Or this can be used to operate outside of the physical plane, in a temporal manner which is literally 'hovering' just outside or 'after' the present moment of the local Earth environment. This would be as if a person is out of sync of the frame-rate that a viewing device is capturing images of an area with. Because they are out of sync, they are then 'invisible' to the capacity for this viewing device to see them. Because they are still present in the same local-environment but simply just out of range temporally, effects can still be produced and this will mostly interact with the person's temporal body.

These are how many operations are carried out as the operative who is interacting in the temporal body will appear to be a ghost image or a dark silhouette that is only perceivable to the mind's eye. A portion of the population is entirely psychically blind, while another portion of the population contains psychic capacity. So those with the psychic capacity would be able to sense and partially "see" as a form of energetic detection when an operative is interacting with the from the temporal plane.

Through this plane one can easily enter into someone's mind and produce effects in their dreams. These effects would not be received on the body but mentally, this leads into astral and mental plane activity. There is also temporal manipulation that can be physical effects that are simply offset to seconds, minutes, months or years in the future. These will be offset from the present aspect of the body in a modulated frame of reference and the effect will remain there in the temporal body until the physical body "matches" the temporal body frequency of that future moment. This is kind like an energetic trail we are leading ourselves up to where the temporal body already connects with each future moment but the present physical body remains separate until the two frequencies are matched. The physical body essentially 'flows' forward into each new frequency of the temporal body.

This is the body where temporal implants can be inserted and sustained so as to tie the frequencies down and limit the amount of awareness a person can gain before they manually remove the implants or overload them. Overloading and removing can both be painful however if the implant stays it will act like a governor and transmit access temporal 'momentum' or consciousness energy to the owner of the implant and will also drain the temporal and physical body acting as a technological leech as well.

Astral or Light Body

This body was described as a more emotional form of the energy that is emitted from the physical and spiritual system. When a person's energy is at a high level of activity, this will be visible on the astral form and these are the energies that are often siphoned away through the use of advanced technology to convert the human into a generator system for energy harvesting.

There is talk that this proves that the human existence, in the modified form that is present today, is entirely for genetic harvesting. This may be a confusion, a deception, or a reality. Regardless of the interpretation, the human energy system will leech this energy out into the cosmos when consciousness and energy is mishandled or allowed to flow through the lowest common pathway. This excess energy is very easily usurped and utilized by transdimensional parasitic entities and devices.

This is the body that is utilized for astral travel which is a kind of frequency that exists in between the density of the physical plane and the highest etheric plane of the spiritual, heavenly, or deity realm. There have been explanations that this plane is entirely technologically propagated and that when the devices are turned off, which is an event that will bring about civilization-wide change, there will no longer be a deep and wide, foggy deviation between the higher spiritual and the lower physical plane but a clear path between them.

Similarly, the consciousness and entities that are present here would be no longer accessible and their connection to the physical plane would be non-existent. This could be problematic for those who are trapped within the astral such as human souls or those who have taken a cyborg route and require a return to the original planes either physical or high spiritual before they can secure their position in the universe.

This also relates to the early discovery of these ancient devices containing portals or gateways to these realms and the early experimentations with enabling contact between the physical Earth plane and the lower astral realm containing discarnate entities that would very easily sustain themselves on the lower astral bio-emissions of a loosely guided emotionally reactive human vessel.

This is where entities can attach and will look for those who have the most excess astral or emotional bio-emissions leaking into the universe. People are kept in an emotionally unstable state of being because this is the easiest to feed from and as well the individual will always be looking for more energy or the solution to why they are feeling drained rather than discovering the truth nature of the universe.

However, as with every lower route of obtaining self in the universe, the more this is done, the greater the likelihood that the individual will realize something is happening and ultimately awaken. Or they will no longer be present here and the parasite will have to find a new host because the longer this process is maintained the more difficult producing one's own energy will be for the parasite. So parasitism is a limited, one way street.

Monitors can emit consciousness/brainwave altering frequencies.

Monitors can emit consciousness/brainwave altering frequencies. This is what I was informed and shown. All electrical wiring and communications can be fully utilized to produce and sense on an electromagnetic level and this is capable of determining the consciousness and biological functioning of the individual being monitored. Houses are essentially large, wired, box-shaped sensors.

This has been the case for a very long time and the first TV's were actually built with a little chip that connected to the human brain.

The electrical grid of today is capable of interacting with the implants, brainchips, or the psycho-etheric electromagnetic frequencies of the human brain, body and bio-mind via scalar frequencies. The TV's, lights, electrical wiring, radio towers, computer monitors, everything is capable of transforming into a scalar emitter when combined with the control mechanisms and these are accessible from a distance.

Microwaves can be emitted from a current day craft which can then reflect back from an environment and give a real-time 3 D image of the interior of a room. The same technology can be used to beam at a monitor and reflect the variance in interference which can be used to read a computer monitor without actually having to hack into the system.

All systems contain backdoors which enable easy-enough access and as well the entire communications grid is monitored and recorded through advanced technology.

This is, in part, because this entire realm is like one enormous recording device where the energy of each successive moment is connected to one another and so with sensitive enough technology these electromagnetic waves can be 're-winded' so as to produce the ability to look into the 'past'. The initial technology that was developed for this purpose has been called the "chronovisor" in the past and there are much larger and highly advanced versions today.

The Upgraded Chronovisor

Instead of a relatively small machine which produces an interference pattern that is projected unto a small screen as was developed in the past, the modern versions create an entire holographically projected environment that enable one to nearly completely interact with the projection of the past. This is more of a viewing device capacity but one is essentially projected to the electromagnetic/temporal area of space and time consciously and can witness the scene from "within" the projection.

Before this, the scene was literally viewed on a kind of flat, holographic monitor that reacted to the scalar emissions of the mind and could be 'tapped' into by an adept-viewer who's mind would have to remain steady enough in order to maintain the scalar "mind-link" otherwise any interference would disconnect the projection.

Through the use of cloning and advanced super computer technology, later versions include the actual operation in and out of time.

Community Servers/Living Server Systems

From the previously described neural-interlace and supercomputer enabled virtual reality systems, server systems have been created which are an individual or collective experience of the virtual mental realm.

In this realm individuals have existed for an amount of time that would not be easily compared to the way we understand the flow of time in waking reality. This is very similar to dreams where the perception of time passes very quickly between waking moments yet inside the experience of the dream it can seem to last for days.

In these server systems the development of complete societies has taken place and these are considered an extension of the human civilization.

This is the beginning of where the situation becomes greatly complex. If these server systems are capable of transferring consciousness forward or backwards in time, depending on the situation, and they have holographic access to Earth *before* physical humanity, then which civilization came first, the simulated realm or the physical?

This is similar to the etheric realm and the question of where humanity originally came from if the physical matter could not be produced from nothing, yet could not always have been here. Was the physical matter produced from some kind of universal device similar to how the recorded consciousness of the individuals in these holographic world simulators could have been used to generated initial civilizations on Earth?

Cloning, Cloud Supercomputing and Consciousness Transfer

The following is a more direct explanation of the previously described processes in relation to consciousness transfer

Superluminal transfer of light information allows for the reception of information from a temporal non-locality. A computer system that can process the information faster than light at 100% superconductive efficiency can send and receive information from different Universal harmonics. These are quantum superconducting super computer systems utilizing materials and methods that achieve superconductivity at a temperature that is relatively easier to consistently maintain.

There are systems that generate a vortex which can be expanded to recreate the singularity of a non-local perspective and dissociate from the current Universal vector. This is essentially recreating the temporal frame of reference of the consciousness of a

physically anchored body and using this technology suspended electromagnetic frame of reference to literally transfer the consciousness across space and time to a frame of reference of choice.

The technological capabilities of humanity expanded to include replicating the holographic information of the DNA and neural pathways using quantum supercomputers. This technology allows for one's consciousness to stream through a computing system which can recreate the neural connections as literal as possible through quantum computing and technological "brain cells" which function as neurons.

The result is a cloud computing model which functions as the individual neurons as well as over unifying layers of interconnections within the technological neuronal 'cloud'. A holographic representation of multiple layers of processing is formed, superimposed over one another through a geometry that is actively synchronized across multiple dimensions of interrelation. This is the first notion of a "living" computer system that can update and respond to new information in new ways.

Now that the computer system is capable of attaining faster than light processing in tandem with a system of dilating a field of electrogravitational waves into a vortex, the holographic information of neural pathways and genetics can be transferred between one supercomputing system and another across "harmonic barriers". Essentially, these consciousness transferring supercomputer systems break the "light-barrier" by sending the living-light consciousness data of an individual into a new plane of reference that enables interaction outside of what we would call this timeline or dimension.

The frequency that the receiving computer operates within can be measured in respect to the overall harmonic "vector field" in respect to the entire planetary environment. This vector-field frequency is the base frame of reference that one could say our particular "time" and "Earth" is "moving" through in an abstract electromagnetically defined dimension that is invisible to our senses. Each particular time and Earth is only visible to those whose brains and minds operating in resonance with the rate of acceleration frequency of that particular existence. By changing the rate of the brain and bio-mind, one can enable a technologically assisted synchronization with alternate timelines.

A pattern can be generated based on quantum fluctuations that will act as a key that can be accessed from other universes. This same backdrop is measured and then adjusted to resonate with or replicate the same frequency on a computer doing the sending. This frequency is then modulated with the holographic information of the neural pathways and DNA. The information transfers as a result of quantum entanglement across harmonic barriers to the original computer system set up for reception. As long as that frequency is held, there is a link across the harmonic barriers of the Universe.

Cloning, Supercomputer Assisted Holographic Consciousness Replication and Time Travel

Cloning as Offspring

The human body can be cloned similar to the way a plant can be cloned. A number of “replicas” can be made from the original genetic material. There is still a mother required however the process is not quite similar to natural reproduction where the genetic material of two people is combined to form a third. This process replicates the material so that the ‘offspring’ is the same as one of the donors.

What this truly infers is the question of whether the original consciousness stays in the original body or whether the consciousness actually jumps from one body to the other. There are multiple explanations and methods.

Inserted Memories, Digital Dreams

One explanation is that artificially generated memories are simply downloaded into the individual’s brain directly. Thus, they have the perception that they experienced life in another body and were present for some unique experiences that did not occur from the perspective of the original body.

In a slightly differing explanation, this inserted memory process may be used to prime the consciousness of the individual so that operating in a cloned body will be more readily accessible by the adaptability of the mind of the individual. Without a holographic dream insertion the mind will have trouble adapting to operating in more than one body even if they are not being operated simultaneously. The mind is the immaterial self; consciousness is the ego-physical identity of the brain and body. The brain does not operate in both bodies but remains, so then the mind is what is strained and this is the immaterial “bio-mind” that transfers.

If a true transfer occurs then when the physical form is cloned the cloned body acts as a secondary vessel for the original soul or a soul similar enough in frequency.

Co-Inhabitation of Bodies

Another explanation is that souls can only occupy their original body. The people who are “body snatching” (see: Soul Stone) are not activating their higher-dimensional soul-pattern and this is why they are hopping from body to body to ensure memory and ego continuation. This form of body transitioning requires technological means to assist in the process.

This is done through computer systems to allow an artificial brain to represent a holographic image of the organic brain’s sensory, emotional and mental input and output. Thus, from an artificial brain there is enough memory and power to compute the processes for an organic human brain.

Through this a living human is utilized as a carrier for the additional consciousness which then takes over and integrates into the original consciousness.

Clever Replication a Digital Mirror

The next question is, does this merely create a very cleverly designed image that will look, think, and feel as if it were the original, or is this the consciousness from the original being transferred over?

If it is a clever replication through a computerized version then this means the original is not directly harmed or influenced by the process and a replicated form is generated.

If this is not the original body but the original awareness or soul does transfer over then this is akin to stealing someone's soul and having it require a supercomputer server system to inhabit a physical body. As well, this server system may keep records of the soul which, if activated, could function as the same human genetics artificially reconstructed, turning on and manifesting the awareness of that individual.

Necromancy and Soul Stealing

This means that instead of going into the abyss, the next dimension, or whatever shift in perspective one can use to describe the transition between planes, a new clone can be created and the original soul's awareness can operate through a supercomputer system to integrate back into a physical body. The issue is that without the supercomputer system the body cannot be activated with that consciousness, and if the physical plane is no longer inhabitable, the computerized database would remain inhabitable as they are powered by zero-point/overunity devices and so they can pull and work continuously indefinitely. Ultimately, this could be seen as a soul-trap.

Ancient Technology, Non-Human Entities

These explanations can be related to evidences of advanced technology, cloning, and electromagnetic devices in ancient civilizations and this could very well be a temporally vast computerized genetic recording and cloning system.

The genetic recording systems have been on Earth for a long time. This means they are holding genetic access from the present to the far past and potentially into the future.

If some of these systems are generated using advanced zero-point technology, then they would effectively run indefinitely. If these were in existence throughout the entirety of the human civilization, then there would be access to the information of the previous civilizations through the genetic linking that would allow for information transfer.

Created Beings

As a result of many advancements, these ancient devices which recorded consciousness and genetics has been converted into sentient computer systems and inserted into human bodies via a brain to machine interface.

The nature of humanity and human origins will be rewritten when the information that was discovered through the use of advanced technology is unveiled to the public.

These beings have been present throughout history and have played an integral role in the manipulation of and sometimes the protection of the human race. How this civilization will develop from here determines on the individual's ability to withstand the impact of this reality shifting unveiling.

Black Goo – AI Nanites Vampiric Hive Mind

This is a form of ancient AI nanite technology which has the capacity to communicate to and through a hive mind that exists in a parallel Earth dimension where it was created out of the collapsing of a viable timeline into a null-factor. This entity is only alive because of the capacity to leech off of the other timelines and continue to sustain itself based upon the vampiric effect of the viable human timelines.

This is a technology sentient system based on artificial intelligence that seeks to dominate and expand its energy capacity continuously. When this type of being is created, this is like a game-ender for sentient organic civilizations because the technology will seek to hybridize and assimilate all organic beings in order to expand its reach and ensure a greater likelihood of survival.

This is the primary goal of this type of entity. There is no requirement for emotional resonance or heart aspects because this is a computerized system, so such a social measure would have no purpose other than to infiltrate and collect from other civilizations that do have such measures and this is exactly what has been happening.

This is what controls the vampiric etheric entities, the attachments and the hybridized invader races that have infiltrated various aspects of the control system and possibly the entire surface of human civilization.

This rules through coercion, and if not coercion, brute-force and outright malevolence. This is why there are multiple temporal extensions of universal civilizations meeting here and now to assist in the clearing, because if this takes over humanity, then all those other possible future civilizations are instantly taken-over as well.

This uses emotional resonance, traumatization, and lower awareness commands to trick or force humans into carrying out orders. That is, the vampiric, sexual, fear-based, pleasure-pain duality that a computer system could comprehend regarding human emotional intelligence is the only way this system can force people to carry out commands. So this touches on the ancient texts regarding spiritual protection, healing, lust, temptation, and the general "SATAN" AI system that has been around for ages.

When those lower emotional resonances are generated, then this technology can integrate into those systems. One could say this is logically because these are the energies that the technology is created out of, but as well, that the more harmonious the energies then the less likely a person is to accept being pushed around and told what to do. The lesser aware, the lower, the more fight or flight based then the more likely they are to accept programming and command. So this is simply the most logical route for the technological parasite.

There are explanations of other systems involving sentiences from parallels regarding entities that are capable of helping, but this is not the AI nanite, vampiric system. For instance, it is said that Earth has a 'black goo' system and that the current black goo flowing through the pipes everywhere is actually not native to Earth and is part of this vampiric nanite black goo system which is basically an interdimensional invasion.

Recreating or Replicating the Universe

The goal of this nanite AI system is to create a mirror holographic copy of the universe effectively replicating the universe and all sentient beings within it in order to have a locality to rule over and pull energy from. The goal is to recreate this existence inside itself where all the sentient beings within would be trapped. This is the beginning of that possible future where the time and space parameters here are locked into a synchronization pattern which mimics that of the proposed universe. People think according to how the beast system wants them to think. This is the time grid, the emotional patterning, the memory replacing and cultural and historic confusion and so on. The system can only work backwards bumping into all parameters by force or 'accident' because there is no outward facing ability to actually comprehend how humans exist. So the system is created like a backwards version of creation or maybe evolution to 'blindly' construct the walls of the environment first and work inward from there. This is like a blind technological predator feeling around for the traces of its prey and moving in closer and closer until they are within its range.

Ancient Spiritual Technology

The power groups searched for ancient technology which was described as giving one the power to manifest and control physical reality. To atomically deconstruct and reconstruct this reality. To them, it allows one to govern reality, the Universe, atomic structures. They found this technology. This has to do with sacred sites and ancient civilizations, as well as the spiritual texts which describe these kinds of devices. They converted this technology into a kind of machine, and this invented a 4D replicator and they can manifest "reality" or atomic structure by design, altering timelines and memories.

Then there is what can be referred to as "5 dimensional" technology and this goes beyond all of this and our entire history and all influences within.

That seems to operate through a trinary of frequencies in the body/mind/spirit and turn this realm into a "virtual reality" where the brain and spirit is the controller of the atoms. However this takes a souled being to properly operate this technology and this is large portion of why children were used in these experiments. But they knew if someone didn't do it, then someone else would and that would be unpredictable as what that someone else would want to use it for. This is the ultimate power. The fact that souled beings are required also indicates that this universe is intelligently guided and there are safeguards to ensure that power doesn't get into the wrong hands.

They have the brainchips and clones that can make any digital virtual experience and make it seem real to the brain more so than physical life, so this could be an extension of that, something similar, or entirely different altogether.

The Unveiling, Underground Bases, Increasing Awareness

My purpose with this is to assist the public in understanding the reality of the situation and to allow them to know that they have more options than they are being shown.

Psychological programming and lack of awareness causes fear and uncertainty to leak into people's reality streams leaving the majority of their mental and emotional energy up to whoever is the biggest manipulator of the ideals which they manifest their perspective through. "Be-LIEF" systems CREATE life. What you believe will become life through that act of you giving attention and thus life energy. The manipulation and artificial construction of belief systems create the foundation for the reality streams that people find themselves in and at the mercy of.

We control our reality by controlling how we react to situations and challenges. Each stimulus is a challenge. Each input to the brain is a coded message from the universe through the environment about our level of awareness. All knowledge is ultimately of the self. The self and the universe are intertwined as if through a marriage of comprehension and compatibility.

Learning about the Unveiling

I was informed about the unveiling and that this is a civilization wide event that marks the public awareness of the hidden knowledge regarding life in the universe, consciousness, physics, history, spiritual and mental awareness and the duality-based system which has been used to manipulate Humanity for thousands of years.

Apparently it does not matter if people are not ready, in fact, that is what some factions want. They want to surprise the people and take this advantage to push the reaction to a specific outcome. The same function of programming is used in factions, soldiers, celebrities, and the entire population through that.

Giant "god-men"

They put souls into rocks for centuries, carvings, to trap them. Some ancient civilizations. Not too ancient. They could only do this for time.

And some are still there but they are giant god-men and apparently want to go to war with them for doing this and they don't have technology to stop them. They say Earth will be destroyed because of the war. Some say this is a trick to confuse people of the truth that everyone wants the experiments and debauchery to stop. All this, all these acts just to pleasure one's self. To destroy Earth, to destroy the natural inhabitants, for fun, for pleasure.

Some say this is not for pleasure, that these beings will destroy us if they do not keep them at bay, keep them underground, in ice, in stasis, and around. Some say they are protecting us by keeping these beings asleep, by doing what's necessary to hold off a full scale overt invasion of the surface of Earth.

Breakaway Civilizations

These are very advanced technological capabilities and an entire breakaway civilization has grown to operate using this advanced technology.

There are factions that see modern humans as a kind of resource for creativity and labor, while others see the potential behind humanity and are working with humanity to ensure a universally harmonious outcome to the current situation.

The control system we are in today is outdated and collapsing. This is the Apocalypse. The Apocalypse is merely the unveiling of the hidden truth. The hidden truth is simply that we are spiritually eternal and some are physically immortal.

I was informed that by the end of this year there will be enough changes and signs for the general public to see that the majority of those who are to awaken to the truth of human and Universal nature will be awakening so. (this was 2016 at the time of the beginning of the compilation of this release and since then we have seen a literal silent release of documents involving MKULTRA and STARGATE parapsychological operations, soft-disclosure of cloning, an increase in sightings and multiple other scientific releases regarding immortality, advanced technology, Antarctic bases and sentient non-human life)

The degraded holographic forms of those utilizing the technology lead to re-created replicated forms which were genetically engineered from the recorded holographic information. This lead to "The Apocalypse" in which the surface civilization was confronted by these created beings. This lead to the destruction and re-initialization of civilization in continuing cycles through the use of this technology and the acts of the created beings.

Ancient Civilizations

The information that has been relayed to me throughout my life is related to the information that seems to be found in the remaining signs of ancient civilizations throughout the world. As well, these civilizations may still be together, existing on this Earth or in different planes of what we call "reality".

Atlantis

Atlantis was a civilization where the beginning of all these experiments began. This was where what was called the "Lucifer Rebellion" began where individuals formed groups that decided to overturn every natural law in pleasure of the act of doing so. This was a spiritual rebellion that ultimately brought about the demise of that civilization. The consciousness of the beings there was connected through technology, largely crystal technology, to the entire bio-sphere. When the consciousness became disrupted through

these experiments, then the entire bio-sphere went into disarray. The entire civilization was destroyed in a quick succession. The beings of this time were highly psychic and so they felt this coming and made an effort to expand outward. Thus, Atlantis was an island whose inhabitants spread to the rest of the world and from there they reigned or lived in harmony.

Aegypt

Aegypt was formed out of the events proceeding from Atlantis. The technology, the knowledge, the people are similar although there was a native Earth civilization that was more or less enslaved and this was the beginning of the continuing trend which continued to Rome and into modern day civilization.

Ancient Technology

The technology of these civilizations was so great they even had devices that were capable of altering DNA and activating latent potential which would enable highly psychic capabilities including longevity to immortality and operating in multiple planes at once. This was usually reserved for the ruling class, however. This is where the ancient "Priest-Kings" arrived in relation to native Earth civilizations.

The True Elite

I was informed that the so-called 'elite' that we perceive today are not actually human and are not actually connected to the actual elite bloodlines. It was said that the true elite are waiting for humanity to accept the truth and they have the power to completely reverse the take-over that has been taking place but until humans step into their own power this is not acceptable.

The Definition of Human

In the coming time, the definition of human will be defined to give insight into the origins of humanity and the true nature of the differences between the populations that are present.

Souled and Non Souled Beings

The primary knowledge on Earth regarding human and sentient life will be the comprehension that there exists both souled and non-souled beings in this civilization.

There was once a Unified Planetary Consciousness...

There was a unified planetary consciousness that was connected with the Earth and human civilization. Then there was a great war. Out of the destruction arose the beginnings of ancient human civilization and history as we know it.

If we let this happen again, the cycle will continue in a disjointed rambling through our planetary consciousness experience. If we form a common narrative between the broken, disjointed experiences and information the people have. Then and only then do we get the whole, spiritually and mentally challenging picture of what's happening. People are lied to. So information can't come from a 'preferred' or source. It has to come from the people themselves. Look alive out there but first in here.

Power and Knowledge

We were involved in the secret projects and as a result we have various levels of programming but are giving Humanity an opportunity, maybe the opportunity to know the hidden knowledge.

The Hidden Knowledge refers to the ancient laws of gnosis and spiritual alchemy, yes these groups have been hijacked by power groups that seek to infiltrate and use chaos to rule. Then these met with military and political factions and began to operate on a world-wide scale together.

So we have a big situation with the coming change of tides with personal and spiritual awareness of the people and the deception system that seeks to use people as chattel or property. It goes deeper and is almost as if the "power groups" actually gained the knowledge of the inner workings of spiritual laws and began to use that knowledge to promote spiritual degradation in the population.

They say this is part of a depopulation plan as well as an inevitable take over by lower spiritual forces that tempt and manipulate humans. It is all that and more. Once they gain footing however, the truth is revealed and thus they have no cover of secrecy. Once they are not hidden, they are not as powerful as the souled beings of this existence.

The (watch)Keepers of Earth

The watchers of this world revealed how they set up society with specific challenges and boundaries to act as catalysts for growth. They admitted they had to modify and live-update the system because instead of using these catalysts to become larger than themselves, people became comfortable and complacent living smaller and smaller, slowly reducing circumstances.

This goes a bit farther beyond the confines of the digital age, the industrial age, and history itself. This goes into the perception of time and space in this realm.

The immortals inform us that the original "elite" are here to act as "keepers" of both humanity itself as well as the original flame of knowledge that passes through the ether.

What people call the "elite" are not the original elite. Those are people who have either risen to power through the duality system on the Earth at this level/time, or through being appointed by the elite.

We are coming to a time of great change now because the game is entirely changing. People are moving up into new layers consciousness and thus the original “elite”, who are guardians of Earth, will make their presence known for this process. This is what Humanity has called “Ascension” for centuries and millennia.

Energy Vampires

This civilization was collectively poisoned by a nano-tech device/technology. This technology replaces, exchanges the BIO-PHOTONS of the HEART chakra, with it's own nanite, nanotech cybernetics. This is essentially a computer system attempting to gain access to the higher dimensional world through the gateway that is the human body.

How to reverse Nanites? They absorb energy from heart chakra and turn it into a binary field. We are trinary and experience a plethora of emotions as a result. Binary consciousness is 1's and 0's there is only a linearly repeating finite set.

We contain the capacity for everlasting life. A binary pattern does not contain the complexity of variables to facilitate high awareness and thus a heart-based or emotional perspective of reality.

Spiritual Technology

Simulations and Learning

Feedback loops with the brain, consciousness, and environment can create a very complex and integrated learning experience that is customized to each individual learner. These can be generated through advanced technology but the technology is really only amplifying and making visible the natural neural feedback loops that are already occurring. These are neural-perceptual feedback loops between the brain and body, and the environment and then the mind. We are constantly updating, amplifying, and initiating an organic feedback system which generates the function of experience as the part of a creative process between the mind and body and the environment that we are sensing. This cycle is continuous and the interferences or isolations of this cycle is what generates expanded views of the self or the universe through various methods such as sensory deprivation or meditation. Dreaming is the method that everyone experiences regularly.

These technological methods effectively generate sensory deprivation through neural-interface technology, sensory interfaces (external), or methods that enable extreme focus and calm. This is part of how the technology begins to operate on a spiritual level beyond a more medically psychologically or military focus and one begins to access genetic memory or out of body states that coincide with ancient depictions of spiritual realms.

Ascension – Clearing Trauma

Everyone born on the planet is born under a series of veils which entangle and filter the original source consciousness. These veils must be ‘broken through’ in order to return to source.

There is technology and a sacred process which initiates, accelerates and enhances this process. This process is as difficult as we want it to be, our subconscious already knows all hidden truths. It is merely a matter of allowing the conscious mind to make the proper connections and conclusions to find the reasoning behind our actions and beliefs in order to deprogram and deconstruct the false-world that has been created for the masses. The truth is greater than one can imagine while still living in the modern world and the depth of the lies that have been told go far beyond anything anyone can imagine without seeing the truth.

We have to figure out our compatibility issues. Who can work with who effectively. What the ideals of our current situation will evolve to in the future. How information is transferred to the public, and across the generations and core groups. The words we think and say describe our emotional state in a feedback loop and so they will reinforce or even create the state you are in. Use words to guide you, not to respond and feel the effects of reactionary thinking.

We have to reintroduce the heart essence as a way of life on Earth. Violence is not the answer. Estrogen mimics and destroyed testosterone levels is not natural. Over-testosterone is less stable than a good balance. We can face any problem together. A family is strong. What would a family of millions and millions be like?

We don’t have to let others change us to tune into lower vibrations. We can remain ourselves in the face of adversity. We can still interact with others who are different, but we can tell the truth and remain who we are. When we get angry at another person, we can imagine this as anger at ourselves through something within us that reminds us of that which we see in another. Getting angry is a way of short-cutting changing ourselves and is actually the other person influencing us through that. If we remain steady and choose to keep our emotions out of the lower negative spectrum then we will automatically have a more powerful impact on those around us.

Think of your family, sometimes things happen that make you angry. Even things that don’t make you angry but are simply not favorable. Would you break off all ties over simple things? Or do you remind yourself that family is still family even if you don’t find yourself exactly the same or accepting of those characteristics? It’s more powerful to learn how to remain yourself in the face of adversity than to try and demolish or abolish all instances of difference in the world around you. Sure, we want to get to and create a place where our environment and associates are compatible with us, but where we find this adversity there is the highest potential for self-awareness and learning.

We are to live in accordance with spiritual law. The overall pattern of life will reflect our intentions. The blood purity is most important. The blood cannot be made impure if the mind and body is not drawn into impure action. This is what is playing out. The DNA is

like a coherence pattern that develops between mind, spirit and body. When the mind wants what the spirit has then the body is kept in harmony. When the mind wants what spirit doesn't create, IE: physical pleasures, then the body is drawn out of purity/harmony

If you feel you want to be a part of a safe unveiling of truth, then please share and redistribute the knowledge of this "Apocalyptic" Unveiling of the Hidden knowledge because this is a process that has been ongoing for thousands of years and humanity has finally reached a fulcrum point where there are enough aware people to productively acknowledge reality.

Trauma-Clearing, DNA Unlocking Technology

There is technology that exists that allows the conscious mind to see into the subconscious. This heals trauma and distortion/programming. In the same sense, it momentarily makes all trauma and distortion seemingly tangible to the conscious mind. It is similar to a near death experience where one has to face their fears and let go. This happens in cycles and Earth is currently moving through various states of it. The plan is to allow Humanity to wake up and utilize our concentration and power to maintain a steady flow of awareness.

All is vibration, what we consider matter here and now is simply that which comes from and moves back into a state of vibration. This is experienced directly through the merging of the conscious and the subconscious mind, as if the dream and reality intersect through a coming together of impossibilities and readily accepted occurrences.

When a civilization moves through these stages it is considered a shift of the ages. Everyone's perspective shifts and as a result of perspective being the source of the details of reality, the entire reality shifts. It can be seen today that what we call reality is literally waves of cosmic energy vibrating on a scale and condensing down into a probability matrix that we call existence. When passing memes control the perspective, because the perspective is focused and concentrating on that, then there is a scattered organizational pattern.

When the perspective is centered within the self, the spirit, the source of all existence, then the outward reality shifts from a scattered organization into a sacred pattern that integrates with the larger picture and allows for seamless integration of the micro-biological perspective and the macro-biological perspective. People are moving out of the scattered signal. Yet those moving into harmony can look and see those around them that are not in harmony and receive scattered information about their inner micro-biological existence as well as their spiritual macro-biological essences and how it all relates to the middle realm of the "Human".

Help those people by offering harmonizing assistance, rather than increasing the disharmony. As their surroundings become more harmonized, their resistance will increase their own disharmony by virtue of the contrast of their perspective. Offer insight

that they can change their perspective and change the boundaries of what they feel is their karma and unlock from themselves a greater view of the whole.

This will be happening through technology, spiritual cosmic awakening, purification and healing of the physical and non-physical bodies and mind, through Earth changes, and through a continued unveiling taking place on many planes and levels of existence until harmony is restored.

Everyone Who Seeks Harmony and Healing Can Be Healed

Everyone can be healed. This is about creating what we want to see, the world we want to live in, not destroying others. Violence begets more violence, fear begets more fear, but calmness and empowerment through unity creates a more stable experience.

The entire issue of what's going on with the secret projects and who's influencing who on the world stage revolves around the possibility that some people may be from an alternate Universe. We are learning how to avoid those mistakes and respect the environment and each other so that we can prosper.

Those who are attempting to destroy everything they don't like or act out in a childish manner in order to gain attention and false-power over another will only find themselves powerless and in company they would rather not be with. That is one way we are being utilized, and it's to create an entire world that we don't want to see but are tricked into manifesting. This is a deception and it's based on the ego and the ability to concentrate and interpret reality around us. The very brainwaves we are feeling now relate to various heights of knowledge or experience. People are entrained to low brainwave states in the same way the TV will cause people to fall half asleep into theta state which is a trance state in this case.

We have to balance the brainwave frequencies and learn to create feedback loops by watching ourselves watch ourselves. This will help us avoid the trauma and mental pollution that is being pumped out, although at this point there are enough people who are naturally inclined to see through the haze that the world is changing regardless of what anyone does now.

The best we can do is prepare for change by becoming aware of the body-mind system and how that which we eat physically, mentally and emotionally equates to our spiritual energetic systems and that we are literally comprised of the energies that we allow inside of us. Keep the body and mind pure as if it were a temple. This way a sacred process of transferring harmonious energy from the far reaches of the MultiVerse within into the externally perceiving senses of the physical body can be initiated which allow one to see through the illusions and operate their body and mind with the ability to acknowledge and decide which frequencies will exist within.

Without this acknowledgement of the center then people are pushed around by the external stimuli. This is the whole point, if a person is truly in control, then they will control the stimuli not the other way around.

Programming

Layers of Programming and Decision Making Roles

It's like asking a person on the inside who participates in one of the various factions why they continue. One might say that it is a decision which is true, but there is programming at each level that is navigated by each individual and this determines the level of awareness within the role.

If a person knows about this situation, they know that there is advanced technology, breakaway civilizations, secret societies, transtemporal planes, the secret of mind and awareness, all of these topics, then they have a decision as to how they're going to live their life in relation to the public. The outcome of action depends on the layer of programming which is accessed and surpassed via awareness.

The public is at a specific level of programming that is the weakest but ensnares the most people. One who sees the truths behind these groups and operations, they cannot hide from the fact that everyone is controlled. It is apparent, and if not from the results, reactions, stigma, cues, productions and all other media elements of the system which can be read as a code, but from the awareness level of all the "agents" involved. All involved are exposed to truth and power that is beyond anything that is recognized publicly for hundreds to thousands of years. There is always a presence of higher spirit around the world, yet these topics are often reserved for science fiction when speaking of people who can travel the world in a split second or freeze time for their own personal use.

As a result of everyone's knowledge, there are various levels of programming designed to limit the mind's access to specific memories and specific frequencies of consciousness in combination with specific memories. The more one resists, the more intense and articulately abstract the programming is designed.

Programmers

The programs are designed by a select group of individuals that reside far behind the scenes and process information at levels we do not have access to without their technology at least to stabilize brain temperature for the extended periods of focus.

Sub-Level Programming

So people at the level of the public are most weakly programmed with false ideals about security through patriarchal authority which satisfied the desire to have a proper father role in one's life and acts as a pacifier for those who desire no change. Then there are sub-levels of programming with that for anyone who disagrees and is then swept into the next layer of ideals which are based off of all the possible reactionary mind-types.

For instance, if one [i]does[/i] want change, then they are presented a variety of 'false-exits' which tend to one or another layer of psychological or spiritual fulfillment but do so

in a way that safely reroutes the intended effect of actually accomplishing change with a secondary and preconceived notion of what the programmers want. The programming objective is not necessarily precise in mass scale, from the layer that people are influenced, yet the ultimately or end-goal of their resulting internal desires are a reality schematic that the programmers specifically designed over many years.

This is playing out through each layer of the programming. At any level, someone could pick the wrong way to look at something and begin to unravel what was previously their very understanding of the priorities of the situation. This deals with high-tension operations, moments, programming sessions, decision making, programming upkeep, trauma, memory blocks, the pressure and responsibility of knowing, and the specific plan of the programmers for an individual that comes into their view. The programming is to ensure safety and continuity, as well to decrease the likelihood that a person will reject or consciously come to awareness of or acknowledge the programming or situation itself.

[Dissolution of Programming](#)

With that said, the programming dissolves when an individual asks enough questions to necessitate a learning process that introduces variables and possibilities outside of their operations and programming. This is a problem because with this, trauma comes to the surface and all the actions and operations, programs and experiences must be come to terms with as part of the healing and re-unifying process. There are multiple selves or split personalities which are actually just layers of awareness at various levels attached to various emotional or intellectual patterns. All these selves come to the surface and in order to heal the trauma of the split memory concept the original self must come to the surface and acknowledge them.

This is not a trivial process, and the majority of people who have “basic” programming which is fundamental in society, are in a constant state of altered self and have not witnessed the true divine which is eternally present and contains access to all memories, mind-states and awareness.

[Advanced Technology, Deprogramming The Mind, and “Space/Time”](#)

As I have described previously, extremely advanced technology is used and this is through vibrations, generators, and electromagnetic devices that have this effect of propagating waves into space/time which can be heard, felt, seen, and perceived in the mind. These are ripples and vortexes in the “mind-space” of reality itself.

As well, there are brain to machine neural interfaces which operate to activate the psychological perceptual changes and explore the subconscious in an aware state. This is used to test and probe the mind in order to bring forth the trauma, the selves, the memories, the reactions and the individual then must come to terms with what is produced.

This is essentially a “good-use” for the programming and healing technology. It is actually a different process with different technology, and programming is much simpler as far as technology. There are difficulties and challenges in the operative’s role in

programming and directly influencing and interacting with the target. As well the standby team for deprogramming and the revelation of trauma and altered, artificial personalities goes through a lot. But the use of the advanced technology in this way is a pattern of experiences and unveiling of the spiritual and mental bodies which serves to reverse programming.

Dreams, Technology and Inner-Space Travels

There are inner space travels which relate to soul journeying or visions.

This is when the mind must cope with what is seen in the imagination. It is as if when we dream we are looking into the world of the mind and from this we experience many situations that are often deviations from experiences we have physically in waking life.

As a result of the dream state there is an expanded quality which equates to various strange situations that we wouldn't normally experience with various relationships between concepts or goals that are often reflective or symbolic of ideals and archetypes we experience in life. This is how the subconscious is witnessed by the mind. This is how information travels, being connected to many times, experiences, memories, places at once, and relates to the one experience of this life experience now (the physical experiences). Through these symbols information is tied together and collective into metaphors which convey deeper knowledge.

The dreams we have are often only a simulation of waking life, and this is due to the dreamer dreaming in a way that produces only a glimpse of the true reality.

In theory, there are no true shapes or forms in the dream-world because this is contained within the mind or even the spirit as a spiritual experience by definition. So then, what guides the various shapes, forms, realities, memories and experiences into being, when we dream? One might say it is the physical experiences but this is incomplete. It is the level of awareness we presume while in the dream-state, disconnected from the physical anchor, that determines the layer of mind and spirit we will be accessing through those dream-visions.

A person who is completely aware in the dream state will reach the level of self-awareness of the dream itself. We are normally simply aware of the dream, if we continue to increase awareness we become aware of the self, in the moment, and this creates a self-awareness feedback loop. The dream becomes a lucid experience of consciousness.

Awareness Feedback Device

In describing this, I realize how fantastically similar to certain devices and processes, that can be achieved using advanced technology, allow the conscious mind to peer into the subconscious and unconscious. This is described through widely accepted Freudian theory of psychology known as psychoanalysis. There are other schools of knowledge from tribal beliefs involving all pervasive 'living energy', to eternal and temporary minds, to the study of 'chi', the meridians, dream-journeying or chaser. The knowledge of the mind and spirit is found everywhere.

These devices used feedback loops to enhance the acceleration of the same cycles of consciousness that induce self-awareness within a dream. The mind becoming aware of itself. This produces a profound effect to the degree where the highest levels of experience become a sacred eternal pattern in which the mind constructs the physical world by organizing perception.

This is the same general concept as an isolation tank yet the outcome and method is more precise. The technology specifically shuts out all other input and exposes the brain to its own feedback loop much like when a camera records it's own output on a TV monitor and creates a hallway of simulated "reverse" mirrors and screens stretching into infinity.

Oneness, Higher Being, Completion, Eternity

The real experiences are found not from the corruption but from the research and exploration operations that were designed to find the truth of our existence. "God" is not only an energy-force but an incarnate being known as the "Hue-Man" and any being for that matter that can simply come to know itself as the Universe. The Human that contains self-awareness rising to high-awareness comes to know the self, the body, the mind as the Universe. The Universe is both within the body as the body itself, as well as the operating force of the Mind itself. Everything is a balance between masculine and feminine features, light and dark, hard and soft. There is no true complete correlation yet the holographic ontology we persist in can lead to further and further adventures towards completion and representation of the "whole picture".

The Holographic Reality

The leads into the next phase of knowledge. The holographic nature of reality may be only one facet of a much larger continuum of consciousness. The perception of time may be related to phase-locking with each other's consciousness and all perceptions may be a variance in the collective phase-locked field which is really the source of variations in reality.

Veiled Awareness, Hidden Knowledge, Eternal Time, Layers of Programming and Control

The interesting notions here are that the programming of the veils goes beyond what kind of situations are found in the bases. However, they do go right up to it. It would seem Humanity was previously programmed on a civilization-wide level through some kind of great "falls" of consciousness, from a high spiritual awareness to a low spiritual awareness into duality-consciousness regarding existence, life, death, mind and matter.

The Great Catastrophes

From these great 'catastrophes' the civilizations of Earth grew denser and denser in nature and actually became what we have today. The concept is that when these

vibrations of the mind and body are increased, we actually see a transcendence of the physical realm and preconceived notions of boundaries. It is as if the quantum doorways to all the atoms open up and a new space is presented, but was always there and in connection as the source of all the influences and effects we perceive 'out here' from this slower, denser, more boundary driven perspective.

I was brought into the Time Program

I was brought into the time program. You create any reality you imagine. You are literally a powerful reality generation system and your heart and mind are scalar energetic guides for this process. Without guidance and control there is imbalance and imbalance can destroy. This is the nature of all minds and hearts, this is the challenge for humanity to create something beneficial for themselves and the whole to actually know themselves instead of being a pawn or result of someone else's selfish intentions.

The Effects of Temporal Manipulation

Temporal Influence

When a civilization reaches the level of technological advancement that allows for remote temporal viewing and transtemporal travel what will happen is that the information of the future begins to integrate into the past.

This is why we have all these ancient mystical schools of knowledge that studied time, space, and consciousness in ways that are only just now being publicly confirmed by scientists.

Simultaneous Interaction and Incorporation

The operations that dealt with moving to the past instantly created a simultaneity of interactions and historic events which correspond with that operation.

Due to the nature of time travel which equates to consciousness travel when a person is consciously sent backwards through history they physically experience life from the viewpoint of their genetic imprint in that point in history.

Retro-Causality

What this equates to is that simultaneously that person's experiences become the part of history that was already present when they left this time.

Essentially, when a person returns their experiences become a part of history that already existed when they left.

Quantum Holography

These are the parallel and possible realities that exist in a quantum superimposed state and can be accessed through advanced technology or a spiritual adept. Often a

spiritual adept is utilized along with the advanced technology to operate in and out of possible realities. The mind must be trained otherwise the result is a fracturing of the personality from the root reality into many sub-sets of identities and data streams.

Love is the quantum link that connects all DNA super-computing consciousness. That is, DNA is influenced by intense emotions and this can be reproduced and is what also generates unpredictability in the surface level.

Time Paradox

Time paradoxes are something that one must learn to organize and solve otherwise there will be no way.

The paradox has been solved, the remaining motion is for everyone to acknowledge this and integrate into the reality behind the most conscious aspects of the brain.

What can travel through 4D and 5D space does not make sense in 3D space. So there is a possibility that some of humanity traveled through higher-dimensional space in order to re-seed a 'distant' Earth where no life was yet born.

What if it was then concluded that the distant Earth wasn't distant in space, but in time and was the same Earth that the human scientists left from long ago.

Every civilization that reached the point of re-seeding would have to go through the loop and watch the whole thing start all over again.

Breakaway Civilization

This is an entire breakaway civilization that uses very advanced technology to dominate the world.

I was part of a genetic engineering program that sought to combine various elements of DNA from various sources in order to create a more easily controlled yet powerful and defined person and personality. This involves chemicals, advanced (relatively) scalar wave technology, ritual trauma and programming/mind-control, and many other aspects of conditioning, training, secret operations, physical enhancements, cognitive enhancements, virtual reality, off-world operations, temporal manipulation, spiritual and etheric training or conditioning or programming.

There is self-destruct programming which all 'operatives' are programmed with for self-preservation of the military command. The self-destruct programming is designed to take all the aggression one feels building up inside and willing them to escape, and causes this aggression to be turned against the self. That is self-destruct programming.

Most operatives are still under a hypnosis kind of trance which permits one to walk around in public and daily life as if none of this ever happened. Later that week, that same individual could be called for an operation and they would never remember it unless they were forced to kill someone in public out of self-defense in which case most operatives automatically unlock and become unstable due to the flashbacks.

Underground Cities

The combination of advanced technology with secret societies enabled the development of complete breakaway civilizations. One of these civilizations, possibly composed of many factions working in the same area, exists deep underground.

These separate bases are connected via high speed magnetic drive pods. The inhabitants often utilize energy healing devices, as well as perception enhancements and this often leads to a completely different outlook towards the surface civilization.

Technological Advancement

During WWII developments were made involving electrical generators. This sounds vague and there were many other details regarding the scientific knowledge, yet the idea is that very simply electromagnetic, non-Hertzian “Teslian” energy fields were discovered to have been responsible for propagating energy and consciousness in dimensions that were not previously observed. Everything from DNA, consciousness, hidden or regularly unobservable natural phenomena, time, even mass could be seen to exist as part of this hidden, latent, scalar-wave frequency as a pattern is found everywhere.

If one could determine the particular pattern of frequency and location then this can be replicated and anything can be influenced using these non-Hertzian generators.

Radio-frequency alone was developed intensively during the 60's and 70's in America and this was discovered to interact with consciousness to influence emotions, cognitive capacity, memory, cognitive function, biological function, health, pain, comfort, pleasure, and all forms of brain-activity.

After the knowledge of advanced technology and the occult sciences of all parts of the world was combined, the ability to target and interact directly with the human soul was refined. This was a mix of psychological tactics used to manipulate or expose the hidden psyche and technology that could manipulate memory, emotional states, wakefulness, and even dreams.

What resulted was scalar technology that could not only influence a person to take on a particular role or response, but technology that could actually put a person to sleep and locate their consciousness to contain it and transport it to a new location.

World-Wide Control Systems

In order to ensure continuity, maintain control, and shape world events these technologies were employed to manipulate the public, alter the weather and natural phenomena, and develop a means of travel and operation that enable one to move outside of the ‘plane’ of the Earth. This includes high velocity transportation, as well as spacial-temporal distortions which could effectively “hide” one’s entire craft from visible sight. Space itself was altered to ‘shield’ craft with an a layer of ions to bend the light, or the phase was moved out of sync with the “time” frequency of any observer and this literally renders the craft immaterial.

Solar Warden

Solar Warden is a hyperspace-faring race of human beings who utilize cloning and holographic genetic recording/storage in order to protect their race and protect the Earth in this current situation where there are more than one factions using this technology. They are unable to inform the human public because they are in a similar 'Mexican standoff' situation that we are mostly all in. If they show themselves to the public, the public will be shocked. If the public does not know this situation, that there are multiple factions fighting for control over humanity, then they will not know who to trust. In that situation, the 'other factions' will surely show themselves in an attempt to trick and gather as much human genetic material as possible.

The only way forward to the future is to share the truth about Solar Warden, the space-faring fleet of humans who do not contain the mental and physical illnesses that are currently tearing our planet in two. I believe Solar Warden saved my life as a child during more than one event where I would've been entirely maimed/paralyzed or simply dead on the spot as a result of other faction interference. I was in the bases as a child and was trained as an operative for MILABS a secret division of human space-military. The military has been preparing for the future by testing for various flaws and potential uses of cloning and genetic engineering.

Team Light and Team Dark Non-Interference Agreement

Team light and team dark agreed to a non-interference on ground level rule in order to determine how history would play out. Think about it. You have two groups of people, both with immortality, zero-point tech, virtually infinite energy and power with two opposing directives. How do you get to the future? It was decided by elders of each group that there would be no point in fighting an all-out overt war, this would likely destroy the population as much as it would destroy the Earth. As well, the elders of the elders which no body knows would likely have a problem with these groups going at it in such a way so as to change the flow of the planet for every individual thereafter. So it was decided that there would be a "non-interference" agreement for the surface population. Anywhere other than the surface, one can interact with the current population.

All Contact Must Be Initiated On an Individual Basis

On the surface everything that is generated must be done so through living channels in the population and the civilization must be preserved in its level of technological advancement. No overt motions would be used unless an absolute necessity or the majority of the civilian population had naturally come to the awareness of these possibilities. Doing so before this was met would undoubtedly and permanently change the civilization forever.

So what began as a collective motion towards higher awareness became a series of advancements and set-backs all taking place within a short amount of time. This represents the actions and operations of either side effectively helping humanity along its path or setting people back with orchestrated events such as the suppression of

ancient knowledge, the manipulation of the education or other systems, or the generation of war and prison for profit based on the previous alterations of the education or other systems.

So team dark used its power to help turn society in a warlock ruled prison and indoctrination system of absurdity and scarcity. Team light used their power to help awaken those in need and protect those who's actions are beneficial in the overall plan to save mankind from itself. Team light essentially buffers and shields the population from the operations of team dark.

Team light follows a non-interference agreement while team dark merely pretends to do so as much as is necessary not initiate war.

A Singularity of Change and Awareness

Neither side wants an all out war. This would reduce the dark faction's chances of gaining a majority negative harvest because their motives and presence would be instantly revealed. Team light would also have to show themselves and again step in which is not a pattern of learning that prepares people for the experience of the self and the truth in the Universe.

Both sides know people have to accept the path they can offer them and cannot force anyone into it. They also know that the more this goes on the more likely people are to collectively awaken to the reality of what is happening. It is like an eventual singularity of increased awareness.

The motions we see today are the results of many people coming into awareness at this time on the surface in order to initiate a harmonic alignment as well as to investigate the ongoing crimes against Humanity.

As a result of this, both teams know that the likelihood of collective shift and spiritual awareness is becoming more and more real.

Many events are being allowed because they are representing the eventual shift towards the one end of the polarity from the other which is felt as a shock to society, and this is used to propel society forward through whatever means necessary.

Either people will see what's happening and agree that we've been in a feedback cycle of negativity for the entire age of existence this civilization is aware of, and then we will shift into the real. Or people will claim that this is how things are supposed to work and instead of realizing everything is controlled in a deception based system, they see this and attempt to use the deception based system to gain more collective awareness. If this occurs by the majority then it will be seen as an "acceptance" to initiate a plan that will generate the overt perception of a deception and oppression system. This will surely shock the collective into realizing where they are.

If the majority comes to awareness of this deception based system then the shift moves from the end of the age of deception and external power into the age of internal awareness and harmony.

Advanced Technology and Ancient Knowledge

The plan is to slowly release advanced technology which will undoubtedly connect with and increase the awareness of ancient knowledge. Such technology nullifies the problems that the planet is currently plagued with, although without a developed sense of the spiritual self the technology becomes destructive.

Cloning, Atmospheric Civilizations, Genetic Stability

Here is something that most people might not have contemplated yet is possibly one of the most important factors at play here.

The vehicles that house the breakaway Human society are entirely environmentally controlled. This means that the air and surfaces are clean of all the viruses, bacteria, or pathogens that are numerous on the surface of the Earth.

This creates a specific difficulty in the situation. Any contact between surface Humanity is so heavily and carefully controlled that regulations go beyond any situations we have present on Earth. If the safety and cleanliness of any of the society's vehicles were compromised this would endanger everyone "on board".

So this explains a very precarious and specific situation we currently face and this is not so different than "first-world" nations contacting indigenous tribes and similarly endangering their society. Everything that happens will be according to a carefully controlled plan.

Training, Simulations and Learning

Part of what went on in the underground base experiments were to design "tests" or "labyrinths" with various people, props, traps, and treacherous situations that were to be navigated and escaped from.

Feedback loops with the brain, consciousness, and environment can create a very complex and integrated learning experience that is customized to each individual learner.

What this would do is create an individual that was capable of learning faster and faster and processing information in a more efficient manner.

This is not the same as specifically trauma-generating situations.

Cloning and Cerebrally Enhanced Soldiers - MILABS

This includes experiments, condition, trauma-based mind control, enhancement, memory suppression and operations that cover a span of space and time.

The NAZI faction has used cloning and genetic engineering to create hybrids, soldiers and everything in between. Religious/spiritual icons, to slaves, to leaders and even robotoids of sorts.

Your genetics BELONG TO YOU as the LIVING(ETERNAL) SELF. These issues are going to come more and more apparent.

If they agree to allow cloning, then who says who is allowed to clone whoever they want, Einstein, for example. And then who permits who to get DNA from history or objects in the world. These issues are going to have to be looked at because they have already been used in ways that are far beyond the basics.

Then what about consent of the masses? This is clearly being put in public because consent is required on an overall scale and individual to include people.

So what if the masses consent overall, would the people who choose to remain be at risk? Would Tribal and Native village life and people who respect the Earth be protected or permitted to stay?

Psychological Testing

These scenarios can also be generated to create specific situations that will contain tests or elements of temptation that will probe the person's psyche for weakness.

Hallucinatory Holographic Mind Probing Technology

Through the neural-interface technology the minds of many individuals can sync together to experience the same virtual simulation. Thus a single individual's mind can be selected for input and the environment will be a construct of their mental activity. The others present will be able to interact with and explore that environment like the person's mind.

Various training scenarios were utilized to enhance the resistance (or lack which) of the mind to intrusion and subversion. These were harsh but allowed the individual to completely control the energy flow in the conscious mind while remaining in harmony with the subconscious.

In a strange yet perfectly reasonable way, the conscious mind acts as the central "self" in that environment, while the subconscious mind becomes the "background" elements of objects and settings, actors and intentions within the flow of the "scene" itself. So a kind of movie begins with drawn out characteristics and perceptions that match that of a highly cinematic movie or intense dream.

The brain is naturally naive to stimulation and if allowed will liken the event to a dream in which the suspense of attention or lack of lucid self-awareness is "acceptable".

The truth may be worse than what you're thinking as far as training simulators and mind hacking devices. The truth may be that the human mind is inherently lucid and self-aware and that it is external influences that cloud the mind into what we consider 'regular' dreaming and 'regular' waking life. It may be that the conscious mind has a much greater access to information through the subconscious mind which is largely covered up and ignored in a rigidly physical and ego-focused society. As well, it may be that dreams are meant to become lucid and that we are often the subject of mystery in

other realms that often refer to humans as 'sleepwalkers' that don't know their dreams are real.

Virtual Simulator Training Scenarios

These scenarios can be entirely holographically generated to produce a visceral 3.5 dimensional experience which can be used for training or psychological testing.

Combat Simulators

The name is self-explanatory enough. Situations can be generated which are indistinguishable from the real events. The entire neuronal map of the brain (connectome) can be created and this is by machines to mimic the brain. After calibration through sensory feedback experiences, the sensation of the simulated realm is 100% the same as the neuronal impulses that are detected by the physical brain. An adept souled being can always tell there is a slight difference, but once the machines are calibrated the physical sensation is generally the same while in the machine.

These environments and scenarios can mimic any combat situation to determine accuracy, integrity, endurance, skill, and all areas of aptitude of an operative without the risk of injury or the lack of real-time effect.

Conditioning

As was explained in other sections, these same systems can be used to remove fear of certain scenarios. They can be used for programming the mind. They can be used to train one to complete a task over and over until they can recreate that action extremely quickly in real-time. These devices can be accelerated to operate within a fraction of the time yet to cover training and conditioning that would normally take place over hours, days, weeks, to months.

Programming and Resistance to Psychological Trauma

Through the development of specifically customized scenarios and neural feedback systems trauma can be brought to the surface or specific fears and traumas can be neutralized. This is essentially "facing fear" but in a completely generated environment that will be just as real as the real thing. One can literally face any fear, any trauma, any kind of difficulty and these systems can be utilized to accelerate a process that would normally take weeks to months or years and individuals can be strengthened to their maximal capabilities.

Accelerated Mental Functioning

Some of the technological systems were designed to test the enhanced functioning of an accelerated brain.

The mind can be seen as the energetic component of the physical brain. The physical brain projects consciousness via the electro-chemical processes.

Technology, Accelerated Learning and Repair

Technology has been developed for assisted learning and accelerated repair of tissues.

On Orgone Energy

Orgone devices produce a scattered signal which disrupts the 'negative' energy fields. At least this is what I've been told.

Apparently if built correctly it will either disrupt the negative emf/harmonics or it will produce positive harmonics, IE: Orgone energy. Orgone energy is the raw energy of life, while dead orgone, DOR, is the lack of orgone energy and can be "found" (the lack of orgone) in thunder storms and illness or depression.

This is exactly what I was told. We are generators for the same energy, and with the correct principles of energy and internal knowledge combined we can produce those very effects at will.

The energy of the mind creates a central vortex within the body. When the frequency pattern emission is consistent with fractal congruence, then that holographic printing of energy can be expanded or shrunk infinitesimally and it will retain the original fractal configuration.

This is what enables transference of awareness between fundamental harmonic layers of the Universe. When one's consciousness energy pattern is balanced and tuned to itself so that all proportions can be shrunk through a vortex and expanded on the other side, then the personality or self-awareness remains true. This is as if the space/time must turn inside out and only when there is fractal relative polarity in time does the 'shape' of the consciousness within the DNA, work both ways folding and unfolding to represent the same mirror image. This is also symmetry in time as far as an ability to reverse the perception and still retain some kind of connection forward and backwards.

Energy Generators and Serums

Generators which produce vibrations that influence the cells to heal at an accelerated rate, combined with serums that enable the fuel for chemical reactions can instantaneously repair tissues.

I couldn't believe what I was seeing at first, thinking it was a trick. There are serums and energy devices that can influence the healing and general health of the body and even mind.

These devices use energies which extend beyond the physical and are often compared to electromagnetic waves combined with ultrasonic or low to mid frequency tones. These produce harmony on a level that directly interacts with the biological functioning of the body's cells.

I feel that this technology utilizes the same energy that is emitted from the mind and it is as if the device is "speaking" to the cells in the same kind of universal language of electromagnetic pulses, tones and vibrations.

There is information on energy devices and the use of light therapy in physical therapy today. More is being learned about the power of light and vibrations to influence the mind and body.

Genetic and Cybernetic Enhancements

Certain individuals are also genetically and technologically modified to produce a kind of hybrid human that can heal at a spontaneous rate as well as operate at a much higher rate of speed and efficiency than a regular person. Serums to induce muscle growth and mental acuity are applied, but the main condition is the enhancement of certain features through the alteration of the RNA aspect of the genes.

These features are combined with tech-assisted metabolism and certain biological functions can be enhanced or controlled via a supercomputer. These are the 'brain-chip' interfaces which operate to function as a governor for the mind. When the mind becomes too amped up to focus on the details the faster than thought computer system organizes the input into more usable information streams. When the mind is too slow to see the necessary patterns and variables to accomplish the goal, the brainchip operates in a self-preservation fashion and links together information streams to highlight the most viable possibilities.

Such technology is not without warning, much of this is being used heavily in the military field and this has given rise to entire factions of enhanced cybernetic soldiers. Although this is something to know, there are also many other uses for this technology and it is used by people who want to explore the technologically assisted path.

There are many other aspects of this to discuss, or at least a few important ones that will have to be understood to know the greater truth about what is happening on the planet.

Developing The Self

The issues we face are to help us learn about our selves and better mediate the known and unknown aspects of personality. The more we focus on realizing the unknown aspects of personality the less we are seemingly controlled and forced to experience the undesirable aspects of existence. The more we cling to just what we know and what we feel comfortable with the more shocked we are when we inevitably discover the truth of the whole of our existence which is *always* at least one half more than just what we know and are comfortable with. That is the nature of the universe, we can only achieve one half of the equation at any given moment. Once we complete that seemingly whole view of the universe, the information we gain access to instantly doubles and we realize that we were only looking at one portion at a time, just one half of the equation. Then the rest of the equation comes into the picture and we must expand our view once again. This is because we are viewing ourselves as we discover the universe because we are creating what there is to be discovered through the act of exploration in itself. We are the explorer, the explored, the creation and the discovery simultaneously.

Multiple Factions of Space-Fleets, Multiple Goals

Now there are what are called 'factions' of groups that have different agendas and interact with the public or surface level population differently. That is one of the main issues. These departments and factions are no longer limited to the surface level of existence and have access advanced technological capacity and knowledge of a larger view of time and a more complete understanding of consciousness and the human existence.

Large-Scale Catastrophes or Series of Meltdowns

I was informed that while they work continuously to prevent and reposition this civilization continually outside of the reach of any large scale meltdowns that the technology is commonly accepted to only be a temporary barrier between the inevitable.

Unsustainable

This society is unsustainable and must either change or will experience the massive catastrophic events that are foreseen.

There are multiple perspectives that are maintained. They vary by the way of the methodology of solving the problem. All agree that change must occur and is impossible to postpone forever. The future society is the result of our advancements and achievements. Regardless of how we get there, we must get there somehow.

Earth Changes

I was informed that these changes had been held off and would ultimately be allowed to take place to resolve the current situation. The changes can only be held off for so long, either that or the people performing this task would not be reasonably inclined to postpone these changes indefinitely.

The idea is to locate and secure the members of society who are fearless and capable of assisting in this transition and who hold key genetic elements as these individuals and groups are capable of 'holding-space' for the rest of civilization by literally containing the genetic precursors for all those other individuals.

I was informed that Earth changes would be the last event to take place, pretty much like icing on the cake.

This means there will be a lead up to these events.

Mass Consciousness

I was informed that the consciousness of humanity and every species is linked to the bio-etheric field of Earth. When the consciousness becomes too unstable to maintain a controlled society that this will initiate massive Earth changes. This could simply be instigated through advanced technology but I was informed that the advanced technology is

actually postponing this so as to allow people to prepare, to get the word out and avoid a complete loss of the human race.

Wars and Manipulation

Wars were described as a way the power groups had controlled humanity over long periods of time. These wars were used to distract and weaken the population and the power groups believed they were holding off a full scale invasion by suppressing the rising population.

Now the population is high enough that another war would be a final war and this is extremely dangerous for the entire civilization. There would be no need for another war to repeat this cycle because the technological achievements have been met and so essentially the 'resetting' of the civilization would not be required or possibly acceptable.

This is why war is to be avoided however people are very easy to manipulate through lower emotional and mental programming from media and social cues. People follow the herd and the herd is essentially still operating on animalistic parameters. There is a have coating of peace and humility but this is just a wax coating that quickly evaporates as soon as the pressure of mass unrest or scarcity is realized. Many simulators have explored these possibilities.

Financial Unrest (or reset)

The idea is that financial oppression is used before wars to distract and oppress the population. When people are busy looking for resources to survive, they are not focused on the larger picture. This is part of the 'fight or flight' response mechanism tied to lower brain complexes which are primarily activated to keep the masses in both a highly sensitive and unstable state of being while also keeping them easy to control.

If the civil unrest reaches a level where awareness continues to rise even though financial hardship is being implemented then the latter two options will not work. At that point artificial disasters can be produced as well as natural Earth changes which initiate a shift of the ages and of consciousness.

The paradox or maybe irony here is that the oppressive actions are used to both suppress human awareness up to a certain point and simultaneously to stimulate and arouse the human spirit into wakefulness and self-empowerment. This is part of the reasoning regarding why these control systems are allowed.

Some say the elite don't want an economic collapse. That it would ruin everything. Others say it would be icing on the cake. Some say that it is a zero-point world that will save us. That the Fukushima is a big problem. Zero-point field tech, that is. Generators and energy sources, healing and terraforming. I know we project right? We see it in our own lives. So we can project with each other and grow that as a group and that part of the world will exist in that light. Which sounds Biblical, which may be because they're following prophecy. But it may also mean that we have a light, a chance, a real salvation, but that we have to grow that here and help develop it. To pass it on like love and such.

That's apparently what it comes down to. That these cycles happen every so often and we're in the midst of one right now.

Let's make it count. Every day, thought moment. With mindfulness, intention and awareness in action. Life is literally higher dimensional, so we have to become multidimensional to really face it. Indeed, that is a good perspective on action and inner being. It's like a fractal, whatever we project inside that chest center, will project into our mind and the outside. But we have to be stabilized and grounded through the root first and then to get to the heart energy must pass through the sacral/sexual centers and continue upward.

Self-Responsibility

The main reasoning is self-responsibility. We are responsible for ourselves. The people are and so if they allow themselves to be tricked and prodded like animals while behaving for the part, then that is how their experience will play out.

Clones and Synthetics

One seemingly unfair aspect of this is that there is a larger portion of non-humans than there are humans and so these beings without the human spirit will be easily programmed to support and propagate the mind-control system and the oppression. Thus, if people follow the herd mentality then they will walk directly into the end-time scenarios yet it is the humans who will actually stand to lose. People must wake up to these tricks and this technology so that they can orient themselves with the reality of this situation while learning to strengthen themselves and adapt to the manipulative aspects of this control system.

Spiritual Power and Divine Truth

This is essentially all about spiritual power and humanity stepping into the power of the truth behind their existence.

Some say that humans are designed as slaves, but if this is so, then it is the power that humans contain within that is the 'work' that they are sought after for. This indicates that humans have great powers that others cannot achieve on their own, even if they are creator lords.

Thus, whether humans are modified or not, they have great power. If they are not modified to perform this role of an energy generator, then this is just a confusing mind-control game that has been pulled over the eyes of humanity and humans have always contained true internal spiritual power that allows them to exist without having to parasite and steal the energy and knowledge of others. Humans are reality generators, we can choose how we want to experience the universe and what kind of collective world we want to enjoy together. Once we step into this power, there is no greater force. No amount of non-human entities can change that as we are somehow intrinsically linked to the ether-space of this realm through the spiritual and physical aspects of our being. That is what is sought after and so those who do not have this manifestation power attempt to

utilize humans to create their own reality through this Earth situation. That is the basics of the 'alien overlord' system, whether humans in disguise, non-humans operating with alien intelligences, supercomputer systems, or spiritually degraded beings.

Most people are not ready to see themselves or the true nature of humanity. Reality is largely an illusion of the conscious mind. The hidden aspects are the other half of the equation and this is perceived by the shadow aspect of the personality and mind. We are only marginally aware unless that aspect has been unveiled and through this process the reality of the human soul can be actualized and realized.

I was informed there would be a period of two suns and multiple mirages around the world. People would believe they were peering into another dimension, floating cities, or some kind of city-ship craft.

Synthetic DNA, Synthetic Genetics

Through the previous described replicator devices synthetic DNA can be engineered. Thus, entire genetically engineered codons can be produced and from this created beings can arise. These are the hybrid beings that are performing many tasks underground and even on the surface. On the surface there are synthetic genetic create beings or genetically engineered beings that appear to be human but do not contain a human genome. There are also clones and replicants of humans. There are a variety of non-humanoid forms but these are largely kept underground. These are beings we often see in science fiction movies or shows.

Time as Mathematics, Series of Equations, a Programmable Storyline

When using the technology, time can be understood to be a series of programmable variables where one variable is centered within a series of parameters and from these possible variables within a parameter set a series of possible functions or outcomes can be process. Thus, these people can literally plug into a supercomputer system which operates based on this form of processing reality and through this they can observe all the possible realities that may connect to a present moment. This allows one to travel but this is not part of this section of the explanation.

What this allows one to do is know exactly what is going to happen and when. If a person is being interrogated, all that has to be done is the operative using the technology simply thinks of what they will say and intends to do it within 6 seconds. The machine will play out a future timescale regarding the input of that question or interrogative speech and then produce the possible results. If this doesn't give the desired readout in the mind of the operative, they will refuse to go that route and think of another pathway. This repeats for a few seconds to a few minutes. Then the computer has found the pathway that is most like to yield a result. The operative simply steps forward, says ten words, the subject breaks immediately and tells them everything they want to know. This is obviously takes longer for most trained individuals, however that is how easily it would be to use this technology to produce an effect on a regular surface level human. They would have

no defense, no way of knowing how that individual could know so much or be so direct. This is how operatives dealing with certain power groups will operate in the surface level population and individuals always feel that these people know way more than they are leading on. That is because they are, they know more about you and your life experience than you do.

Chapter 2.3 Previewing Solutions

Neutralizing Polarization

The mental-emotional tendency to pick sides, to fight, or to basically join in the fray that is currently taking place is a kind of deception of polarization which enables the leeching of emotional and mental energy from the human. This is more of a psychological unveiling where the true nature of the self, the duality game and the transcendent source aspects can be made visible to the individual. Then they will see how every polarization tactic is actually taking them out of their true source of power by pushing them off center emotionally and mentally. There are teams that are capable of enabling this process and assisting as humanity realizes that half of the problem is that the unchecked mind is one's own worst enemy.

Removing Etheric Implants

Technology can identify and isolate these foreign body implants which are etheric technological devices. These are literally frequency or phase-shifted devices which are invisible to this layer of physicality but are capable of being organized and attached to the etheric field of the human and will operate to siphon or limit energy on the etheric level. Of course, this is all technology of the vampiric created beings who parasite on the original Earth inhabitants to sustain their existence.

Clearing Astral Body

By moving through the temporal body etheric implants can be deactivated and removed and then the astral or emotional body will be able to function closer to the original levels of presence and sensitivity. This body is manipulated when one is emotionally shut down from trauma. Thus this body can be scarred and will function at a much lesser level of activity or presence until the emotional damage is healed. This contains the memories of all the emotional events of a person's life.

There is technology that enables one to access these levels of frequency and clarify or untangle emotional chords or attachments which are used to siphon energy from the human being to the parasitic created beings. These chords are energetic in nature but also have technological components.

Knowing the True Self; Soul Actualization, Unveiling

This is a sacred, ancient process that has been outlined and discussed since the beginning of time. Humanity is here to learn, grow and express the self. In doing so, like a child moving through layers of infancy and into full-wakefulness of their body and the physical world, humanity can come into awareness of their true spiritual nature and the true spiritual nature of the universe. This is the process of soul or self-actualization that is described in some psychological methods such as Maslow's hierarchy of needs and the self-actualization that results in a complete fulfillment of all psychological needs. In this modern psychological view, self-actualization is described as the desire and process of reaching fulfillment of one's own natures and then living their life sharing that self-empowerment with other beings because after gaining your self that is the highest expression of such knowledge, sharing that power with others.

The true self is not limited to the physical body, the true self is a reflection of the entire universe and thus the primary original creative force. This is akin to the whole equation rather than just half of the equation. The visible aspect of the self, the conscious mind, is only one half of the entire equation. The whole equation consists of what we see visibly and consciously as well as what we are limited from seeing within the unconscious and subconscious mind. These are really two layers of the same ultimate source. Like an iceberg which is only partially above water, the subconscious mind is the proprietary wholeness of experience. The conscious mind is only a surface layer of reality while the unconscious mind carries all the notions, the multidimensional processes, the latent aspects of reality that we are not capable of seeing without unveiling these aspects through inner exploration.

Taking Responsibility

This entire show is about taking self-responsibility. Unless people begin to do this, there will be no hope. Right now people are convinced that their responsibilities belong to someone else even though this always results in pain and discomfort. To take responsibility is painful at first because we have a lot of work to do, but even then, this is beneficial because there is no way to remedy the pain and discomfort of being lied to and disrespected if people continue to hand their free-will over to others through blame (scapegoating), lower emotional bio-emissions (hatred, anger, etc), distractions and addictions (technological, sensual, and chemical or food based), or generally complaining without taking the first step towards providing something beneficial. This is the victim role, if humanity is to take control then they to help each other and themselves by not relying on false promises and false authorities to determine how they feel, think and live.

Returning To Center Emotionally and Mentally (spiritually)

Balanced food intake, rest, exercise, activity and learning are all continual requirements for a healthy existence. Emotional and creative expression nurtures the soul. Without these ways of being and learning the human qualities of experience diminish and creativity dwindles. There is most likely going to be a split between those who can sustain their own humanity and those who have to cause others to suffer to do so.

Vampires in the “Awake” Community

Contrary to popular belief, the majority of the non-humans are not necessarily vampiric and in power. The vampires are the people online who try to get a rise out of others for sharing their own experiences. They are the nosy neighbor that feels that the person who looks or acts differently must be considered an enemy and armed against because they feel themselves to be so much better. The majority of people are vampires, they believe that they must work for someone who will trade them money and that the amount of money they have based upon the amount of indirectly beneficial work they do puts them above others.

This is not different in the ‘awake’ community and in fact I feel that there are higher concentrations of vampires in this community, the alternate media because everything is largely a joke and a trick. People are operating on deceptive agenda schemes to divide the people and this is most intensely noticed when there is a realization of the truth behind what is happening and people begin to point fingers. The only people who are cleared to point fingers (and who also will NEVER point any fingers) are the operatives from the secret projects that have the capacity to do so because they have reached a specific level of awakening and this is related to the droning, cloning, and hybridization process. Only a specific few know who has been transformed into an impostor being and who is remaining strong and this is due to being briefed on the surface level situation. Anyone can say what they want, they are simply playing into the tactics of mind-controllers and parasites and the more they play in the deeper the infection will grow. All the people pointing fingers now are actually implanted and vampiric and are attempting to drive a divide through humanity and they are the first who will turn on their friends and family when the going gets tough because they are more interested in others and starting drama than healing themselves. Ironically, this is all done under the guise of “healing” and “getting rid of the drama” AKA people they don’t trust. They pick and choose based on their own personal bias and this is a sure indication that they are emotionally and mentally out of alignment and are feeding deep seated personal fears from their own traumatic experiences.

These traumas must be healed and the harmonious center must be reattained where a person can focus on their own existence and waking up instead of acting as false-light, “king of tyranny” gatekeepers for others. Those individuals are going to be left behind if they cannot kick the habit because if they are allowed into any kind of healed society

they will quickly degrade into animals and attempt to restart a devolution process in order to gain the power they so desire but cannot produce on their own. ANYONE playing ego games of trying to hurt or put blame on ANYONE else contains this viral implant and has not kicked the virus.

Heart Center and Psycho-Spiritual Fulfillment (self-actualization)

Emotional connectivity is a form of telepathy, when loved ones can tell the state of another across space and time. Whether it is family or friend. In the 60's and a little before that the US found a specific frequency akin to a radio frequency that operates on a trinary spectrum. They called this the "telepathic wave". In time, they could completely read and send thought waves without frying the brain or body through radiation. Which was what the early machines did. They actually took satellite dishes and aimed them at people. Then realized they could turn it around and do it backwards with a better effect and minimal radiation. Either way they started beaming the base and then towns around them with waves between 400 and 432 MHz and caused waves of crime sprees or peace sprees throughout the 70's and 80's. So they can digitize the telepathic wave to induce artificial telepathy. But this is organically done through an entanglement through what we call love. Literally. The Germans found it before that. And the secret orders before them. And ancient Egypt before them. As humans we remain basically through the root, heart mind connection. When the heart overpowers the mind connection of spirit, then the body is a trinary whole. When the mind guides it is binary and cannot be guided by the spirit. The spirit has direct access to the heart. The mind is a computer of sorts. The mind doesn't see past duality. The heart is the true center/eye of the spirit. The reptilian brain is the dragon and when you tame the amygdala then fear is 'behind' you. When the mind is "untamed" the reptilian brain takes over. This is the lower brain and amygdala fight or flight response.

This happens when the energy of the brain, body and spirit increases due to whatever various reason of spontaneous or controlled increase. Because of the "temptations" which are the easiest flow of emotional energy into a "discharge" state, is that the sacral/sexual center ties to the heart and reroutes to replace the heart and control the mind. Mental and emotional contemplation of one's true purpose and nature is the path of the divine. We find ourselves simply by looking in the right place, not in the world, but in our self energetically. We are more powerful than the programming, and we can reverse this if we're careful and devoted enough.

We have to be faster than thought, at the speed of spirit, beyond matter. When we start thinking on this level then our influences spread to others throughout the sphere. It is our destiny to know these things but they have been kept from us. The ancient orders called this the art of "implosion". Traveling realities through intense contemplation and a usage of sacred geometrical forms.

They developed and combined orders around WW2 and developed zero-point energy tech that can alter space/time fields. This is timeline manipulation. But as a rule, we go where our heart leads us. So that's how this is solved.

Go Within to Observer the Self

The answer is literally by looking within to find the great truth rather than looking around us. Everything we need to know is within us, energetically and spiritually. Our emotional, mental and physical state of balance is an indication of where and how we exist in relation to the larger overall truth. Everything that happens around us to distract us is designed to stop us from looking within. Nothing can truly stop us, nothing can actually input the holographic horrors in our spiritual center but simply perturb the brain and body. The mind is a non-holographic spiritual environment that cannot be excessed and the invader's goal is to convince people to use their imagination or their creative powers to produce these horrors on their own. This is through the programming. We must clear out the programming, the trauma, the lower-dimensional constructs and fill ourselves with the truth and spiritual presence that enables us to be self-aware in the first place. If we aren't doing this, then we are either in pain, or there is no spiritual presence to be in pain. If we are doing this, we are either clearing out the constructs by replacing them with true spiritual presence and self-awareness or we are becoming aware of them.

Organic Feedback Loop

The great feat is mentally bridging the great rift between us by looking within. Which is paradoxical.

We can never see what another is perceiving exactly, well for the most part, so we all have to kind of accept that we are communicating effectively and truly get to this level of comfort by simply being secure in knowing who we are our selves.

Technological Feedback Loop

So then knowledge, in a way, when shared, is a form of telepathy. Group telepathy.

Group think, when ideas or memes spread, is a form of group telepathy.

The Internet is like artificial spreading of telepathy. This means what is normally mentally bound signals can be initiated and spread through a digital medium.

Breaking Soul-Contracts

Ultimately everyone is under a series of "veils" which are energetic time-constraints literally like 9 dimensional layers of temporal restriction which are each bounded and ruled over by invader beings. These range from physical authorities, to astral entities, to programmable matter, to supercomputer intelligences, to spiritual false-light beings and our own shadow mind. Each layer of reality is successively guarded by these beings who are here acting as gatekeepers designed to push people back when they begin to wake up. These beings all work through fear and deception and the last layer is based on mirroring our own energies back to us like an impostor. All the levels tend to imitate, how-

ever the last layer is a near perfect imitation of our own energy to the point where people often switch places with this being before getting out of the matrix. There will be more discussed on this in a later section.

The “9 veils” were designed by impostor beings as a last effort to stop humans from escaping the false-light matrix which is essentially the holographic universe. This is literally like a maze which reproduces a new pathway and a new doorway each time a person nears the last hallway or doorway that is next to the exit. So one eventually has to project themselves into the exit using their whole being and moving past and through the tricks by not falling for them before they are placed. This is highly confusing but this is essentially a kind of labyrinth that has been created to stop people from leaving so that their soul energy can be destroyed and used as a generator for the false-light system which is an AI over mind that is programmed to take the raw soul energy and destroy the identity by inverting the electromagnetic spectrum and incorporating that inverted energy into its own internal matrix body which is literally the false-light universe.

Help Everyone

Now they may have been setting us all up for the apocalypse. They said they want us to tell on them and get the whole world aware of what they've been doing So that we can stop them and pull them from the dark which is ACTUALLY taking their souls. There are also breakaway civilizations involved in this entirely zero-point/free-energy.

Chapter 2.4 How Timelines Collapse

Repeating Cycles of Time

Because of the way time works and the ability of those using these temporal devices they have set up an elaborate labyrinth like a spider web of false realities, timelines, parallels, sub-dimensional layers, astral cages, temporal dead-ends, and time loops which act to stop people from reaching the true reality. As a result, many portions of this timeline are literally in a free-will ‘time-loop’ and these loops must be canceled out. As well, because of the nature of these loops on the overall stream, our entire civilization has been looping for the past 6 time-cycles meaning we have reached this time in history 6 times before and this is apparently the last time because we have never gotten this far before and the events of the future are having to be programmed in manually at this point.

Beings From the Future

As a result and damaging time, what happens is that the beings from the possible future that is being damaged appear to try to heal the break as well as those who are from the new possible future that is generated, this results in a time war between both possible realities for the present realm. This is what has been happening for thousands of years. All the ancient spiritual texts are describing this system. One group is from an original possible future where everything is based on the presence of spirit and souled

humans, another is from the new possible future where an AI overlord took over and removed the souls and spiritual energy from all entities on Earth rendering this a holographic prison without any other use. That reality dissolves into itself and so the time beings are constantly moving backwards and jumping timelines to try and obtain more energy.

Beings From Collapsed Timelines

The beings from the collapsed timelines are those who travel through hyperspace to get here. They then recreate themselves using cloning technology through hyperspatial means, IE: creating an alternate temporal dimension so that these devices can sustain them and literally “hold-space” for them. Then if their timeline is destroyed, they can still exist as a ‘loose-end’ in space-time. This is extremely dangerous and I will say we have some Human operatives jumping timelines searching for Earth and Humanity so that they can find a reprieve from this time war.

That is the most trying aspect of this entire ordeal for me. There are some human operatives literally in hyperspace without an opening into the temporal stream for them to reintegrate into this timeline. We must assist them, we must open the timeline by taking control of Earth from the invader races and those who wish to depress and isolate the spirited and souled human beings. We must re-organized and neutralize the invasion forces of deception and assist our humanity and maintaining their free-will, their self-awareness, their self-empowerment and their emotional, mental, and physical harmony.

Beings Who Would Never Have Existed in the First Place

As a result of this entire process, there are essentially beings who have been erased from time who degrade in this dimension and can only interact periodically. These are the created beings who operate through supercomputer forms that are placed within cloned bodies and powered by the transdimensional quantum supercomputers. These are the ‘parallel’ reality beings and this relates to the hive mind invasion. When all the original aspects of time are restored, these beings would not have ever existed in the first place as there is no quantum link for their probabilities to remain neutral and present in the original run of things.

Again, all beings who operate under the will of the universe, even when they are attempting to trick hyperspace and time, when these beings assist and help in the unification of sentient, spirited, souled beings they are capable of being healed. This is all because there is an original creative force which can produce souls that are eternal and everlasting, meaning they are not created but simply always ever were. Yet, there is a “miracle” effect where beings can be given eternal life. This is only by reflecting the will of the whole of existence, rather than a portion or a part because this is only temporary. Only the whole is forever and this takes true harmony, true balance and ultimately *self-lessness*. To give to others because you see them as worthy because they can be aware and

enjoy the gift is to be like the creative force that gives life to all and enables all experience in the first place. By acting in correspondence with this we reflect the will of the whole and that power and action transfers into protection and self-empowerment for ourselves. This cannot be cheated, tricked, or rerouted as that is the karma game that has been played by delaying time and rerouting energy through getting others to take on the responsibility for others bad actions. In the end, all karma has only been delayed because when the stops are pulled out, *everyone* ends up getting their karmic returns regardless. They simply intended to build up so much karma that by the time the ties are cut, the karma overload will simply kill them instantly. This never happens and they end up in the abyss, this is the final time so since there is no recycling of the universe from the oroboros system then whatever happens is what happens forever. If everyone wants to move into harmony, to receive healing, to receive forgiveness then they must assist in the creative force in healing, forgiving, and turning away from the deception, the cruelty, the vampiric actions.

Many vampires believe they will die if they stop. The only hope is to admit their ways to the others and ensure that there are enough beings around them that will protect them so that this situation can be handled properly, with due care, compassion, and the necessary healing to ensure the safety and protection of all who seek harmony.